2020

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வருடாந்த அறிக்கை

ANNUAL REPORT

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நவீன தொழில்நுட்பவியலுக்கான ஆர்தர் சி. கிளார்க் நிறுவகம்.

Arthur C. Clarke Institute for Modern Technologies.

Arthur C Clarke Institute for Modern Technologies
Annual Report 2020

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Arthur C Clarke Institute for Modern Technologies
Katubedda,
Moratuwa.

State Minister of Ministry of Skills Development,
Vocational Education, Research & Innovation,
3rd Floor,
Sethsiripaya Stage I,
Battaramulla.

Hon. Minister,

Annual Report of the Arthur C Clarke Institute for Modern Technologies for the period from 1st January to 31st December 2020.

In terms of section 40 of part VII of the Science & Technology Development Act. No. 11 of 1994, amended by Act No.32 of 2013. I have honour to submit herewith the Annual Report of the Arthur C Clarke Institute for Modern Technologies for the year 2020 along with,

(a) A copy of the Audited Statement of Financial Performance

(b) A copy of the Audited Statement of Financial Position and

(c) Auditor General's Report and the Observations of the Institute on the same,

for being submitted for the approval of the Cabinet of Ministers.

Yours faithfully,

Director General & CEO
Arthur C Clarke Institute for Modern Technologies

1. General Information

1.1. Governing Legislation

The Arthur C Clarke Institute for Modern Technologies (ACCIMT) is a statutory corporation operating within the purview of the State Ministry of Skills Development, Vocational Education, Research & Innovation under Ministry of Higher Education, Technology & Innovation. The ACCIMT was established on April 1, 1998 by the Science and Technology Development Act. No. 11 of 1994 of the Parliament of Sri Lanka, as successor to the Arthur C Clarke Centre for Modern Technologies (ACCMT) established by the Act No. 30 of 1984.

The functions of the Arthur C Clarke Institute for Modern Technologies as specified in the Act are as follows:

(a) to accelerate the introduction of modern technologies to Sri Lanka by
   (i) initiating, promoting and conducting research and development in the application of modern technologies
   (ii) providing research and development support to the Government and private sector undertakings in the application of modern technologies and
   (iii) training of personnel in modern technologies to meet the needs of the Government and private sector undertakings and

(b) to promote future studies

The areas of modern technologies include Communication and related Sciences, Information Technology, Electronics, Micro-electronics, Space Technologies, Robotics, Photonics and New materials.

1.2. Vision

To be a leading innovation center for Modern Technologies in the region

1.3. Mission

To develop, foster and facilitate the domestic base of modern technological capabilities through innovation, R & D, training, industrial services and international collaboration

1.4. Governing Ministry

State Ministry of Skills Development, Vocational Education, Research & Innovation
Under Ministry of Higher Education, Technology & Innovation.

1.5. Members of the Board of Governors – 2020

1.	Prof. Sisil Kumarawadu	Chairman – Board of Governors
2.	Eng. Sanath Panawennage	Director General & CEO - Member, Board of Governors,
3.	Prof. K.P.S. Chandana Jayaratne	Member, Board of Governors
4.	Prof. K.K.C.K. Perera (upto August 2020) Prof. N.D. Gunawardhana	Member, Board of Governors
5.	Mr. Prof. A.K.W. Jayawardena	Member, Board of Governors
6.	Mr. Merrick Gooneratne	Member, Board of Governors
7.	Mr. Rajitha Dahanayake	Member, Board of Governors
8.	Mrs. Sushena Ranathunga	Member, Board of Governors
9.	Prof. S.A. Ariyadurai	Member, Board of Governors
10.	Ms. Udeni Udugahapattuwa	Member, Board of Governors

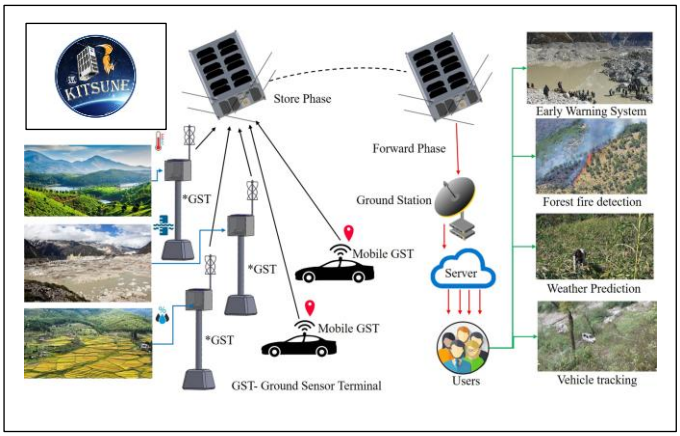
Board Meetings held for the year 2020

Meeting No.	Date of Meeting
2020/01	03/03/2020
2020/02	21/05/2020
2020/03	18/06/2020
2020/04	20/08/2020
2020/05	29/09/2020
2020/06	27/10/2020
2020/07	24/11/2020
2020/08	22/12/2020

2. Executive Summary

During the year 2020, the institute managed to achieve significant progress in research and development activities in the areas of specialization of the institute, amidst the general operational constraints brought about by the Covid-19 pandemic. The institute also managed to make a substantial contribution in terms of technological services such as test and measurement and instrument calibration services, and consultancy services.

As part of its role as the nationally mandated institution for space technology capacity development, the ACCIMT continued with the collaborative initiative that the institute commenced in late 2019 with the Kyushu Institute of Technology (Kyutech), Japan, by joining a five partite collaborative project to design, develop, test, launch and operate an advanced six-unit nano satellite (named KITSUNE), with two other Japanese industry corporations and Nanyang Technological University of Singapore as other collaborating partners. Apart from gaining a vital opportunity for developing the technological competences of ACCIMT's engineers in some of the critical aspects of nano-satellite technology (importantly with no expenses in financial terms towards the capital expenditure of the project, with the ACCIMT's contribution being limited to the services of its engineers), the ACCIMT will nevertheless have access to all of the facilities to be offered by the satellite, including its earth observation imagery (5m resolution), satellite-borne data acquisition/transmission links and the research data generated by the satellite, free of charge, once the satellite is operational.



Commencement of a project for design and development of an advanced electronics based personal safety product to help prevent crimes against women in outdoor environments in Scandinavian countries, as per a request received from a leading electronics manufacturer who supplies products and sub-assemblies to the export market, was another important product development activity initiated during the year. The product consists of three modules and the ACCIMT is to develop all the hardware including advanced electronic-based hand-held alarm unit and a waistband with a LED strip. The communication mechanism with the service providers, using smartphone, is handled by another party. Successful implementation of this collaborative project would mark an important milestone for Sri Lanka's electronic manufacturing and export industry which primarily relies on mass-scale assembly-line-fabrication of electronic circuitry using customer-specified designs and imported components, with little value addition in terms of technological knowledge based inputs.

Another important industry-initiated design and development project had been the development of a number of automated whether stations for climate monitoring, for the benefit of the tea plantation sector. This project was funded by Ethical Tea Partnership of UK and the main beneficiary was the Tea Research Institute of Sri Lanka.



Further the institute also undertook a number of deep diagnostic and advanced hardware recovery services on clients' requests and one such notable assignment was the recovery of faulty flight controller modules of K8 Training Aircrafts of Sri Lanka Ari Force. The faulty modules were successfully recovered using special test jigs developed by the ACCIMT.



Another such assignment was recovery of microprocessor-based sub systems of two more driver display modules of Class S9 Power coaches belonging to Sri Lanka Railways. Successful completion of these jobs saved foreign exchange by avoiding the opportunity cost of procuring those services from overseas suppliers at comparatively higher costs.

The key inhouse research design and development projects initiated or continued during the year under consideration include, Xilinx FPGA based Tea Colour Grading System, Design and Development of Drones for various operations such as waterproof Carbon Fiber Quad Copter, Glass Fiber and Tail-Sitter VTOL UAVs, Research on underground (mine) terrain mapping using track-driven rover, Low cost solution to improve predictive maintenance process of hi-tech systems, Temperature monitoring / controlling system for poly tunnels, and material development to reduce grounding resistance.

Information Technology division conducted a number of information system development projects in the year 2020 namely; Development of Mobile Apps for number for specific applications, Web interface development support for projects undertaken by the institute and Information system development and maintenance support for assignments carried out in-house and for external clientele.

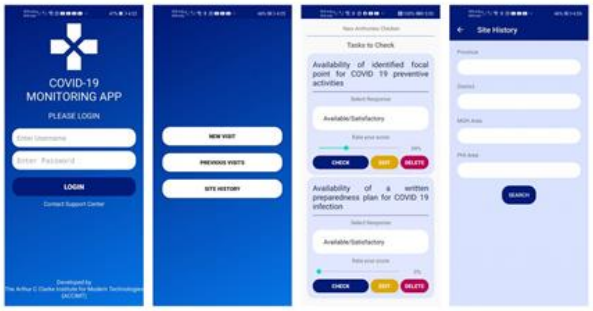


Astronomy division of the institute conducted four research projects namely, research on Cataclysmic Variable Stars (Collaborative project with Yunan Observatory China, on which a research publication was drafted and has been circulated for international co-others for review), design and construction of a Long Wave Antenna System for e-CALLISTO Network, Characterizing the possible interior structures of the nearby Exoplanets Proxima

Centauri b and Ross-128 b and Study the possibility of remotely control the 14-inch Meade telescope.

In addition, following research and development projects were undertaken in the area of space technology applications namely, Groundwater exploration using Remote Sensing and Geographic Information Systems in a semi-arid area of Mullaitivu, Assessing soil erosion rate based on Rusle model for sustainable land use management and Estimation of Mangrove above Ground Biomass using free SAR data.

During year 2020, the institute contributed in a number of ways for Covid 19 mitigation activities of the country. The most notable such activity would be the manufacture of chambers enabling safer extraction of biological samples from patients, for Covid 19 testing. Even though this was not an advanced technological product, this proved highly beneficial for the four hospitals for which the product was donated. Apart from that the institute has involved in developing two mobile apps for Covid 19 awareness facilitation and compliance monitoring on the request of health authorities. The institute also initialed a collaborative research and development project to develop a covid-19 testing system based on LAMP Assay technology, with University of Moratuwa as a collaborating partner.



Amidst the pandemic, the institute maintained a reasonably steady delivery of its services to industrial clientele to cope up with the demand for industrial services under trying conditions. The services that the institute offered include, electronic and electrical test and measurement equipment calibration, performance testing of various types of electronic equipment, accessories and modules, lead-acid batteries, and surge protective devices, and testing and measurement services for the communication and broadcasting sectors etc. The institute issued 122 performance test reports and 104 calibration reports during 2020. Further, a considerable number of consultancies and advanced hardware recovery assignments were also undertaken. In the area of lightning protection, the institute has successfully handled 20 technical consultancies ranging from site inspection, system design, preparation of tender documents and certification of the installations mainly for public sector clients.

The institute managed to achieve the above-described levels of performance amidst the hard conditions that prevailed due to the Pandemic, whilst, in the meantime, being continued to be affected by the regular constraints impeding the institutional performance; namely the difficulty in recruitment and retention of core-staff due to remuneration levels which are much below the market norms, predominantly procedural-compliance-oriented administrative regulation, and limitations in funding.

Eng. Sanath Panawennage

Director General /CEO
(Member, Board of Governors)

3. Divisions of the Institute

- Electronics & Micro Electronics
- Communications / Robotics
- Industrial Services
- Space Technology Applications / Space Technology /Astronomy
- Information Technology
- Administration, Finance and Human Resources

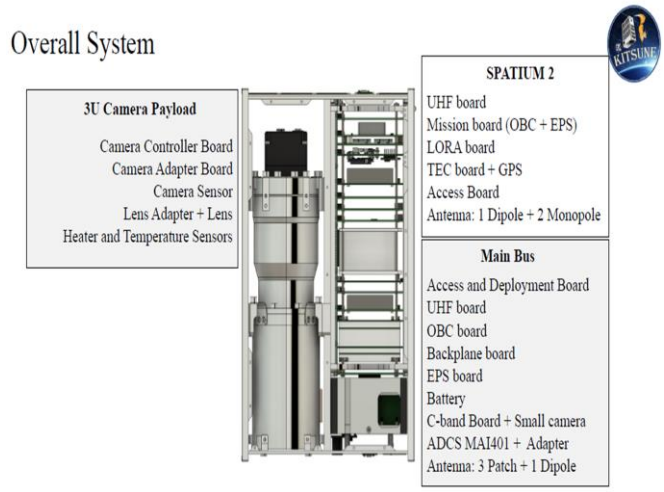
KITSUNE 6U Nano satellite

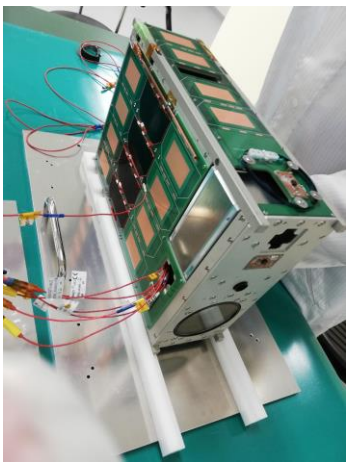
Being the nationally mandated institution for space technology capacity development, the ACCIMT continues its ongoing collaborative initiative with Kyushu Institute of Technology (Kyutech) by partnering in a programme to design, develop and operate a 6-unit Nano-satellite, KITSUNE. This nano-satellite consists with significant capabilities in remote sensing in addition to other onboard research payloads. The satellite was scheduled to be launched in December 2021, realizing a major milestone in Sri Lanka's efforts to acquire and develop its capabilities to build its own satellites. Further, ACCIMT, as a partner organization, and hence Sri Lanka, will have access to all the Earth Observation imagery and other research data generated by the satellite once in orbit, at free of cost.

KITSUNE satellite's five missions include, earth observation with 5m resolution, satellite based IOT, Ionosphere sensing, high speed communication and standardized Cube-Sat bus. Apart from Kyutech and ACCIMT, Nanyang Technological University (Singapore), Harada Seiki Inc and Addnics Inc. (two industry partners from Japan) are the collaborators for this project.

As a partner, ACCIMT will have access to 5m resolution satellite imagery which can be used for a wide range of remote sensing applications and "store & forward" payload which can be used for gathering of water level, weather or environmental data from remote locations (wild life sanctuaries, hydro power plant catchments etc.) or from mobile weather stations and transferring the related data to stakeholder's desired location via a satellite communication link. For the ground operation and communication separate GSTs (Ground Sensor Terminals) are to be operated in remote locations.

By the end of year 2020 the PDR (Preliminary Design Review) and CDR (Critical Design Review) of the satellite design, development, testing stages were completed and currently Flight model development is in progress.

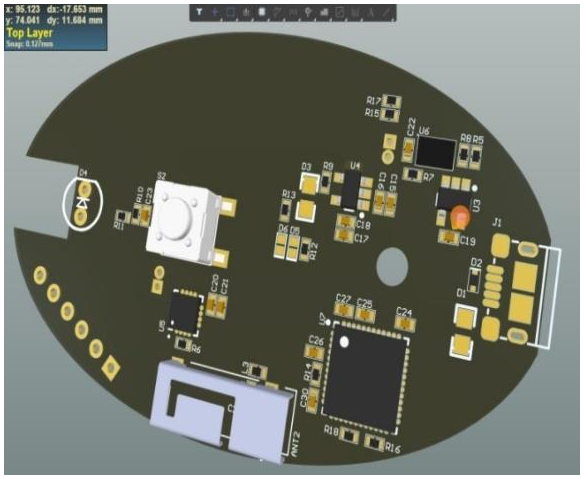


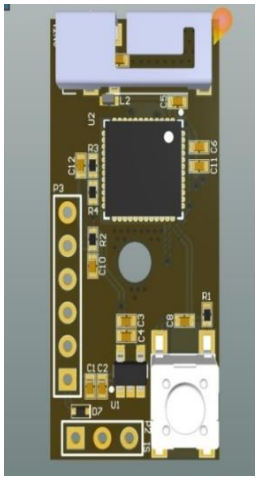


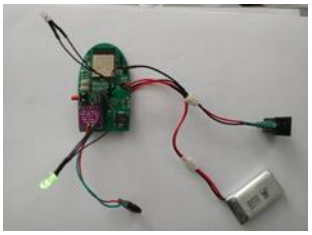
Personal security/alarm device against crime for European countries

Advanced electronics based personal safety product to help prevent crimes against women in outdoor environments in Scandinavian countries

This project is to design & develop a High-Tech, miniature and advanced electronic product to help prevent crimes against women in outdoor environments in Scandinavian countries. Our client is an export oriented electronic product / sub assembly manufacturer with a global clientele. The proposed product is especially targeting the European market. The total solution consists of three parts, namely waistband with a LED strip, hand-held alarm and a smartphone. Two parts of the product, waistband with a LED strip and hand-held alarm are to be designed & developed by the ACCIMT.







Flight Controller Firmware Recovery of K8 Training Aircrafts of Sri Lanka Air-force

The Chinese built K8 aircrafts which were used for fighter aircraft pilot training of SLAF diagnosed with faults in the Flight Controllers. On the request of SLAF the units were successfully recovered after developing special test jigs (to counter with the obstacle of the technology becoming obsolete) at ACCIMT. The test jigs were used to acquire the firmware from the available source and download the firmware to two faulty flight controllers of two aircrafts. The recovered firmware is available for future use in K8 aircrafts. Successful completion of this job provided financial gains to the country by refraining to procure the service from the supplier at comparatively higher cost.

Automated weather station for climate monitoring

ACCIMT was successful in designing, developing, installing and commissioning eight Automatic Weather Stations (AWS) as part of the pilot project, "Build Capacity and Technology Approaches to the Tea Plantation Sector Needs". Tea Research Institute of Sri Lanka was the beneficiary of the systems developed by ACCIMT, while funding support of Rs. 3 Million coming from Ethical Tea Partnership of UK.

The Goals of this project are to monitor, model and predict weather in the areas of tea plantations and to monitor the tea plant growth conditions against carbon gas, nitrous gas, soil moisture and soil temperature content.

Portable Monitor System

Features of ACCIMT developed AWS,

- Typical Automatic Weather Station only monitor
  - Rainfall, Air Temperature, Humidity, Wind direction and Wind speed

- Apart from the above parameters the ACCIMT developed AWS, additionally monitor following
  - UV level, Lux (light) level, Soil moisture, Soil temperature and Air ammonia level

- Further to that, the ACCIMT development consists of a special portable unit to analyze the gas content of
  - Carbon dioxide, NOx, NH3, Carbon Monoxide

Bogawantalawa Fettereso Tea Factory

TRI Tea Estate Kottawa Galle

Tea Research Institute Thalawakele

5.1 Industry-initiated Research & Development Activities in Engineering/IT

Deep diagnosis and advanced hardware recovery of microprocessor - based sub systems (Sri Lanka Railways -Class S9 Power Coach)

As part of an ongoing technology collaboration programme between the ACCIMT and SLR to provide ACCIMT expertise for application of reverse engineering techniques in recovering complex locomotive sub systems, during the year under consideration two Driver Display sub systems of Class S9 power coaches were successfully recovered, tested and verified.

Development of capacity tester for testing of batteries

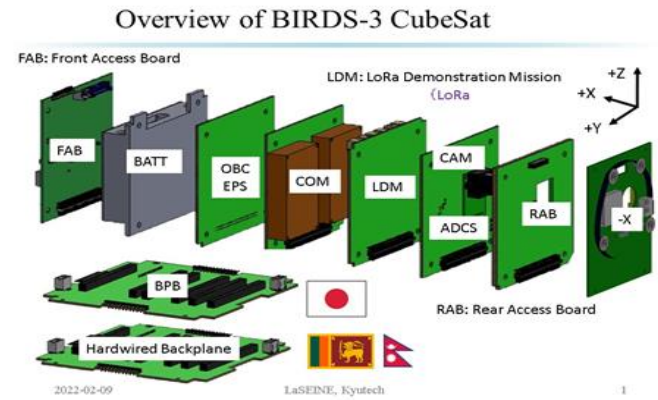
The project is to design & develop a Capacity Tester (C10 and C20) for Motorcycle and Automotive batteries as per the applicable SLS standard for a leading battery manufacturing and exporting company who is in the process of setting up a fully-fledged in-house test facility for testing of Motorcycle and Automotive batteries in Sri Lanka. The project commenced during the latter part of the year and the specifications of the tester was finalized.

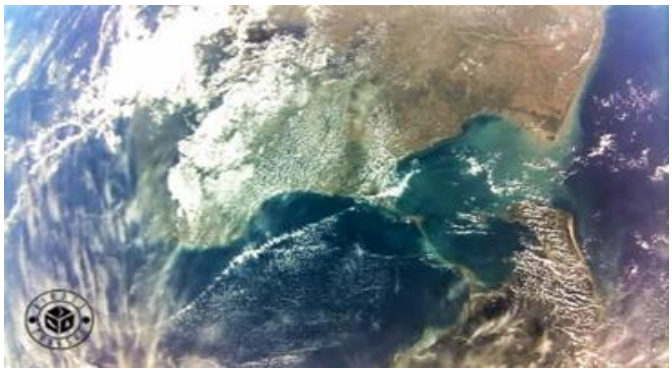
5.2 In-house Research and Development Projects in Engineering/IT

Nano satellite development and technology acquisition

The ACCIMT is the only mandated institute working in the unique field of Space Technologies (or Space Engineering) in Sri Lanka and the institute's involvement has been identified through policy documents in Science and Technology. The institute actively embarked into this field during the past three years and initiated several international collaborations including participating to United Nations space technology related activity sessions and basic capacity development programs for the engineers with the assistance from relevant agencies in Japan, India and Russia.

Raavana-1 has been a success story in the history of Sri Lanka through its continuous successful operation since its launch in June 2019.This project was instrumental in gaining know how by our engineers for future application development and collaborations with Kyushu Institute of Technology and JAXA of Japan for development of more advanced satellites. Raavana-1 is in successful operation for the second year in progress and enable downloading payload driven research data. Further camera images have frequently been downloaded by the ground station setup at the ACCIMT.





Xilinx FPGA based Tea Color Grading System

The proposed system is capable of processing low grown tea at the final stage of its production process. This import substitution attempt, upon completion will be tested at factory environment in near future. Currently the phase three of the system is completed and testing is carried out using actual tea samples at laboratory environment. This system incorporates a mechanical subsystem consisting bucket loader, vibrators (to evenly distribute tea particles), guides and collecting bins, and Xilinx FPGA based high speed image processing (camera based) particle ejecting mechanisms. Phase IV of the project has commenced and necessary component procurements are in progress.

The quality grading according to tea particle color and size in the final processing area of a tea factory involves higher investment to the factory owner due to the utilization of expensive intelligent machinery which at the moment to be imported from China, Japan, or Korea. This process has to be operated at high machine speeds with multiple machines for an average factory otherwise will be a bottleneck in the daily tea processing in factories in low grown and mid grown areas of tea in Sri Lanka. Developing such a machine in Sri Lanka is a challenging task that involves very sophisticated intelligence and speed capabilities in decision-making electronics to sort the tea particles having wider variations. But for the current and future requirements of the tea industry in Sri Lanka, it is a big opportunity when it comes to machine investments every ten years time and machine maintenance daily. ACCIMT after carrying out the necessary feasibility foot into this research and development task, started from scratch while gathering the technical competencies. During the process the task had to be varied going through several technology avenues with successes and failures in-camera selections, high-speed processor selections (FPGA families), mechanical system fabrications and modifications while testing samples. In 2020 Phase 4 of the project was started (it is the final phase) and commenced.

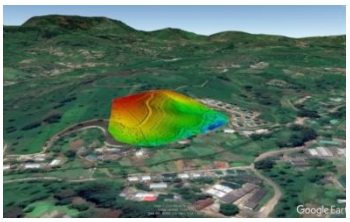
Deployment of ACCIMT Developed Drones for Specific Applications

After successful development of several moderate payload drones, further work has been carried out targeting more advanced applications. The developed systems were tested with RGB camera for surveillance and multispectral camera for vegetation identification. Also, the developed products were successfully tested in applications namely photogrammetry, digital elevation modeling, orthomosaic and 3D modeling of the terrain (flat land, tea estate, paddy land, wet lands).

ACCIMT had designed and developed several Drone models (including both multirotor and fixed-wing) for the hands-on capacity development of the engineers in the Aerospace laboratory, for application purposes requested by the industry, and for demonstrations to clients. The main applications are for surveillance and mapping. The payloads incorporated were RGB and Multispectral cameras. The systems were successfully tested in photogrammetry, vegetation identification, digital elevation modeling, ortho mosaic, and 3D modeling of the terrain. The Drone models were successfully deployed in the applications, pilot projects and demonstrations carried out during the year.

Application of water proof quad-copter (carbon fiber) developed by ACCIMT

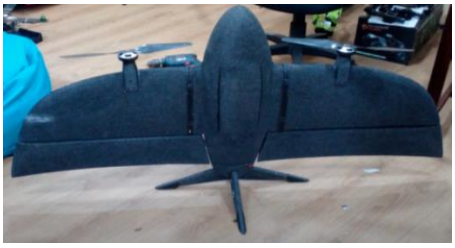
This drone designed; developed and tested in 2019, was successfully used during 2020 for industry driven applications in the tea plantation sector namely, tea land mapping (terrain, elevation, orthomosaic etc.) and identification of different vegetation level in the estates through airborne images acquired through multispectral camera payload. The targeted areas were Thalawakele (St. Coombs estates) and Kalawana (Ceycillian estates). The study results were presented to Tea Research Institute of Sri Lanka and to the industry towards inspiring the tea plantation industry sector to use precision agriculture techniques. The results or predictions of the study devised through images needs to be compared with to ground truth data and further research is to be carried out once the proposed MOU signed with TRI.



Testing of Glass Fiber VTOL and Tail sitter VTOL UAVs (EPP Foam)

The institute started to design and develop a Vertical Take Off and Landing (VTOL) UAV using two rotor motors. The proposed UAV has the advantages of multi-copter (takeoff and landing in small area) and coverage (fixed wing UAV) area increase. During the year under consideration, this technological innovation was completed as a sole design effort of the ACCIMT. Product testing was successful and stability improvements and transition (vertical to horizontal) algorithms were tuned.

Discussions are underway with Sri Lanka Navy to explore the possibility of using VTOL UAVs for costal surveillance. As a preliminary step to study viability of the project a demonstrable version was designed, developed and tested. A proposal was submitted to a funding agency to fund for training programs to be arranged for the SLNAVY using training drones developed by the ACCIMT.



Low Cost Solution to Improve Systems through Predictive Maintenance (PdM)

The objective of this project is to design a fault detecting system simulator to identify machinery faults prior to its occurrence using the concept of Predictive Maintenance. This task is to be achieved by periodic monitoring of prevailing condition of a machine.

Initial simulator design, Phase I of the project has been completed. This simulator has been designed using SOLIDWORKS software. With this simulator it is expected to create a database related to different faults, and to identify faults before each occurs inside the machinery system using the concept of Predictive Maintenance (PdM).

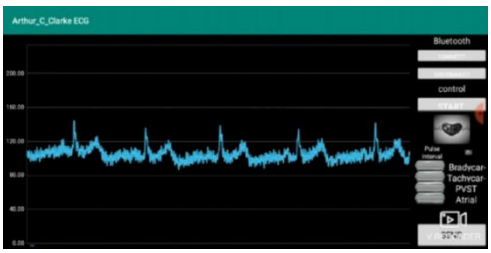
It is also expected to perform in-house capacity building and create supportive information database to commence consultancy work with the concept of Predictive Maintenance.

The objective of Phase II of the project is to achieve an understanding of different vibration signatures, through controlled experiments that emulates such occurrences in real world using developed fault simulator. This enables creation of a versatile database.

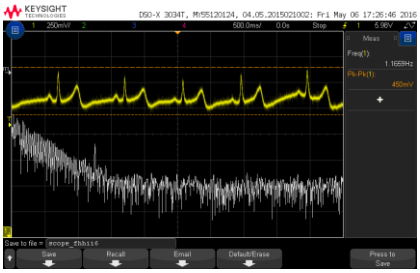
Both phases are used as supportive work to achieve the ultimate goal of establishing a Predictive Maintenance Center, where the main tool used is vibration analysis.

Design & Fabrication of a Smart Phone Based ECG Trace Analyzer

This project aims to design and develop a smart phone-based ECG trace analyzer, capable of acquisition, storing, sending and analyzing ECG data, which in turn helpful in developing a technical platform to empower the usage of telemedicine and bioinformatics related developments in Sri Lanka. Upon completion of preliminary study, laboratory tests are being carried out for prototypes developed and further to that an Android based mobile application has already been developed.



Mobile App Developed



Testing

Temperature Monitoring/Controlling System for Poly tunnel

The objective of this project is to develop and implement a modern, feasible and cost-effective technique to monitor and maintain steady temperature range inside a poly tunnel facilitating sustainable crop production in the regions susceptible for adverse climatic conditions.

A mushroom farm from Narammala has been identified as the pilot site for system implementation. Currently a temperature control system has been installed at the site and field testing is in progress.

Center for Lightning Protection

With the objectives of reducing lightning related damages and losses, standardizing protection and enhancing research and development in this area by forming a full-fledged center for lightning protection with the intention of promoting research & development, dissemination of knowledge, providing consultancy services and policy recommendations, the institute has already initiated several activities of the center and incrementally developing the activities. During the year several consultancy and testing services were provided to many government institutions such as Tourism Development Authority, Sri Lanka Police, hospitals, Special Task Force, disaster management centers and plantation sector spread to many districts in the island.



Information Systems Development Projects

The Information Technology Division of the institute has been developing information system solutions for public and the private sector organizations on various user-specific applications upon request.

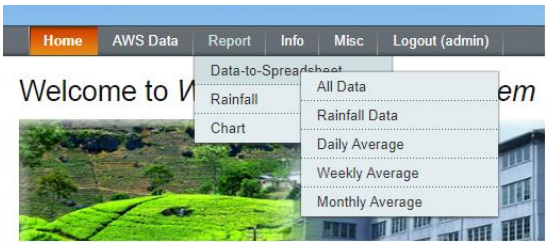
Development of IT Solutions

Development of Web-Interface for Automated weather station for climate monitoring

Development of a web based interface was undertaken by the IT division as a standalone module for “Automated weather station for climate monitoring” developed by the institute. This interface facilitates displaying of collected sensor data and its graphical representation, and download and analysis of raw data for research purposes. Further, this ACCIMT developed software module is capable of download, display and analyze selected data sets based on specific user requirements.

Graphical representation of data collected by

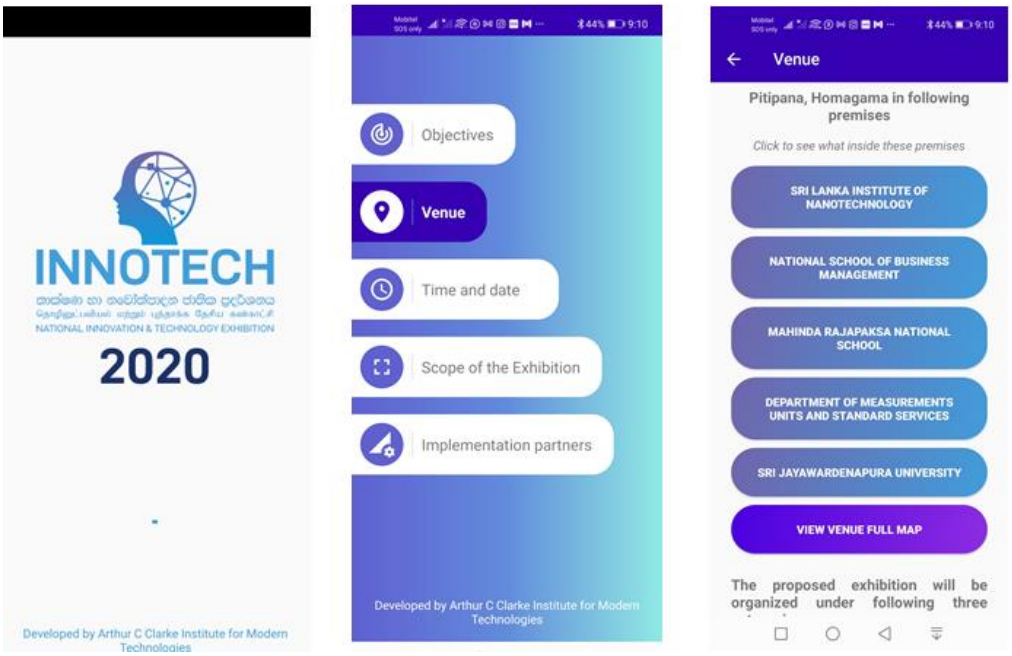
Automated Weather Stations



Interface developed for data downloading for further analysis or any other research purposes

Development of Mobile Apps

IT division developed two Mobile Apps during year 2020 in order to facilitate the activities of "INNOTECH 2020" exhibition and for "Covid-19 Compliance Monitoring". These mobile apps were included all specific features requested by the clients.



Mobile App developed for INNOTECH 2020 Exhibition

Contractual Services

Contractual maintenance of Databases and other Information Systems undertaken during 2020

- Accounts System – University of Moratuwa, University of Sri Jayewardenepura and Buddhist and Pali University
- Payroll System – Development Lotteries Board

In-house Software Developments

Following software modules were further developed and modified in year 2020 to enhance the efficiency of internal administrative processes.

- Procurement Management Module
- Calibration Management Module
- Project Registration Module
- Payroll Module
- Leave and Attendance Module
- Accounts Module
- Invoice Module

In addition to that, development of a new module was started for Action Plan Progress Monitoring. This new module will be completed in next year.

ACCIMT LAN, Web, and related Network Services

Institutional LAN was maintained for ensuring internet services for all employees and hosting Email server and web server of the Institute.

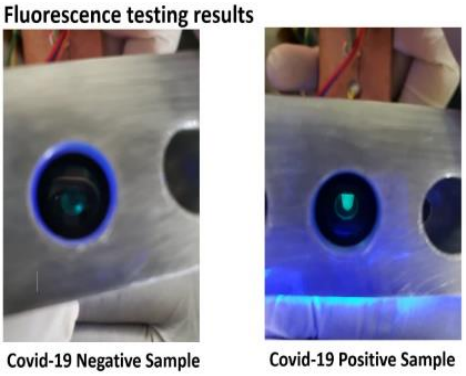
5.3 Covid-19 related developments

Development of Covid-19 diagnostic device based on LAMP Assay technology

The RT-qPCR-based method for diagnosing COVID-19 at the year 2020 (early stage of the covid outbreak) was time-consuming. It requires trained personnel and expensive materials and instruments to carry out a community-based screening and routine diagnosis in health care centers. Because of these limitations, the diagnostic assays are better performed in centralized labs equipped with all necessary facilities.

Due to the high cost of qPCR machines (approximately Rs.5 million), the majority of the laboratories, hospitals, and clinics cannot afford this diagnostic facility.

Therefore, the patients' samples are collected in different locations and sent to identified laboratories for testing: this causes a delay in the diagnosis process. Therefore, developing a point of care LAMP assay-based Covid 19 diagnostic device comprising the electronic instrument and the biochemical test kit, which can be used at the point of care to detect COVID-19 within a short period, at relatively low cost without involving highly trained-personnel can be of significant benefit.

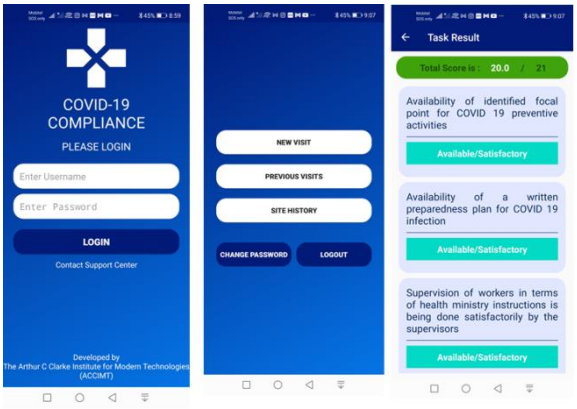


CSR work carried out to deliver six "Safe-Chambers for Extracting Biological Samples for Covid-19 Testing" to hospitals

This project was initiated to cater number of requests received from key hospitals involved in treating Covid 19 patients. Even though this product did not involve advanced technology, it helped the medical professionals immensely during the process of obtaining patient respiratory samples for testing. The ACCIMT developed first product, has been used at IDH since 7th of April 2020. Since then in total the ACCIMT has supplied 6 units to Sri Jayawardenapura, Mulleriyawa and Homagama hospitals the product has been found to be immensely useful for the purpose by the hospitals concerned.

Mobile App was developed for Covid-19 Compliance Monitoring System

The above Mobile App and relevant web interface facilitate health authorities to monitor external institutional compliance with Covid-19 health guidelines. The institutes such as factories, shops, service centers, super markets, etc. are registered with the system and relevant QR codes will be issued by health authorities. Their compliance with health guidelines are monitored and recorded online using the mobile app during site visits. The health authorities, namely, PHI, MOH and District Health Director can evaluate or compare the status of individual organizations, prepare reports and analyze situations with the help of data recorded and accordingly arrive at decisions.



5.4 Research Projects in Astronomy

Research on Cataclysmic Variable Stars - Collaboration Project with Yunan Observatory China

Cataclysmic variables (CVs) are interacting binary star systems, comprising a white dwarf that accreting matter from either a main-sequence or slightly evolved star. The objectives of this research are to study and investigate the evolutionary characteristics in various cataclysmic variable systems as there remain unsolved questions in orbital motion, the system orientation, mass transfer, angular moment loss, etc of these CV systems.

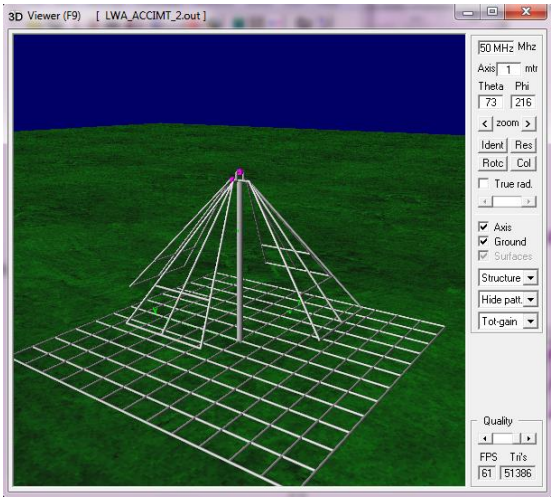
Acquisition of astronomical data and data reduction of were carried out for relatively under studied cataclysmic variable system Nova-Like V378 Pegasi. Photometry data analysis of v378 peg was analyzed and research paper was written under the title “Re-investigation of the periodic modulations in Cataclysmic Variable 'V378 Peg' using WASP data”. The research paper was submitted for the review of the international co-authors.

Design and Construct a Long Wave Antenna System for e-CALLISTO Network

The solar flares, energetic event on the active sun are yet vastly unknown physical process in solar astronomy. Earth directed solar flares are very harmful to the satellite systems and make atmospheric effects which are not favorable to the earth systems. The multi-wavelength study of solar flares should be carried out in long term basis for proper modeling of emission process of solar flares. The magnetic field measurements of solar flares are vital in flare emission modeling.

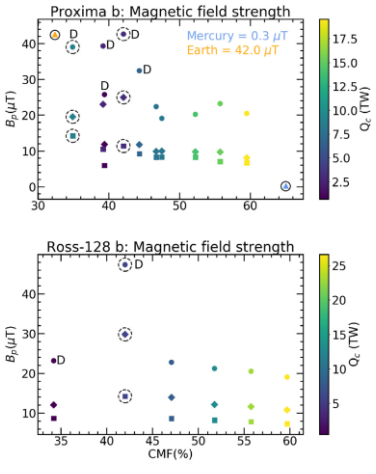
An observation system will be designed for the measurements of polarization of solar radio bursts and hence calculate magnetic fields.

A workshop was done with the participation of Dr. Christine Monstine, the principle investigator (PI) of the e-CALLISTO program to implement the Long Wave Antenna system for polarization measurements of solar flares. The Long Wave Antenna (LWA) was designed using 4NEC2 design software. The optimization of the antenna performance was carried out. The proposal of RF design and development forwarded to University of Peradeniya was accepted and the design phase was started. RF components and antenna construction materials was scheduled to be purchased. Due to the unavailability of funds the project is forwarded to year 2021.



Characterizing the possible interior structures of the nearby Exoplanets Proxima Centauri b and Ross-128 b

We developed a new numerical model to constrain the interior structure of rocky Exoplanets, and applied it to the nearby planets Proxima Centauri b and Ross-128 b. The recently measured elemental abundances of red dwarfs and Alpha Centauri were utilized to infer the bulk composition of each planet, and to measure their core mass fractions (CMFs).



The results of our model predicted that the radius of Proxima b at its minimum mass may be 1.036 ± 0.040 $R_\oplus$, and if its mass is as high as 2$M_\oplus$, 1.170 ± 0.040 $R_\oplus$. The radius of Ross-128 b at minimum mass may be 1.034 ± 0.040 $R_\oplus$, with

its radius at an upper bound mass of $2M_{\oplus}$ being $1.150 \pm 0.040\ R_{\oplus}$. Both planets may have thin mantles with similar conditions to Earth, but not convecting as vigorously. The CMFs might lie in the ranges of 20–59 per cent and 34–59 per cent for Proxima b and Ross-128 b, respectively, making it very likely they have massive iron cores. Their central temperatures may be high enough to partially melt the cores, and possibly generate magnetic fields. If they have magnetic fields at present, they are most likely to be multipolar in nature due to slow rotation speeds resulting from stellar tidal effects. The field strengths were predicted to have values of 0.06–0.23 G for Proxima b, and 0.07–0.14 G for Ross-128 b. If either planet contains more than 10 per cent of their mass in volatiles, magnetic fields would either be non-existent or very weak. The conditions of both planets may be hostile for habitability.

Study the possibility of remotely control the 14-inch Meade telescope

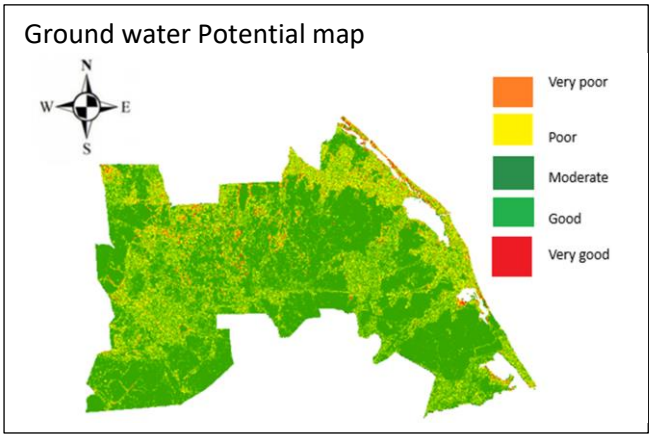
Studied the command set of the Meade telescope. Repaired 12" Meade telescope successfully. Installed ASCOM drivers and AudeLA software successfully. Initial tests carried out for controlling the telescope via internet were successful. Ordered CCD camera and other accessories required for the remote operation of the telescope.

5.5 Research Projects in Remote Sensing (RS) and Geographic Information Systems (GIS)

Groundwater exploration using Remote Sensing and Geographic Information Systems in a semi-arid area of Mullaitivu

The aim of this study was to demonstrate the potential of RS and GIS techniques for groundwater exploration in hard rock and soft rock (limestone) terrains through the modeling of groundwater indicators to find target areas for detailed investigations.

The first stage of research for gathering data necessitate topographic and geological maps respectively, with a scale of 1:50,000 and 1:250,000, Landsat TM data (bands 1 through 8). All the data were geometrically co-registered with topographic maps and geodetically transformed into the Transverse Mercator projection and the WGS84 datum.



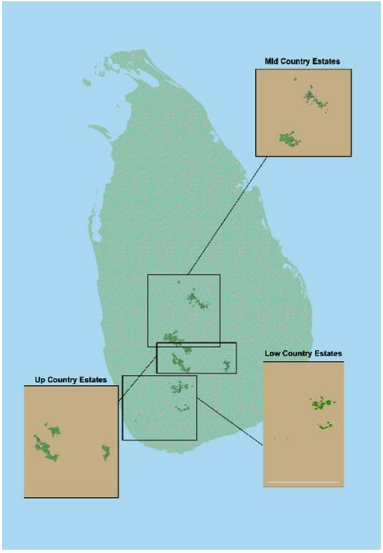
In the second phase, remote sensing techniques were used to extract some of the groundwater indicators such as lineaments, rock type, geological maps, slope maps, drainage density and green vegetation of dry season. These data were used as thematic layers to GIS modeling lineaments. The middle infrared band of Landsat ETM was selected for enhancement and extraction of lineaments.

The geomorphology, lineaments, LULC, slope, drainage density, soil and geology maps were converted into raster format. Analytic hierarchy process (AHP) was applied to weight, rank, and reclassify these maps in the ArcGIS environment and the groundwater prospect map had been prepared by overlaying the maps.

Assessing soil erosion rate based on Rusle model for sustainable land use management

The objectives of this project are to develop a methodology that combines remote sensing data and GIS with Revised Universal Soil Loss Equation (RUSLE) to estimate spatial distribution of soil erosion, assess quantitatively and spatially amount of annual soil loss using RUSLE combining with GIS and RS and compute soil erosion probability zone and priority area.

The data and information are sourced from five key Sri Lankan institutions: Sri Lanka Tea Board, Tea Small Holdings Development Authority, Sri Lankan Tea Research Institute, Department of Meteorology Sri Lanka and Arthur C Clarke Institute for Modern Technology (ACCIMT).



During the first stage, the hardcopies of sixty (60) tea estates in up country, low country and mid country were digitized and converted into vector format. As the second part, monthly rainfall data which was published by the Department of Meteorology, DEM which has been used for further raster calculation process, spatial distribution of the soil types by the Department of Survey, Sri Lanka and attribute of the soil types by the Soil Science Society of Sri Lanka, Landsat images for land use and land cover information and NDVI (Normalized Different Vegetation Index) were used as inputs for soil erosion model.

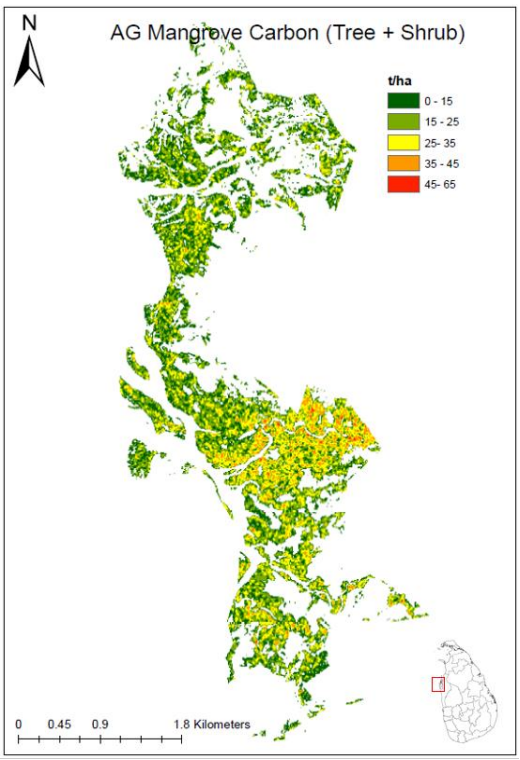
ArcGIS software used to convert these maps into numeric values. Soil loss was estimated by using raster analysis. For the estimation and mapping of the spatial distribution of soil loss in the study area, all parameters (maps) having the same projection system (World Geodetic System 1984 / Universal Transverse Mercator 44N) and spatial resolution of the data was set at 30 m × 30 m cell. As output of this work, identified soil erosion probability zone and priority area and estimated the annual soil loss of the study area using RUSLE.

Estimation of Mangrove above Ground Biomass using free SAR data

Forest Cover is a critical ecosystem component. Therefore, requirement exists for a robust, user friendly method to monitor Forest condition frequently for better management. Forest Height is an important indicator to determine health of forest. Mangrove ecosystems in Sri - Lanka are under the threat of degradation and the forest department have taken their attention on restoration of mangrove species in coastal sites. Biomass is the total amount of living mass and it helps to calculate the carbon stock of the tree. Forest Biomass can be estimated using this forest height.

Sentinel 1 is only operational free SAR sensor and using SAR interferometry valuable 3D information on landscape can be derived. Because of the low penetration ability of the C band, the derived Digital elevation models show the heights of the standing objects on the earth surface.

Scientists have taken this advantage to derive the key forestry attribute, a Forest stand height and introduced new models.



However, the estimation of forest stand height, only using free SAR sensors is still a challenge in hilly and heavy dense forests. But the new models are still developing.

The objectives of this project is to carry out the Mangrove Above Ground Biomass (AGB) estimation using derived stand height using SAR data, accuracy assessment between the field collected and derived data and to establish the relationship between field collected mangrove biomass data, and free SAR sensor parameters (Sentinel 1) and validation of the new model.

Field collected mangrove biomass data was arranged. Downloaded satellite data was preprocessed. SAR parameter generation completed. A relationship between field collected data and derived satellite-based parameters were modeled. Sample Mangrove Biomass maps were generated.

Establishment of a National Hub for Receiving and Distribution of Earth Observation Satellite Data

With a view to making available Earth Observation (Remote Sensing) Satellite data to different organizations and thereby promote effective use of remote-sensed data for the development of the country ACCIMT submitted a Project proposal to the Sri Lankan

Government in 2013. It was approved by the National Planning Department in 2014 and was recommended for foreign collaboration. RADI (The Institute of Remote Sensing and Digital Earth) in China agreed to collaborate with ACCIMT in this project. It was agreed on a MOU between two institutions that RADI provide technical instruments, installation and training, satellite data from Chinese GF-series satellites covering Sri Lanka and its Exclusive Economical Zone (EEZ) and data from any other satellites downloadable through the proposed Ground Station, on request and ACCIMT perform the routine operations of the satellite ground station. Once realized, Sri Lanka will receive high resolution satellite images especially from Chinese satellites.

Technical feasibility studies were carried out for the 12-acre site called “Thalagalawatta" for the Satellite Ground station. Antenna construction was started by the Chinese counterpart.

5.6 Research Publications

I. Follow-up Ground-based Observations of the Dwarf Nova KZ Gem
Zhibin Dai, Paula Szkody , John R. Thorstensen , and N. Indika Medagangoda; The Astrophysical Journal, 893:58 (17pp), 2020 April 10

II. Characterizing the possible interior structures of the nearby Exoplanets Proxima Centauri b and Ross-128 b
Mahesh Herath, Saraj Gunesekera and Chandana Jayaratne; MNRAS 00, 1 (2020) Advance Access publication 2020 October 15

III. Investigate the Sensitivity of the Satellite based Agricultural Drought Indices to Monitor the Drought Condition of Paddy and Introduction to Enhanced Multi-temporal Drought Indices
Jayawardhana WGNN, Chathurange VMI; Journal of Remote Sensing and GIS, Volume 9, Issue 2 (2020)

5.7 Test and Measurements, Hardware Recovery and Consultancy Services

Test and Measurement Services of Power Electronics Measurement Laboratory- Electronics and Microelectronics Division

During the year, the division issued 122 performance test reports mainly for testing of Batteries, Surge Protective Devices (SPDs), Plugs, Socket outlets, Switches and Inverters. Further division carried out safety testing and power quality measurement of electrical/ electronic products apart from the power

quality measurements undertaken at customer locations. Key customers include, Douglas and Sons (Pvt) Ltd., Kevilton Electrical Products (Pvt) Ltd., C.E.L.Lanka (Pvt.) Ltd, Sri Lanka Standards Institution and ACL Electric (Pvt.) Ltd.

Troubleshooting/Repair Services and Consultancy Assignments Carried Out by Electronics and Microelectronics Division

During the year under review 23 consultancy and hardware recovery assignments were undertaken by the Electronics and Microelectronics division.

Key hardware recovery and consultancy assignments undertaken include;

- Repairing of industrial oven for SLSI
- Issuing technical reports for PLC's for SD&CC

Warranty Maintenance and Contractual Services

05 numbers of Enhanced True RMS Voltage Recorders units and 01 number of Remote Voltage Data Logger unit designed and developed for Public Utilities Commission of Sri Lanka were maintained for successful operation during the year under review.

Test and Measurements and Consultancy Services by Communication Division

Consultancy assignments to the industry, conformity testing of coaxial cables, network cables, antennas and RF equipment for the specifications / functionality and test and measurement services in the Radio Frequency applications were covered as activities under this category.

Consultancy assignments were carried out to following companies

- Brandix Pvt. Ltd.
- University of Sabaragamuwa

Network and Coaxial cable testing (Specification/Certification)

Cable testing and certification work was undertaken for Cable Solutions Pvt. Ltd.

Test and Measurement Services

Radio frequency measurement related on specific requirements was undertaken for Police Communication Unit.

Instrument Calibration / Performance test services offered by the Calibration Laboratory - Industrial Services Division

Instrument calibration service mainly for Electronics and Electrical test instruments were performed during the year and 104 calibration reports were issued for various types of test instruments based on industrial requests. The instruments that were calibrated include Digital / Analogue Multimeters, Oscilloscopes, Scopemeters, AC/DC Clamp meters, High voltage testers, Hipot testers, Process meters, Power & Harmonic Analyzers, Watt meters, Volt meters, Portable Appliance testers, Insulation continuity testers, Earth testers, RCCB testers and Multifunction Testers.

Our key customers were LTL Transformers, Kohoku Lanka, Sri Lanka Air Force, Waga Calibration Services, Elevators (Pvt) Ltd, Professional MET Consultancy, Venora International, David Pieris Motor Company, Balfour Beatty, Pubudu Engineering (Pvt) Ltd, Richardson Projects (Pvt) Ltd, Electro Metal Pressing (Pvt) Ltd etc.

Light Measurement Service offered by the LMS Laboratory - Industrial Services Division

Light measurement service to test LED and DC lamps were carried out and nine test reports were issued with the collaboration of SLSI. Our key customers were Ming Industries (Pvt) Ltd, Riselko Marketing, Sugath Electrical and Signify Lanka (Pvt) Ltd.

Improvements to Power Electronics Measurement Laboratory

Pendulum impact test apparatus was procured to determine the impact resistance of materials of plugs, sockets, switches, RCCBs, RCBOs, MCBs and other relevant accessories.

6. Training Education and Information Dissemination

6.1 Continuing Professional Development (CPD) Programmers for Professionals

Programmable Logic Controller

Programmable Logic Controller, a five-day CPD Course on S7-1200 & S7 -200 PLCs was conducted for 31 technical personals consisting engineers, technical officers and undergraduate students. The participants were given theoretical and practical knowledge on Programming PLCs and HMI devices used in Industrial automation.

Modern Electronic Test & Measuring Instruments with Digital Emphasis

One CPD course was conducted for 29 technical personals and the participants were given the knowledge and practical experience on usage, applications, advantages and limitations of modern electronics test and measuring instruments such as Oscilloscope, Spectrum analyzer, Logic analyzer, Transmission measurements, Earthing & Bonding, Calibration of instruments and Trouble shooting and maintenance of test & measuring instruments.

Intermediate Workshop on Robotics

A 3-day training program was conducted for 8 participants (Vidatha Scientific Officers) sent from the Ministry of Science, Technology and Research to expose them to basic theory and practical on the Robotics applications with hands on knowledge on using robotic kits.

CCTV Security Systems (ELV) configuration, installation and maintenance

One CPD programme (30 hours on weekend) conducted for 25 participants mainly from the Ministry of Science, Technology and Research (Vidatha Scientific Officers). The participants were given exposure on designing their own CCTV system developments, configuration using readily available components in the market. Main focus was to give the participants the theory, practical hands-on exposure on individual components and to carry out their own industry projects on return.

6.2 Basic and Intermediate Level Technical Training

Practical Electronic Course

A weekend training program (duration of 24 days) was scheduled and started to all sectors of community interested in learning electronics starting from basics. The numbers of participants attended were 60. The areas covered during the program include analog electronics, digital electronics, basic instruments and microcontrollers with hands on practical. Due to the pandemic (Covid-19), the program had to be halted and will be recommenced in 2021.

6.3 Science & Technology Popularization and Information Dissemination Astronomy and Space Science Popularization Programs

Water rocket educational workshop & the - Water Rocket competition, Poster competition

With a view to popularizing space science among school children ACCIMT conduct annual water rocket and poster competition. Annual water rocket workshop and competition organized by the ACCIMT were cancelled due to the Covid -19 pandemic situation and no international water rocket competition was held for this year as decided by the APRSAF. An educational video regarding the success of water rocket activities in Sri Lanka was prepared for the Space Education Center of JAXA according to their request. Digital Posters were called for the APRSAF poster competition which will be held in October.

World Asteroid Day Program

Scientists around the world have already taken some initiatives to discover, monitor and track the Near Earth Asteroids. Having identified the importance of this issue and to obtain the support of governments for these programs and to educate the public on this UN has declared 30th of June as World Asteroid Day in commemoration of the asteroid detonated in the air above Tunguska in Siberia on 30th June 1908 . To mark this event, annually, awareness programs are organized all over the world and Arthur C Clarke Institute for Modern Technologies (ACCIMT) in Sri Lanka will also be participating in this event. A webinar was organized on the topic Small Bodies of the Solar System: Influencing Life and Death on Earth" and the talk was given by Dr. Nalin Samarasinha, Senior Scientist, Planetary Science Institute, Arizona, USA . 136 participants were registered at this webinar.

Observation on partial Solar Eclipse 2020

Conducted the observation session at the Annular solar eclipse on 21st June 2020. A live webcast was made available on the ACCIMT website.

Workshop on introduction to Practical Astronomy

Due to the Covid Virus pandemic situation this was abandoned. Instead, an Astronomy webinar was conducted with the participation of more than 400 participants from 24th -27th August 2020.

Educational visits to ACCIMT facilities

About 500 school children and persons from Sri Lanka Forces participated in the lectures and demonstrations of telescope facility at ACCIMT

Exhibitions

Because of prevailing Covid 19 situation of the county, the ACCIMT participated only for INNO TECH 2020 exhibition organized by the Ministry of Education held at NSBM Green University Premises Pitipana, Homagama.

6.4 ACCIMT Library

ACCIMT Library consists a fair collection of books, periodicals and other educational materials in the fields of Communications, Information Technology, Electronics, Photonics, Robotics and Space Technology.

The key function of the ACCIMT library is to facilitate and provide access to necessary technical knowledge and information to professionals and personnel engaged in Research and Development projects, undergraduates, postgraduates, other students, etc.

Library Collection

The Library has a fair collection of very expensive specialized reports and publications with frequent updates obtained from reliable and independent organizations both in and out of the country. The Library consist of handbooks, data libraries, user surveys, product guidelines, application notes, design-oriented text books, state-of-art reviews, encyclopedias, dictionaries, VHS, VCDs, DVDs, CD-ROM data bases, standards etc. Also, the periodical section consists specific magazines dedicated to Communication, Information Technology, Space Technologies and Electronics.

Total collection:

Books	- 9115
CD-ROMs	- 745
Video Tapes	- 368
Audio Tapes	- 94
VCDs	- 130
DVDs	- 87

Services

(a) Lending & Reference Facilities: ACCIMT staff and trainees

(b) Reference Facilities: Visiting lectures and instructors, undergraduate and postgraduate students engage in projects, ACCIMT conducted Continuing Professional Development (CPD) course participants, and Personal and Institutional membership holders.

(c) Reader Services: Photocopying, Scanning facility, Internet facility, Electronic Library facility, Inter library loans, Current Awareness Services, Information and document supply service, and Online catalogue.

(d) Service to Community: Membership offers for professionals employed in the public and private sector organizations, Information & document supply service for professional scholars (a. Industrialists. b. University academics & researchers. c. General public with a special interest.), supply of display items for exhibitions and astronomy promoting programs.

Open Public Access Catalogue (OPAC) via Internet (http://www.accimt.ac.lk).

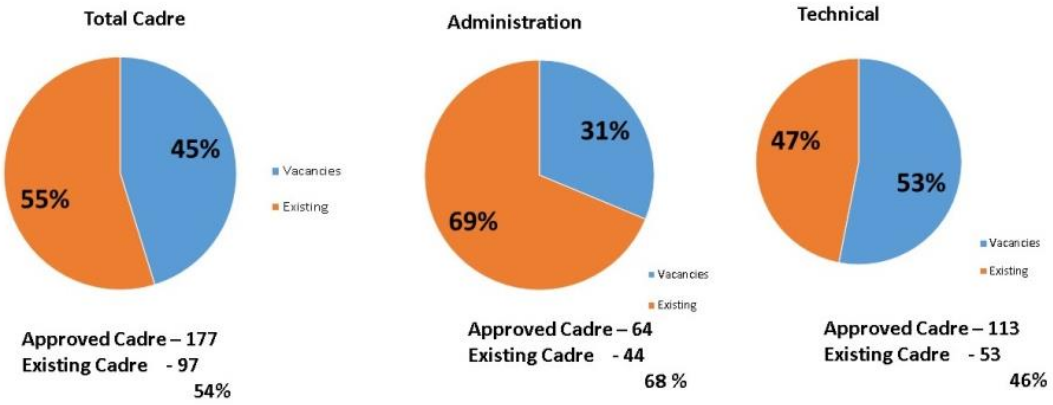
Information about the collection can be accessed through the ACCIMT Library on-line catalogue via the ACCIMT website (www.accimt.ac.lk). Further onsite computer facilities are also provided for users to search and access the library collection via our LAN. The user can search for materials by Author, Title or Key words.)

7. Human Resources Development

ACCIMT Library You Tube Channel

The ACCIMT Library offers Students and Researchers a selection of online resources via the Library's You Tube Channel. Prevailing number of Cadre positions approved by the Department of Management Services for the ACCIMT at have been 177, consisting 51 designations under 15 salary categories. Out of that by the end of year 2020, 97 positions were filled and 80 positions were remained vacant. Majority of vacancies are in technical fields where prospective employee requires basic qualifications such as an Engineering degree or equivalent professional qualifications.

More specifically out of 80 of vacant positions, majority belong to Higher Management category of Technical (HM) and Academic Research (AR) cadre. Other vacant positions were Non-Technical cadre which to be filled as and when required after recruiting Higher Management Technical and the Academic Research cadre.
During the year under consideration 4 no's of employees resigned, including Senior Deputy Director (Finance), a Research Engineer and 02 Engineering Assistants.



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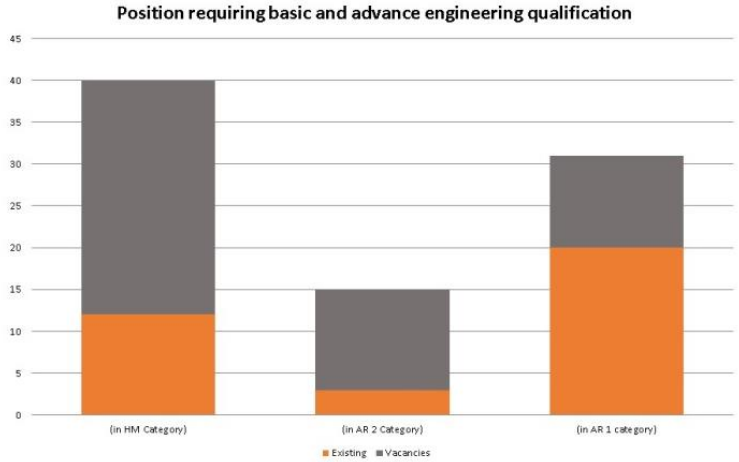

8. Financial Statements for Year 2020

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
STATEMENT OF FINANCIAL PERFORMANCE FOR THE YEAR ENDED 31ST DECEMBER, 2020.

	NOTES	2020 Rs.	2019 Rs.
REVENUE			
Government grant	(01)	196,079,400.75	225,363,000.33
Other income	(02)	12,809,243.10	19,406,503.55
Total revenue		208,888,643.85	244,769,503.88
EXPENSES			
Personal emoluments	(03)	118,641,811.23	117,512,650.34
Travelling expenses	(04)	126,444.42	2,047,656.05
Supplies and requisites	(05)	1,079,006.37	2,737,039.61
Repairs and maintenance	(06)	44,867,309.76	46,480,410.29
Utility and other services	(07)	24,261,382.72	22,589,968.60
Project expenses	(08)	3,950,270.61	4,103,123.21
Research and development expenses	(09)	11,881,688.22	41,168,653.88
Other operating expenses	(10)	165,438.37	1,677,273.76
TOTAL EXPENSES		204,973,351.70	238,316,775.74
NET SURPLUS/(DEFICIT) FOR THE PERIOD		3,915,292.15	6,452,728.14
Income & Expenditure Appropriation Account for the Year Ended 31.12.2020			
Net surplus/(deficit) for the period		3,915,292.15	6,452,728.14
Transfer of surplus out of generated funds from PC A/C		(1,405,548.84)	(2,995,507.71)
NET PROFIT FOR THE YEAR		2,509,743.31	3,457,220.43

The significant accounting policies and notes from pages 5 to 12 form an integral part of these financial statements.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
STATEMENT OF FINANCIAL POSITION AS AT 31ST DECEMBER, 2020.

	NOTES	2020 Rs.	2019 Rs.
ASSETS			
Current assets			
Cash and cash equivalents	(11)	15,845,888.28	4,469,861.83
Short term investment	(12)	66,062,878.08	59,449,756.88
Trade and other receivables	(13)	34,644,499.35	33,505,185.16
Inventories	(14)	9,948,346.01	10,126,765.43
Prepayment	(15)	2,299,501.86	3,898,608.66
		128,801,113.58	111,450,177.96
Non-current assets			
Staff loan	(13.3)	10,578,037.00	12,253,758.00
Property, plant and equipment	(16)	251,368,693.41	281,364,859.80
Work in progress (construction)	(17)	3,656,008.40	3,656,008.40
		265,602,738.81	297,274,626.20
Total assets		394,403,852.39	408,724,804.16
EQUITY AND LIABILITIES			
Current liabilities			
Trade and other payables	(18)	3,502,147.05	13,661,342.83
Accrued expenses	(19)	7,527,825.82	7,047,856.37
		11,029,972.87	20,709,199.20
Non-current liabilities			
Differed income		11,206,591.00	4,599,397.58
Retirement benefit obligation	(20)	49,678,539.54	43,072,003.78
		60,885,130.54	47,671,401.36
Capital and reserves			
Capital contributed by government	(21)	366,957,831.68	388,510,683.32
Reserves	(22)	79,777,333.09	78,431,514.32
Accumulated deficit	(23)	(124,246,415.78)	(126,597,994.03)
		322,488,748.99	340,344,203.61
Total equity and liabilities		394,403,852.39	408,724,804.16
		0.00	(0.00)

I certify that the financial statements comply with the requirements of the Sri Lanka Public Sector Accounting Standards (SLPSAS)

The Board of Directors is responsible for the preparation and presentation of these financial statements.

Signed for and on behalf of The Board by:

Chairman **Director General / CEO** **Acting Senior Deputy Director (Finance)**

February 28, 2020

The significant accounting policies and notes from pages 5 to 12 form an integral part of these financial statements.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES

STATEMENT OF CASH FLOWS FOR THE YEAR ENDED 31ST DECEMBER, 2020

Cash Flows From Operating Activities	**2020**	**2019**
	Rs.	**Rs.**
Surplus/(deficit) for the period	2,509,743.31	3,457,220.43
Non-cash movements		
Depreciation	39,109,712.53	37,923,346.25
Amortization	(39,109,712.53)	(37,923,346.25)
Provision for Bad Debts	4,261,052.81	2,832,683.23
Provision for Defined Benefit Plans	7,079,173.26	7,604,484.80
Accumulated profit Adjustments	(344,575.45)	4,052,235.23
Interest Income - Fixed Deposits	(280,841.62)	(527,430.74)
Interest Income - Treasury Bills	(734,201.74)	(908,281.09)
Government Grant - Capital Grant	(11,869,688.22)	(41,164,653.88)
Operating Profit/(Loss) before Working Capital Changes	**620,662.35**	**(24,653,742.02)**
(Increase)/ Decrease in Trade and Other Receivables	(5,400,367.00)	23,363,887.36
Decrease / (Increase) in Inventories	178,419.42	(1,375,355.99)
(Increase)/ Decrease in Prepayment	1,599,106.80	2,929,334.10
Increase/ (Decrease) in Payables	(10,159,195.78)	(1,377,096.21)
Increase/ (Decrease) in Accrued Expenses	479,969.45	(653,227.64)
Cash Generated from Operations	**(12,681,404.76)**	**(1,766,200.40)**
Defined Benefit Plan Costs paid	(472,637.50)	(1,284,221.00)
Interest Income Received - Fixed Deposits	280,841.62	527,430.74
Interest Income Received - Treasury Bills	734,201.74	908,281.09
Profit/Loss on Disposal of Assets	(43,533.84)	
Deferred Revenue	6,607,193.42	1,894,027.00
Net Cash From/(Used in) Operating Activities	**7,106,065.44**	**2,045,517.83**
Cash Flows from / (Used in) Investing Activities		
Acquisition of Property, Plant & Equipment	(8,626,964.80)	(35,814,840.00)
Short Term Investments	(6,613,121.20)	(12,978,325.73)
Movement Staff Loans	1,675,721.00	(4,321,431.00)
Interest and other		
Interest and Other Received		
Proceeds from disposal of property, plant and equipment	52,912.00	-
Movement Capital Work in Progress	-	8,088,239.73
Net Cash Flows from/(Used in) Investing Activities	**(13,511,453.00)**	**(45,026,357.00)**
Cash Flows from (Used in) Financing Activities		
Proceeds From Capital Grant	29,117,000.00	57,000,000.00
Proceeds From Capital Ministry Grant	-	13,156,751.40
Capital Grant Utilization	-	(37,489,528.52)
Movement Reserves	1,345,818.77	2,448,673.67
Net Cash Flows from/(Used in) Financing Activities	**30,462,818.77**	**35,115,896.55**
Net Increase/(Decrease) in Cash and Cash Equivalents	**11,376,026.45**	**(9,631,143.02)**
Cash and Cash Equivalents at the beginning of the year	4,469,861.83	14,101,004.85
Cash and Cash Equivalents at the end of the year	**15,845,888.28**	**4,469,861.83**

Notes to the financial statements continued on page 13.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020.

General Policies

Reporting Entity

Arthur C Clarke Institute for Modern Technologies (hereafter referred to as the "Institute") was incorporated by the Science and Technology Development Act No.11 of 1994, and is situated at Bandaranayake Mawatha, Katubedda, Moratuwa.

Principal Activities and Nature of Operations

The Principal activities of the Institute are:

a. To accelerate the introduction of modern technologies to Sri Lanka by

(i) Initiating, promoting and conducting research and development in the application of modern technologies.

(ii) Providing research and development support to the government and private sector undertakings in the application of modern technologies, and

(iii) Training of personnel in modern technologies to meet the needs of the government and private sector undertakings, and

b. To promote future studies

The areas of modern technologies include communication and related sciences, information and technology, electronics, telecommunications, micro electronics, space technologies, robotics, photonics and new materials.

The number of employees

The number of permanent employees as at the end of the reporting period was 97.

Basis of preparation

a) Statement of compliance

The financial statements comprise the Statement of financial Position, Statement of Financial Performance, Statement of Changes in Net Assets/Equity, Cash Flow Statement and notes to the financial statements. These statements have been prepared in accordance with the Sri Lanka Public Sector Accounting Standards (SLPSAS) issued by the Institute of Chartered Accountants of Sri Lanka.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

b) Basis of measurement

The financial statements have been prepared on historical cost basis except where the appropriate disclosures are made with regard to fair value under the relevant notes.

c) Comparative Information

Comparative information including quantitative, narrative and descriptive is disclosed in respect of the previous period for all amounts reported in the financial statements in order to enhance the understanding of the financial statements of the current period and to improve inter-period comparability.

The accounting policies set out below have been applied consistently to all periods presented in these financial statements, unless otherwise indicated.

d) Functional and presentation currency

The financial statements are presented in Sri Lankan Rupees, (LKR) which is the functional and presentation currency of the institute.
All financial information presented in Sri Lankan Rupees has been rounded to the nearest thousand, unless stated otherwise.

e) Use of estimates and Judgements

The preparation and presentation of financial statements in conformity with SLPSAS requires management to make judgments, estimates and assumptions that effect the application of accounting policies and reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates and judgments used.

Estimates and underlying assumptions are reviewed on an on-going basis. Revisions to accounting estimates are recognized in the period in which the estimates is revised if the revision effect only that period or in the period of the revision and future periods if the revision effect both current and future periods.

Information about significant areas of estimates, uncertainty and critical judgments in applying accounting policies that have the most significant effects on the amounts recognized in the financial statements is included in the notes to the financial statements.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

Assets and the bases of their valuation

Property, plant and equipment

a) **Recognition and measurement**

Items of property, plant and equipment are stated at cost or at fair value less accumulated depreciation.

All items of property, plant and equipment are initially recorded at cost less accumulated depreciation. Significant components of an asset are identified and depreciated separately. When significant parts of property, plant and equipment are required to be replaced at intervals, the entity derecognizes the replaced part, and recognizes the new part with its associated useful life and depreciation. All other repair and maintenance costs are recognized in the income statement as incurred.

b) **Cost**

The cost of property, plant and equipment is the cost of acquisition or construction together with any incidental expenses thereon.
The cost of property, plant and equipment comprises its purchase price and any directly attributable cost of bringing the asset to working condition for its intended use.

Subsequent expenditure incurred for the purpose of acquiring, extending or improving assets of a permanent nature in order to carry on or increase the earning capacity of the assets has been treated as capital expenditure.

Expenditure incurred to replace a component of an item of property, plant and equipment that is accounted for separately, including major inspection overhaul expenditure, is capitalized. Other subsequent expenditure is capitalized only if it is probable that the future economic benefits embodied within the part will flow to the institute and its cost can be measured reliably.

The land value is not stated in the financial statements since land is a property of Ministry of Higher Education and transferred to Ministry of Science and Technology to carry out the activities of the Institute. If Institute operations will not be continued the land should be handed over to the University of Moratuwa as per the MOU signed between University of Moratuwa and the Institute.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

c) Depreciation

Depreciation is not charged on freehold land and construction in progress. Depreciation is charged on all other Property, Plant & Equipment on the straight-line basis over the estimated useful lives by equal installments as follows.

Asset Category	% per Annum
Building	5
Computers & Peripherals	20
Satellite Antenna, Lab Equipment	10
Office Equipment, Furniture & Fittings	10
Motor Vehicles	20
Library Books	15

Depreciation of an asset acquired begins when it is available for use whereas depreciation of an asset ceases at the earlier of the date that the asset is classified as held for sale and the date that the asset is derecognized.

Inventories

Inventories consist of Stationery Stock Items, Electronic Components, Accessories and Tools etc. Inventories are stated at the lower of cost and net realizable value. Net realizable value is the estimated selling price in the ordinary course of business less the estimated cost of completion and selling expenses.

Trade and Other Receivables

Trade receivables are stated at the amounts they are estimated to realize net of allowances for bad and doubtful receivables.

Other receivables and dues from Related Parties are recognized at cost less allowances for bad and doubtful receivables.

General Bad Debt Provision is determined as follows:

Overdue Period	Provision Required
1 – 2 years	50%
2 – 3 years	75%
More than 3 years	100%

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

Investments

Funds are invested only in government securities and fixed deposits in state owned banks. Investments are made after considering the higher yield on investment, liquidity and interest rate risk for reinvestment. All new investment and reinvestment decisions require the approval of the board of governance.

Cash and Cash Equivalents

Cash and cash equivalents are cash in hand, demand deposits and short-term highly liquid investments, readily convertible to known amounts of cash and subject to insignificant risk of changes in value.

For the purpose of cash flow statement, cash and cash equivalents consist of cash in hand and deposits in banks net of outstanding bank overdrafts. Investments with short maturities i.e. three months or less from the date of acquisition are also treated as cash equivalents.

Liabilities and provisions

Liabilities classified as current liabilities on the Statement of Financial Position are those which fall due for payment on demand or within one year from the reporting date. Non-current liabilities are those balances that fall due for payment after one year from the reporting date.

All known liabilities have been accounted for in preparing these financial statements. Provisions and liabilities are recognized when the Institute has a legal or constructive obligation as a result of a past event and it is probable that an outflow of economic benefits will be required to settle the obligation.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

Employee Benefits

a) **Defined Benefit Plans**

Gratuity is a defined benefit plan. In order to meet this liability, a provision is carried forward in the statement of Financial Position. The provision is calculated based on a formula method considering the future salary increment rates, discount rates and the expected staff turnover rate The resulting difference between the brought forward provision at the beginning of the year and the carried forward provision at the end of the year is dealt within the statement of comprehensive income. However, as per the payment of Gratuity Act No. 12 of 1983, Gratuity liability is not externally funded. This liability is grouped under non- current liabilities is the statement of Financial Position.

b) Employees' Provident Fund

Employees are eligible for employees provident fund contribution in line with respective statutes and regulations. The institute and employees contribute 15% and 10% respectively. The institute contribution recognized as an expense in the statement of comprehensive income as incurred.

c) Employees' Trust Fund

Employees are eligible for employees provident fund contribution in line with respective statutes and regulations. The institute contributes 3% of gross emoluments of the employee to employee trust fund. These are recognized as an expense in the statement of comprehensive income as incurred.

Trade and other payables

Trade and other payables are stated at cost.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

Taxation

The Institute is exempt from Income Tax under Section 7 (b) (ii) of the Inland Revenue Act. No. 10 of 2006.

Capital commitments and contingent liabilities

Contingent liabilities are possible obligations whose existence will be confirmed only by uncertain future events or present obligations where the transfer of economic benefits is not probable or cannot be reliably measured. Capital commitments and contingent liabilities of the Institute are disclosed in the respective notes to the financial statements.

Accounting for Grants

Grants that compensate the Institute for expenses incurred are recognized as revenue in the Statement of Financial Performance in the same period in which the expenses are recognized. Grants that compensate the Institute for the cost of an asset are recognized in the income statement on a systematic basis over the useful life of the related asset.

Grants related to specific projects

Where grants/donations are received for use in an identified project or activity, such funds are held in a restricted fund account and transferred to the statement of financial performance, income to match with expenses incurred in respect of that identified project. Unutilized funds are held in their respective fund accounts and included under accumulated fund and reserves in the statement of financial position until such time as they are required

Revenue Recognition

Revenue is recognized to the extent that it is probable that the economic benefits will flow to Institute and that it can be reliably measured.

a) Course fees from students are recognized as revenue on accrual basis.
b) Project income, consultancy income are recognized as revenue on accrual basis
c) Interest income is recognized on accrual basis.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

Revenue Recognition (Continued)

d) Grants related income is recognized when control of the contribution or right to receive the contribution is confirmed.

e) Other income is recognized on accrual basis.

Disbursement of surplus income of projects

The surplus of income on projects undertaken over and above of the normal quantum of activities in the annual action plan has been disbursed in accordance with the Public Finance Circular No.380 applicable for universities and research institutions.

Expenditure

a) Expenses are recognized in the Statement of Financial Performance on the basis of direct association between the cost incurred and the earning of specific items of income. All expenditure incurred in the running of the Institute and in maintaining the capital assets in a state of efficiency has been charged against revenue in arriving at the surplus for the year.

b) Expenditure on courses, projects, consultancy works and other activities are recognized in the Statement of Financial Performance on accrual basis.

Cash Flow Statement

The cash flow statements have been prepared by using the indirect method of preparing of cash flows in accordance with SLPSAS 2.

Events after the reporting date

The materiality of events occurring after the reporting date has been considered and appropriate adjustments, wherever necessary, have been made in the accounts.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

(11) CASH AND CASH EQUIVALENTS	2020 Rs.	2019 Rs.
Current accounts	-	-
Bank of Ceylon		
- A/c No 7054733	8,223,710.30	1,802,236.87
- A/c No 307144	5,595,971.23	771,449.51
- A/c No 307399 (Directors Fund)	1,866.46	26,221.76
- A/c No2479737 (Revolving Fund)	1,186,597.28	1,036,674.63
Peoples Bank		
- A/c No 313-1-001-9-0012847	678,804.83	678,804.83
Commercial Bank of Ceylon PLC		
-A/c No 1114029211	26,500.00	26,500.00
Savings account	-	-
Bank of Ceylon		
-A/c No 326764 (FINDS)	125,220.94	120,722.36
-A/c No 328391 (NASDA)	7,217.24	7,251.87
Cash and cash equivalents for the purpose of statement of cash flows.	15,845,888.28	4,469,861.83

(12) INVESTMENTS		
Invest. of surplus funds in Treas.Bills - Projects/Courses Fund	10,657,579.96	9,858,380.48
Invest. of surplus funds in Treas.Bills - Directors Fund	-	-
Invest. of surplus funds in Treas.Bills - Revolving Fund	2,126,143.60	1,988,143.00
Invest. of surplus funds in Treas.Bills - FINDS Grant	8,094,664.27	7,488,123.00
Fixed Deposit 01(76387182)-Revo.Fund	713,626.60	674,617.11
Fixed Deposit 02(76387290)-Revo.Fund	713,626.60	674,617.11
Fixed Deposit 03(76387299)-Revo.Fund	713,626.60	674,617.11
Fixed Deposit 04(76387310)-Revo.Fund	713,626.60	674,617.11
Fixed Deposit 05(76387322)-Revo.Fund	713,626.60	674,617.11
Fixed Deposit 06(76387328)-Revo.Fund	713,626.60	674,617.11
Fixed Deposit 07(76387343)-Revo.Fund	713,626.60	674,617.11
Fixed Deposit 25(81820199)-Dir.Fund	30,765.11	27,997.84
Fixed Deposit 08(81819773) -Proj.Fund	6,702,446.48	6,099,573.04
Fixed Deposit 09(81819900) - Proj Fund(6 Month)	659,715.39	608,732.25
Fixed Deposit 10(81819988) - Proj.Fund (6 month)	659,715.39	608,732.25
Fixed Deposit 11(81820008) Proj.Fund(6 Month)	659,715.39	608,732.25
Fixed Deposit 12(81820127) - Proj. Fund(6 Month)	659,715.39	608,732.25
Fixed Deposit 13(81820031) - Proj.Fund (3 Month)	648,142.78	603,742.61
Fixed Deposit 14(81820049) - Proj.Fund (3 Month)	648,142.78	603,742.61
Fixed Deposit 15(81820073) - Proj.Fund(1 Month)	604,358.72	570,940.50
Fixed Deposit 16 (81820087) Revo. Fund(1 month)	604,358.72	570,940.50
Fixed Deposit 17 (81820099) - Revol Fund(1 Month)	604,358.72	570,940.50
Fixed Deposit 18 (81820155) - Revol Fund(1 Month)	607,703.48	574,100.30
Fixed Deposit 19 (81820136) - Revol Fund(1 Month)	604,358.72	570,940.50
Fixed Deposit 20 (81820174) - Revol Fund(1 Month)	604,358.72	570,940.50
Fixed Deposit 21 (81820186) - Revol Fund(1 Month)	604,358.72	570,940.50
c/f	40,775,988.54	37,826,694.65

Notes to the financial statements continued on page 14.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

		2020 Rs.	2019 Rs.
(12) INVESTMENTS (CONTINUED)			
b/f		40,775,988.54	37,826,694.65
Fixed Deposit 22 (81820244) - Revol Fund(1 Month)		604,358.72	570,940.50
Fixed Deposit 23 (81820190) - Revol Fund(6 Month)		659,715.39	608,732.25
Fixed Deposit 24 (81820194) - Revol Fund(6 Month)		527,772.32	486,985.81
Fixed deposit 26(81820180) - Proj Fund(1 Month)		604,358.73	570,940.51
Fixed Deposit -83214406 (DF)		1,551,319.99	1,412,127.55
Fixed Deposit 27(83203809)Revo Fund		904,888.73	823,697.44
Fund Management A/c(82097803)		20,434,475.66	17,149,638.17
		66,062,878.08	59,449,756.88
(13) TRADE AND OTHER RECEIVABLES			
Staff Debtor - TG	**(Schedule 02)**	302.00	302.00
Insurance Corporation Debtor		9,700.00	9,700.00
Accounts Receivable - TG	**(Schedule 02)**	3,233,880.52	3,242,860.47
Accounts Receivable - P/C	**(Schedule 02)**	4,474,141.66	3,929,130.24
Debtor - Mr P T Fernando		4,000.00	4,000.00
Accounts Receivable PF	**(Schedule 02)**	397,655.20	567,314.14
Accounts Receivable RF	**(Schedule 02)**	38,382.83	63,345.72
Accounts Receivable - FINDS	**(Schedule 02)**	56,718.31	88,315.08
Debtor - T N Wickramasinghe			1,350.00
Debtor - Mr.Jayathu Fernando		106,894.72	106,894.72
Debtor - Mr B R P Perera		39,699.66	39,699.66
Debtor - P P K Rodrigo		15,652.69	15,652.69
Debtor - Depart. Of Building		144,563.64	144,563.64
Other Deposits		155,315.00	155,315.00
R.S.Debtor		14,434.91	14,434.91
Elections Dept		8,159.60	8,159.60
Ministry Debtor - Dish TV Package		33,381.50	33,381.50
Festival Advance	**(Schedule 03)**	570,000.00	53,750.00
Advances to Public Officers		7,600.00	-
PC Control		(5,120,536.07)	(7,187,936.94)
Debtor-L V Wijesinghe		627.00	627.00
Debtor - P D T De silva		9,711.80	9,711.80
		4,200,284.97	1,300,571.23

Notes to the financial statements continued on page 15.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

	2020 Rs.	2019 Rs.
(13.1) Work in progress - Projects		
WIP - UAVAGR	828,187.91	622,206.71
WIP - EXOAID Project(Com Div)	-	183,180.30
WIP - UGVMED	102,200.00	102,200.00
WIP UAVTOL	-	223,341.20
WIP - ADCTSU Project	-	3,765,313.90
WIP - ADCS Project	-	4,190,464.38
WIP - CNCEDU Project		452,007.50
WIP - UAVGCS Project	678,815.47	-
2012/2013/SS/CCTV/NWSDB	4,222,053.46	4,220,713.46
PEC 27 - 2020	245,336.50	
ACCR Project 2020 - ISD	41,925.00	
Teleshop Project	1,468.00	
SCADA Project	900.00	
TEATEP Proj 2020	2,376,851.58	
RAWLM Project 2019/COM	268,752.60	
AWSETP 2020	526,699.80	
National Hub Project (SAD)	219,879.04	219,879.04
Nano Sattelite Programme SAD (CAPITAL)	4,489,814.04	4,158,688.49
Alarm wear Project 2020	95,840.95	-
Establishing a Center for Lightning Protection(ECLP)	52,013.51	51,838.51
ECS 28		311,926.01
SOILRE project(Elec Div)	4,250.00	4,250.00
Vidatha Programme 2019		27,161.00
RVDL Warrenty Maintainance Proj (Elec)		10,567.91
IRR Matara Project (Com Div)	297,858.96	206,470.96
Ligtning Protection System	67,458.45	33,362.45
Cultiv.Paddy area ident.& Yield Prediction(SAD)2019	4,475.00	4,475.00
BLBTEA Project 2019 (SAD)		18,150.00
PDM Project 2019	9,150.34	2,280.00
Fault simulator for predictive mainta(Elec)19EL017		177,906.30
PT POC Project (Elec)	217,140.31	17,577.31
Solar Eclips 2019(SAD)		44,209.00
Tea Quality Grading & Colour Seperating System Project	11,247,497.23	10,247,497.23
Callisto Radio Spectrometer Project	50,186.50	48,025.00

Notes to the financial statements continued on page 16.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

Automated Irrigation Project(Elec Div)		14,884.27
Agriculture Drought Moni System(STA)		750.00
Spectral Data Collection at Thalawakale(SAD)		19,070.00
Capacity Building Program-STD		98,168.61
Automated Irrigation System (ELE)	22,107.72	5,425.05
ECGTA Project (Elec Div)	109,602.82	109,602.82
	26,180,465.19	29,914,097.16

Notes to the financial statements continued on page 17.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

		2020 Rs.	2019 Rs.
(13.2) Work in Progress - Courses			
Geo information courses		-	-
(13.3) Staff loan			
Distress loan	**(Schedule 04)**	14,704,102.00	13,524,160.00
Motor cycle loan	**(Schedule 05)**	738,337.00	596,813.00
Motor vehicle loan	**(Schedule 06)**	3,660,400.00	3,187,203.00
Flood relief loan	**(Schedule 06)**	-	68,782.00
		19,102,839.00	17,376,958.00
Staff loan after one year		(10,578,037.00)	(12,253,758.00)
Staff loan with in one year		8,524,802.00	5,123,200.00
Trade and other receivable		38,905,552.16	36,337,868.39
Less:			
Provision for bad debts		(4,261,052.81)	(2,832,683.23)
		34,644,499.35	33,505,185.16
(14) INVENTORIES			
Electronic components		3,621,808.19	3,645,346.85
Stationery		1,945,296.60	2,041,450.62
Others		29,790.64	40,225.33
Electrical and mechanical		203,648.96	237,735.01
Welfare		37,537.00	57,573.00
Accessories -TG		199,218.03	199,218.03
Inventory items - TG		518,035.98	518,035.98
Inventory items - Projects (P/C)		2,000,013.92	2,000,013.92
Tools - TG		1,392,996.69	1,387,166.69
		9,948,346.01	10,126,765.43
(15) PREPAYMENT			
Payment in advance - TG	**(Schedule 07)**	1,431,296.57	3,747,687.34
Payment In Advance - PC	**(Schedule 07)**	137,524.35	19,000.00
Stamp Imprest		9,032.00	10,132.00
SDB-Project		721,648.94	
SDB-Equipment			121,789.32
		2,299,501.86	3,898,608.66

Notes to the financial statements continued on page 18.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

(16) PROPERTY, PLANT AND EQUIPMENT

	As at 01st January, 2020	Additions	(Disposals) / Adjustments	As at 31st December, 2020
	Rs.	Rs.	Rs.	Rs.
Cost				
Freehold assets				
Building	182,714,758.01			182,714,758.01
Satellite antenna	2,959,797.83			2,959,797.83
Computers	77,591,974.63	906,000.00	(945,513.37)	77,552,461.26
Lab equipment	256,175,330.60	6,191,856.75	(6,264,287.16)	256,102,900.19
Office equipment	41,120,239.78	1,334,316.40	(1,650,767.60)	40,803,788.58
Furniture and fittings	20,459,809.38	194,791.65	(581,140.17)	20,073,460.86
Motor vehicle	28,785,689.00			28,785,689.00
Library books	24,427,283.97			24,427,283.97
	634,234,883.20	8,626,964.80	(9,441,708.30)	633,420,139.70
Accumulated depreciation				
Freehold assets				
Building	60,584,059.67	9,135,737.90	(11,951.00)	69,707,846.57
Satellite antenna	2,959,778.83			2,959,778.83
Computers	52,073,102.07	6,897,611.10	(945,501.37)	58,025,211.80
Lab equipment	151,563,199.94	17,349,066.16	(6,258,247.86)	162,654,018.24
Office equipment	23,096,433.95	2,744,664.35	(2,068,371.60)	23,772,726.70
Furniture and fittings	11,517,268.60	1,491,635.50	(578,013.81)	12,430,890.29
Motor vehicle	27,136,350.47	1,343,439.00		28,479,789.47
Library books	23,939,829.87	147,558.52	(66,204.00)	24,021,184.39
	352,870,023.40	39,109,712.53	(9,928,289.64)	382,051,446.29
			**	
Carrying value	281,364,859.80			251,368,693.41

**

During the year Accumulated Depreciation of Disposal of Assets Rs. 9,432,330.14 . In addition to that over stated Depreciation in the previous years has been adjusted to the Accounts.

Notes to the financial statements continued on page 19.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

		2020 Rs.	2019 Rs.
(17) WORK IN PROGRESS - CONSTRUCTION			
WIP - Furniture and fitting(Lunch room)		110,264.00	110,264.00
WIP Buil - Demarcation and protection(Pitipana)		3,545,744.40	3,545,744.40
		3,656,008.40	3,656,008.40
(18) TRADE AND OTHER PAYABLES			
Accounts payable -TG	**(Schedule 08)**	285,223.58	10,810,917.82
Accounts payable -PC	**(Schedule 08)**	79,530.70	75,893.43
Salaries & Wages Control		174,525.00	443,118.50
E.P.F. control		1,563,882.02	1,548,287.74
E.T.F. control		187,665.84	185,073.28
Welfare society control		-	200.00
Creditor - General treasury		900,764.56	1,127,230.29
Refundable deposit		-	-
VAT Payable on receipts - P/C		38,219.71	183,435.60
VAT Payable on receipts - T/G		-	116,665.15
NBT payable - TG			
NBT payable - P/C		6,080.00	6,079.94
Stamp duty payable - TG		9,200.00	9,725.00
Payee tax payable - TG		1,366.00	69,402.76
Disbursement control		2,501,217.45	3,424,345.22
Buildings dept creditor		984,403.00	984,403.00
Arpico interiors - Creditor		14,377.61	14,377.61
TG Control		(5,120,536.07)	(7,187,936.94)
Retention		1,817,186.03	1,842,618.85
Creditor - T N Wickramasinghe		7,894.45	7,355.58
Creditor - W D Chamika		8,535.13	-
Creditor - T Dayaratne		8,323.89	-
Creditor - H Wijesuriya		22,627.66	-
Creditor - P Mahadevan		7,283.49	-
Creditor - N A A N Dilrukshi		4,377.00	
Trade union control			150.00
		3,502,147.05	13,661,342.83
(19) ACCRUED EXPENSES			
Treasury fund	**(Schedule 09)**	5,961,025.82	6,681,052.18
Projects / Courses	**(Schedule 09)**	1,566,800.00	366,804.19
		7,527,825.82	7,047,856.37

Notes to the financial statements continued on page 20.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER, 2020. (CONTINUED)

		2020 Rs.	2019 Rs.
(20) RETIREMENT BENEFIT OBLIGATION			
Balance at the beginning of the year		43,072,003.78	36,751,739.98
Add :			
Provision for the year		7,079,173.26	7,604,484.80
		50,151,177.04	44,356,224.78
Less :			
Payments made during the year		(472,637.50)	(1,284,221.00)
Balance at the end of the year	**(Schedule 10)**	49,678,539.54	43,072,003.78
ASSUMTIONS FOR RETIREMENT BENEFIT OBLIGATION			
Discount rate		6.50%	6.50%
Salary increment		8.00%	8.00%
Staff turnover		8.93%	8.93%
Retirement age		60 Years	60 Years
Net Assets / Equity			
(21) Government Capital Grant			
Balance at the beginning		373,942,879.87	394,319,062.59
Grants received during the period		29,117,000.00	57,000,000.00
Adjustments		-	96,000.00
Capacity building programme		(11,869,688.22)	(41,164,653.88)
Amortization		(37,522,163.42)	(36,307,528.84)
Balance at the end of the year		353,668,028.23	373,942,879.87
Non Monetary Government Capital Grant			
Balance at the beginning		1,411,052.05	2,689,052.05
Grants received during the period			
Amortization		(1,278,000.00)	(1,278,000.00)
Balance at the end of the year		133,052.05	1,411,052.05
Ministry Capital Grant		13,156,751.40	13,156,751.40
		13,156,751.40	13,156,751.40
Capital Grant		366,957,831.68	388,510,683.32

Notes to the financial statements continued on page 21.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER 2020. (CONTINUED)

	2020 Rs.	2019 Rs.
(22) RESERVES		
General Reserve	272,721.64	272,721.64
Celltel donation	213,333.34	213,333.34
Research and consultancy fund	1,341,446.90	1,341,446.90
Foreign grant	3,464,295.25	3,464,295.25
Re - valuation surplus	26,682,504.54	26,682,504.54
	31,974,301.67	31,974,301.67
Research Pool		
Balance at the beginning	175,988.09	239,718.21
Receipts	29,683.00	57,075.32
Adjustments	(87.26)	(120,805.44)
Expenses		
	205,583.83	175,988.09
	32,179,885.50	32,150,289.76
Other Grants and Donations		
Balance at the beginning	23,375,926.37	23,625,193.98
Fixed assets received		88,550.00
Adjustments		
Amortization	(309,549.11)	(337,817.61)
	23,066,377.26	23,375,926.37
Revolving Fund		
Balance at the beginning	13,714,316.46	11,839,025.91
Receipts	149,922.65	
Adjustments	(48,112.15)	(131,945.59)
Interest income	841,289.73	2,007,236.14
Expenses		
	14,657,416.69	13,714,316.46
Directors Fund		
Balance at the beginning	1,507,989.80	1,330,163.27
Interest Income	165,802.63	180,552.17
Adjustments	(62,539.17)	(2,725.64)
Expenses		
	1,611,253.26	1,507,989.80

Notes to the financial statements continued on page 22.

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
NOTES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER 2020. (CONTINUED)

	2020 Rs.	2019 Rs.
FINDS Grant		
Balance at the beginning	7,675,740.06	6,967,522.63
Interest income	579,443.08	708,434.23
Expenses		(216.80)
	8,255,183.14	7,675,740.06
NASDA Grant		
Balance at the beginning	7,251.87	6,914.97
Adjustments		
Interest income	265.37	571.62
Expenses	(300.00)	(234.72)
	7,217.24	7,251.87
	79,777,333.09	78,431,514.32
(23) ACCUMULATED SURPLUS / (DEFICIT)		
Opening balance -TG	(173,099,902.52)	(167,405,846.15)
Opening balance - P/C	46,501,908.50	33,276,673.60
Adjustments - TG	876,014.18	(190,468.23)
Adjustments - PC	(1,034,179.25)	4,264,426.32
Excess of income over expenditure	2,509,743.31	3,457,220.43
	(124,246,415.78)	(126,597,994.03)
TOTAL NET ASSETS / EQUITY	322,488,748.99	340,344,203.61

* Capital grant received has been amortized according to the Sri Lanka Accounting Standard No.20.
" Accounting for Government Grants and Disclosure of Government Assistance"

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
SCHEDULES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER 2020. (CONTINUED)

	2020 Rs.	2019 Rs.
(I) REVENUE - GOVERNMENT GRANT		
Amortization	39,109,712.53	37,923,346.45
Government grant - Capacity buildings	11,869,688.22	41,164,653.88
Recurrent grant	145,100,000.00	146,275,000.00
	196,079,400.75	225,363,000.33
(II) OTHER INCOME		
Course fees	2,730,475.00	4,085,500.00
Grant income	-	-
Interest income	1,456,579.55	1,559,665.92
Interest income on fixed deposits	280,841.62	527,430.74
Interest income on treasury bills	734,201.74	908,281.09
Profit from disposal of assets	43,533.84	-
Project income / Consultancy income	5,842,852.46	7,710,095.02
Other Income	1,287,110.08	3,502,945.00
Sundry income	385,648.81	1,070,585.78
Tender deposits	48,000.00	42,000.00
	12,809,243.10	19,406,503.55
(III) PERSONNEL EMOLUMENTS		
Allowance to board members	232,500.00	336,000.00
E.P.F.	11,388,288.25	10,730,419.92
E.T.F.	2,275,407.72	2,146,084.05
Engineering allowance	3,487,422.41	4,071,000.00
Fuel allowance	2,904,349.68	2,675,454.36
Gratuity	7,079,173.26	7,604,484.94
Other allowances	2,902,311.50	5,413,258.96
Overtime and holiday pay	1,847,690.23	2,671,886.89
Professional allowance	2,004,454.19	2,072,890.52
Salaries and wages	75,974,730.12	71,826,170.70
Vehicle allowance	7,285,483.87	7,200,000.00
Chartered Allowance	1,260,000.00	765,000.00
	118,641,811.23	117,512,650.34
(IV) TRAVELLING EXPENSES		
Travelling - Local	126,444.42	524,108.05
Travelling - Overseas	-	1,523,548.00
	126,444.42	2,047,656.05

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES

SCHEDULES TO THE FINANCIAL STATEMENTS -31ST DECEMBER 2020. (CONTINUED)

	2020 Rs.	2019 Rs.
(V) SUPPLIES AND REQUISITIES		
Exhibitions and seminars	-	10,000.00
Fuel	79,872.51	99,834.58
Mech and elect goods / Lab components	28,850.08	151,932.27
Periodicals	2,942.00	35,639.90
Stationery and office requisites	454,665.78	1,507,302.86
Stock damages	-	-
Uniforms	117,000.00	117,000.00
Welfare items	395,676.00	815,330.00
	1,079,006.37	2,737,039.61
(VI) REPAIRS AND MAINTENANCE		
Buildings	4,313,963.72	4,676,717.12
Computers	89,605.00	281,573.50
Depreciation	39,109,712.53	37,923,346.45
Lab Equipment	5,387.64	606,581.79
100KVA Generator	145,792.00	126,600.00
Furniture & Fittings	-	341,635.00
Motor vehicles	328,595.54	1,278,747.22
Office equipment	874,253.33	1,245,209.21
	44,867,309.76	46,480,410.29
(VII) TRANSPORTATION,COMMUNICATION UTILITY AND OTHER SERVICES		
Advertisement	1,020,573.00	1,663,820.00
Audit fees	350,000.00	400,000.00
Bank charges	60,790.00	87,112.46
Electricity	3,681,301.63	5,509,544.14
Hospitality and entertainment	98,190.39	154,472.20
Insurance	6,837,716.11	2,527,367.89
License fees	146,838.09	33,686.06
Nation building tax expenses	712.50	173,018.60
Other expenses	912,063.21	1,517,911.10
Postage	37,790.00	83,440.00
Security	3,002,802.60	3,240,582.25
Stamp duty	2,100.00	4,100.00
Telephone	6,256,084.74	7,014,318.92
VAT expenses	9,810.00	92,473.50
Water	208,192.87	283,010.42
With holding tax mobitel	-	121,135.89
With holding tax	-	86,481.37
Annual Report 2017	112,013.00	392,310.30
Electricity - TRCSL		4,154.43
Annual Report 2018	58,180.00	16,200.00
Annual Report 2019	37,855.00	
Bad Debts	1,428,369.58	(815,170.93)
	24,261,382.72	22,589,968.60

ARTHUR C CLARKE INSTITUTE FOR MODERN TECHNOLOGIES
SCHEDULES TO THE FINANCIAL STATEMENTS - 31ST DECEMBER 2020. (CONTINUED)

	2020 Rs.	2019 Rs.
(VIII) PROJECT EXPENSES		
Courses / Projects	3,950,270.61	4,103,123.21
	3,950,270.61	4,103,123.21
(IX) RESEARCH AND DEVELOPMENT EXPENSES		
Research and development expenses	11,869,688.22	41,164,653.88
Consultancy Fees	12,000.00	4,000.00
	11,881,688.22	41,168,653.88
(X) OTHER OPERATING EXPENSES		
Membership fees	161,438.37	145,780.84
Professional fees	-	-
Staff training	4,000.00	1,531,492.92
	165,438.37	1,677,273.76

9. Summary of Short and Medium Term Activities Planned

- **Acquisition & Development of National Capacity in Basic Space Technologies**–

  - In furtherance of cooperative research activities with Kyushu Institute of Technology (Kyutech), Japan, after the successful deployment of Sri Lanka's first cube-satellite, Ravana-1 to the orbit in June 2019, ACCIMT joined a partnership project to design and develop a 6U Nano satellite named Kitsune in end of 2019 and the project is planned to be completed in end 2021.
  - Furtherance of collaborative activities with foreign space faring nations for the acquisition of national capacity in Space Technologies, mainly in the area of development of a nano-satellites.
  - Design and development of a 3-U nanosatellite.

- **Development of Aerospace Design and Manufacturing Capabilities in Sri Lanka –** Development of Fixed Wing UAVs (Unmanned Aerial Vehicles) and Quad-rotor/ Hexa-rotor Copter technologies with improved versions of stability, controllability and structures suitable for different applications. Development of Multi-copter, VTOL (Vertical Take-Off and Landing) and Tail-Sitter type UAVs with advanced features are planned for customized applications.

- **Development of Mechatronics & Robotics Capabilities in Sri Lanka –** Develop customized versions of a "Mobile robot platform for Autonomous application" suitable for industrial applications and risky tasks.

- **National Hub for Receiving and Distribution of Earth Observation satellite data** – The phase 1 of the project involves development of a Ground Station Complex for receiving earth observation satellite data from Civilian Earth Observation Satellites and associated infrastructure facilities for technical control, data processing and distribution. The phase I of the project is planned to be carried out with an equipment grant and technical support from one leading space faring nation.

- **Remote Sensing & Geographic Information Systems (RS/ GIS) activities** - Projects using Earth Observation (EO) satellite imagery and air borne platform (UAV) imagery in applications in the sectors, agriculture, plantation, environment, natural resource management etc.

- Further expand the activities of National Center for Lightning Protection at ACCIMT
- Establishing a Predictive Maintenance Unit at ACCIMT

- Electronics, Microelectronics & Communications Projects [for development of industrial solutions and electronic products with high socio-economic impact].
- Continuing Professional Development (CPD) programmes in the fields of Electronics, Communications, robotics, Information Technology and Remote Sensing/ GIS.
- Training programmes to develop skills on troubleshooting and recovery of electronic and electrical equipment.
- Astronomy research projects and Astronomy popularization activities.
- Performance Testing/Certification, Calibration.
- Hardware recovery of sophisticated electronic systems (eg. Master Control Units of Locomotives), measuring instruments and medical instrument.

NATIONAL AUDIT OFFICE

My No: TEC/B/ACCIMT/1/2020/10 19 July 2021

Chairman

Arthur C Clarke Institute for Modern Technologies

Report of the Auditor General on the Financial Statements and Other Legal and Regulatory Requirements of the Arthur C Clarke Institute for Modern Technologies for the year ended 31 December 2020 in terms of Section 12 of the National Audit Act No. 19 of 2018.

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1. Financial Statements

1.1 Opinion

The audit of the financial statements of the Arthur C Clarke Institute for Modern Technologies for the year ended 31 December 2020 comprising the statement of financial position as at 31 December 2020, statement of financial performance, statement of change in equity, cash flow statement, and notes to the financial statements for the year then ended, including a summary of significant accounting policies, was carried out under my direction in pursuance of provisions in Article 154(1) of the Constitution of the Democratic Socialist Republic of Sri Lanka read in conjunction with provisions of the National Audit Act No. 19 of 2018 and Finance Act No. 38 of 1971. My report to Parliament in pursuance of provisions in Article 154 (6) of the Constitution will be tabled in due course.

In my opinion, the accompanying financial statements give a true and fair view of the financial position of the institute as at 31 December 2020, and of its financial performance and its cash flows for the year then ended in accordance with Sri Lanka Public Sector Accounting Standards.

1.2 Basis for Opinion

I conducted my audit in accordance with Sri Lanka Auditing Standards (SLAuSs). My responsibilities, under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of my report. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

1.3 Other information included in the Annual Report 2020 of the Institute

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The other information is defined as the information that are not included in my audit report but included in the Annual Report 2020 of the Institute, due to be forwarded to me after the date of this Audit Report. The management is responsible for this other information.

My opinion on Financial Statement does not reveal the other information and I will not give any sort of guarantee or opinion regarding this information.

My responsibility in relevant to auditing financial statements stands reading the other information whenever they are available and while doing so, consider whether there are material mismatches in the financial statements according to my knowledge obtained by auditing or any other way.

If I conclude material misstatements when reading Annual Report 2020 of the Institute, these matters should be communicated to governing parties for rectification. If further misstatement that are not rectified, these will be included in the report to be tabled in Parliament in due course by me, in accordance with Article 154 (6) of the Constitution of the Democratic Socialist Republic of Sri Lanka.

1.4 Responsibilities of Management and Those Charged with Governance for the Financial Statement

Management is responsible for the preparation of financial statements that give a true and fair view in accordance with Sri Lanka Public Sector Accounting Standards and for such internal control as management determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Institutes ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Institute or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Institute's financial reporting process.

As per Sub Section 16(1) of the National Audit Act No. 19 of 2018, the Institute is required to maintain proper books and records of all its income, expenditure, assets and liabilities, to enable annual and periodic financial statements to be prepared of the Institute.

1.5 Auditor's responsibility for the Audit of Financial Statements

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My objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Sri Lanka Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Sri Lanka Auditing Standards, I exercise professional judgment and maintain professional scepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Institute's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the management.

- Conclude on the appropriateness of the management's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Institute's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. However, future events or conditions may cause the Institute to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with those charged with governance regarding, among other matters, significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

2. Report on Other Legal and Regulatory Requirements

2.1 National Audit Act, No. 19 of 2018 includes specific provisions for following requirements.

2.1.1 I have obtained all the information and explanation that required for the audit and as far as appears from my examination, proper accounting records have been kept by the Institute as per the requirement of section 12 (a) of the National Audit Act, No. 19 of 2018.

2.1.2 Financial statements presented is consistent with the preceding year as per the requirement of section 6 (1) (d) (iii) of the National Audit Act, No. 19 of 2018.

2.1.3 The financial statements presented include all the recommendations made by me in the previous year as per the requirement of section 6 (1) (d) (iv) of the National Audit Act, No. 19 of 2018.

2.2 Based on the procedures performed and evidence obtained were limited to matters that are material nothing has come to my attention;

2.2.1 to state that any member of the Institute has any direct or indirect interest in any contract entered into by the Institute which are out of the normal cause of business as per the requirement of section 12 (d) of the National Audit Act, No. 19 of 2018.

2.2.2 to state that the Institute has not complied with any applicable written law, general and special directions issued by the governing board of the Institute as per the requirement of section 12 (f) of the National Audit Act, No. 19 of 2018

	Reference to laws, rules, and regulations or provisions issued by the Board of Governors	**Description**
(a)	Financial Regulations 37(5) amended by Public Finance Circular No.03/2015 dated 14 July 2015	Even the balance of the Sub imprest should not be delayed beyond 31 December of the year of issuance of such imprest, advances amounted to Rs.181,000 and issued in the year 2020 in 02 instances had not been

		settled in this manner and even Ad hoc sub imprest should be paid within 10 days after completion of relevant works, during the year under review, observed 16 incidents of delaying settlement of advances from 01 month to 05 months.
	(b) Section 5.4.4	An advance could be provided on an acceptable security bond to the procurement entity. In case of an extension of the contract period for completion of work, the procurement entity should make a request to the institute that issue this security bond for the extension of its validity period, the supplier had not extended the advance security bond valued at Rs.915,798 provided in the procurement of furniture for the auditorium at a cost of Rs.3,981,730, even the institute had requested to extend the security bond and also the institute had not taken alternative action in this regard.
	(c) Section 5.4.8	Even the performance bonds should be valid for a period exceeding 28 days to the date of completion of work or supplying goods or beyond the due date, in the sample analysis, it was revealed that the performance bonds provided by suppliers in procurements of furniture and equipment valued at Rs.3,981,730 and Audio System valued at Rs.5,639,360 had not been extended even the validity period of these bonds had been expired.

2.2.1 to state that the Institute has not performed according to its powers, functions and duties as per the requirement of section 12 (g) of the National Audit Act, No. 19 of 2018

2.2.2 to state that the resources of the Institute had not been procured and utilized economically, efficiently and effectively within the time frames and in compliance with the applicable laws as per the requirement of section 12 (h) of the National Audit Act, No. 19 of 2018

3. Other matters

(a) Urban Development Authority had been selected for construction of a fence around the land with an extent of 10 acres located in Pitipana, Homagama, deviating the procurement process and the total contractual value of Rs.3,543,744 had been paid to the relevant institute without obtaining a security bond even an advance could be paid for the commencement of the construction works, however, the fence had not been constructed even by 31 December 2020. These projects were terminated and the institute could not recover the money.

(b) The Telecommunication Tower belonging to the institute had been provided to the Telecommunication Regulatory Commission on a rent basis for a period of 5 years from 01 August 2017 to 31 July 2022 and as per the agreement entered with the Telecommunication Regulatory Commission, arrears up to August 2019 was Rs.2,292,945. The institute could not recover this arrears even by the end of the year under review. Also observe that due to the lack of a proper maintenance plan, this tower has corroded by now.

W.P.C. Wickramaratne
Auditor General

11.0 Answers to the Auditor General Report 2020

Answers to the Report of the Auditor General, on the Financial Statements and other Legal and Regulatory Requirements of the Arthur C Clarke Institute for Modern Technologies for the year ended 31 December 2020, in terms of Section 12 of the National Audit Act No.19 of 2018.

2.2. Noncompliance to written laws, rules, and provisions issued by the Board of Governors

(a) Even though the audit observation stated that there were delays in settlement of advances of about 1-5 months in 16 instances, 5 such instances which delayed more than 4 months had occurred during the year. Such longer delays were experienced when in obtaining advances for purchasing tools and accessories for technical purposes and in some instances, there were practical issues in the settlement of advances.

However, the relevant officers had been informed in this regard, and instructions were given to take necessary actions to minimize delays in the settlement of advances. Accordingly, necessary actions had been taken to minimize such delays in the settlement of advances.

(b) Section 5.4.4

Even though the institute requested to extend the period of security bond submitted for the advance as stated in the audit observation, that extension was not required later, as more than 90% of the procurement had been completed at that time. I informed that all the equipment relevant to procurement had been provided to the institute and other than the delays in fixing equipment due to technical issues, procurement proceeded, adhering to the conditions of the procurement. Further, actions were taken to recover surcharges up to the maximum limit of 10% for procurement delays.

Section 5.4.8

More than 90% of the procurement process for the procurement of furniture, equipment, and Audio System for the Main Auditorium that was stated in the audit observation had been completed during the validity period of performance bonds. Also, actions had been taken to recover surcharges at a maximum level of 10% for the delays due to defects that were caused as a result of some technical errors in this procurement.

2.3 Other matters

a. The land in Pitipana, Homagama with an extent of 10 acres that was stated in the auditobservation was allocated to ACCIMT for the proposed project for receiving and distributingearth observation satellite data, under the Techno City project implemented by the Ministry of Megapolice and Western Development. Urban Development Authority allocated lands for Research and Development institutes and Universities under the Techno City project. This 10-acre land in Pitipana, Homagama was within the entire land allocated to our institute and boundaries of this land had not been divided permanently by a boundary wall and since the administration procedure for vesting the land separately to each institute had not been completed, being the state institute which is assigned the responsibility of statutory function of allotting these land plots, the relevant work was assigned to the Urban Development Authority as the perfect and most preferred action to be followed.

   However, due to subsequently arise technical issues and protests from the people of the area, in two (02) instances, the Urban Development Authority had to identify alternative lands and allocate them for the above purposes. Due to this, construction of the fence has been delayed. However, the relevant amount will be set off in the construction of the fence after confirming the allocation of new land. Therefore, the relevant payment had been properly made to a statutory institute at a government level and though there were delays, it will be a productive transaction in the future.

b. This telecommunication tower had been leased out to Telecommunication Regulatory Commission for a period from the year 2010 to 2017 by two lease agreements and after the termination of 2-year lease agreement on 31.07.2017, agreed to enter into a lease agreement again with TRCSL for a period of 5 years and this institute had given its consent for this on 28.03.2019.
   However, since action had been taken to sign this agreement for a period of five years from 01.08.2017 to 31.07.2022, the institute had provided security and maintenance services to the antenna and other related equipment belonging to the Telecommunication Regulatory Commission. Even there were delays in prior agreement periods and signing agreements by TRCSL, later payments were made on due dates notwithstanding such delays. However, by their letter dated 31.07.2019 TRCSL informed that they don’t expect this antenna tower service anymore from 19.08.2019.

   Therefore, we made several requests and sent reminders to TRCSL to settle the sum of Rs. 2,292,945.12 due for the period of 2 years from 01.08.2017 to 31.07.2019 and to remove their equipment. But they have not responded yet. Actions are being taken to recover the arrears.

Competing with currently available technologies, there is less potential to lease out this telecommunication tower that is older than 25 years and an Engineering Committee comprised of external members has recommended that such agreed investments are not productive. As per the recommendation given by that Committee, necessary actions were taken to remove the tower and prevent its risk.

Sgd/
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