

DOST-ADVANCED SCIENCE AND TECHNOLOGY INSTITUTE (DOST-ASTI)

FY 2020 Research and Development Projects

2019 Project/Program/ Activity Name	Brief Description	Beneficiaries	Status
Gul.ai: AI and IOT-Assisted Indoor Microfarming (Year 1)	The project aims to set up a Small-scale controlled-environment hydroponic system for experimentation on plantgrowth including remote monitoring and management of the plant's growth and its environmental condition.	<ul style="list-style-type: none"> * State Universities and Colleges * Research Agencies * Government Agencies * Or-ganizations involved in any of DOST-ASTI domain applications * Private sector 	On-going
Development of a Philippine Indigenous Instrument Sounds Database (Katunog)	The project focuses on the development of a digital database that will compile audio recording of Philippine indigenous music instruments and make them available to the public. The database will include instruments that are played in different pitches, dynamics and styles. Given that the database will be available to the public, Filipinos will be able to include Philippine sounds in their creative work. An online portal will be developed as an interface for the sound files.	<ul style="list-style-type: none"> * Music Industry * General Public 	Completed
Development of Intelligent Data Analysis System (IDAS)	A databank of analyzed drug samples that will aid in determining production methods, through clustering and pattern recognition of interrelated drug samples.	* DOST-ITDI-ADMATEL and its partner agencies	Completed
Enhancing OneLab for Global Competitiveness – RDIs Component (OneLab) ver. 2	The OneLab project involves the establishment a referral system that will integrate primarily the laboratories within the DOST system and eventually with partner laboratories from the private sector. The features of the OneLab Referral system were tested and rolled-out by participating laboratories using Application Program Interface (API) via ReST API protocols. The system will be eventually hosted at the iGovPhil facility utilizing its cloud-based hosting services.	<ul style="list-style-type: none"> * DOST-RDI Laboratories * Industries i.e. electronics, manufacturing companies 	On-going
Remote Sensing and Data Science: DATOS Help Desk	The DATOS Project, funded by the Department of Science and Technology (DOST), builds on and integrates past and ongoing DOST-supported projects and related initiatives on disaster mitigation by providing a 24/7 help desk pre-, during, and post- disaster events that would provide remote sensing and data science applications support to critical activities on disaster mitigation, analysis, and advice. These activities require on-demand access to data currently available in the ASTI Computing and Archiving Research Environment (CoARE) and the Philippine Earth Data Resource Observation (PEDRO) Centers. Aside from the operations aspect, the Project also intends to conduct further research on RS and GIS, and data science in the context of these fields.	<ul style="list-style-type: none"> * Institutions involved in Disaster Risk Reduction efforts for Post-hazard assessment and those involved in environmental assessment; * Research Institutions 	Completed

EPDC as Platform for Inclusive Innovation Program (EPIIC) - Project 2: Electronic Products Inclusive Innovation Center	Its mission is to enable and encourage innovative solutions that have the potential to add significant value to the Philippine economy. In pursuit of this mission, the DOST-ASTI shall take advantage of the Electronics Product Development Center (EPDC) to carry out research and development initiatives that can improve the competitive advantage of the local electronics industry. The medium for this effort shall be the Electronic Products Inclusive Innovation Center (EPIIC).	* Electronics Industry * Academe * Research Institutions	On-going
KOOHA: Development of Social Sensing Network Application	A cost-effective solution that enables real-time participatory data collection and make use of sensor data tagged in a photo, captured using smartphones or mobile devices to draw out insights and generate new knowledge and technologies that can be used across sectors. Instead of building a system, infrastructure, and IoT platform from the ground up that can generate data, this solution will require crowdsourcing and will utilize sensor data of smartphones or mobile devices.	* General Public * Researchers * Citizen Scientists	New
Automated Electronic Survey System	The AES project aims to reduce the cost of conducting paper-based collection, processing and aggregation of data by providing a reusable standards-based transparent framework of technologies, systems and protocols. The system will address the need of users who require a high level of visibility into the functionalities of such a system for purposes of determining the credibility and accuracy of the results. It will also provide an open, transparent, and secure development framework that will enable better interoperability/integration with other products and widen the number of potential competent third-party providers who may offer better support, maintenance and technical services.	* Commission on Elections * Voters * Candidates * Public	On-going
Contact Tracing Application Prototype (PastTrack)	PastTrack is intended to record COVID-19 patient's information and extract two (2) months of location data to check places most visited and where most contact was made. This will help determine close contacts and places (to be monitored and disinfected). Collected data and location history will be synced to a WebGIS Dashboard for network analysis.	* LGUs * Health sector	New/Completed
Development of DOST-ASTI Human Resource Information System (HRIS)	This project aims to produce a software specifically designed for the procedures and functions of the agency's HRMS, from recruitment to separation. The system will enable the electronic data entry and collection, data tracking and management, and provision of other information needs of the DOST-ASTI personnel. The HRIS shall streamline the HRM Core Systems of DOST-ASTI namely: a) Recruitment, Selection, and Placement, b) Performance Management, c) Learning and Development, and d) Rewards and Recognition in the most cost- and time-efficient manner.	* DOST-ASTI	New
Research and Capability-building in Autonomous and Unmanned Systems (AUS)	This project aims to continue and expand the initial efforts of the UAV project as a continuous effort to contribute to the autonomous and unmanned systems research in the Philippines. Said project involves research on other types of autonomous and unmanned systems, such as, but not limited to multi-rotor, high-performance, underwater, and rover, and other various modules that will help the AUS carry out various missions.	* DOST Philvolcs * NDRRMC * Philippine Red Cross * DENR * Agriculture sector	New

Development of Extreme Weather Monitoring and Information Sharing System in the Philippines: Understanding Lightning and Thunderstorms (ULAT)	<p>This is a project undertaken under the Collaborative Research Agreement with Japan International Cooperation Agency (JICA), Japan Science and Technology (JST) and Hokkaido University. It is an Official Development Assisted (ODA) project under the initiative of Japan's Science and Technology Research Partnership for Sustainable Development (SATREPS) Program.</p> <p>It aims to observe the country's weather behaviors by studying torrential rainfall and thunderstorm occurrences as parameters to eventually enable short-term forecasts. Through the automated weather stations developed by the Japanese experts, equipped with various sensors that measure both weather parameters and lightning occurrence, a network of 60 lightning instruments is expected to be established in the Philippines, particularly in Metro Manila, to collect torrential rainfall data and lightning events. If proven to be accurate, the project will be able to hasten weather forecasts benefiting disaster response.</p>	<ul style="list-style-type: none"> * Institutions involved in Disaster Risk Reduction efforts Scientific * Researchers 	On-going
Synthetic Aperture Radar (SAR) and Automatic Identification System (AIS) for Innovative Terrestrial Monitoring and Maritime Surveillance	The project aims to operationalize the distribution of SAR and AIS data to different government agencies. Various researches on applications for terrestrial monitoring, maritime surveillance, etc will be conducted.	<ul style="list-style-type: none"> * Government agencies * LGUs * Academe 	On-going
AI-based detection of Social Distancing Violation from CCTVs	The project aims to develop a system that will automatically flag social distancing violations from CCTV feeds.	<ul style="list-style-type: none"> * LGUs * Health sector 	New
Optimization of the Operational Capabilities of Hydromet Sensors in Line with International Standards (WMO Standard) for Effective Weather Flood Warning (CBFEWS) and Application to Research	This project involves retooling, repositioning and augmentation of the instruments, equipment and related facilities installed through the HYDROMET and HYBRID Projects to enable more efficient maintenance, calibration and accurate data collection that will conform with the highest standard of the hydro-meteorological observation. These hydromet stations will be eventually integrated and transferred to PAGASA.	<ul style="list-style-type: none"> * Government agencies particularly those involved in Disaster Risk Reduction * LGUs * Private companies * General public 	Completed
STAMINA4SPACE Project 5: Advanced Satellite Development and Know-How Transfer for the Philippines	The project aims to enhance the ongoing DOST-funded program, "Space Technology and Applications Mastery, Innovation and Advancement" (STAMINA4Space) by targeting the development of new capabilities in small satellite technology. In particular, a larger class (100-150kg) satellite platform is proposed to be built Filipino researchers and subsequently launched and operated. The proposed larger satellite, based on a platform with proven space heritage, will be designed and developed under a framework of hands-on, experiential engagement and complete knowhow transfer. This new capability is envisioned to further strengthen the country's space technology portfolio and capacity.	<ul style="list-style-type: none"> * Defense and Security Sectors DOST in terms of generation of satellite technology and application and continuous advanced research * Academe in terms advancing education and research 	On-going

Signal Assessment Using Geospatial Analysis Project (SAGAP)	<p>The PEDRO Center has acquired massive amounts of spatial data. Aside from satellite images, Digital Surface Models (DSM) have also been compiled from partner agencies and projects. These kinds of data will also be extracted by PEDRO from stereo imaging and InSAR technologies using the available subscriptions from its partner satellite providers.</p> <p>SAGAP project aims to conduct research on the use the elevation data from DSMs for different kinds of modelling and simulations particularly focusing on the radio frequency (RF) signal propagation. Using the elevation data as an input, simulations of how vertical obstructions affect the strength and direction of RF signals can be conducted. The results, once validated, can then be used to assess the different areas in the country where signal coverage (ex. TV, cellular, etc.) is needed.</p>	<ul style="list-style-type: none"> * Research agencies * Academic Institutions * Government offices 	New
STAMINA4SPACE Project 4: Ground Receiving, Archiving, Science Product Development, and Distribution (GRASPED)	The STAMINA4Space program aims to integrate the operational activities of the ground receiving stations, satellite mission planning, image distribution, data processing, satellite assessment, and public relations for the Diwata microsattellites.	<ul style="list-style-type: none"> * Research agencies * Academic Institutions * Government Offices 	On-going
Development of Thermal Scanner	The project aims to develop a non-contact thermal scanner with medical-grade sensor that can be attached to mobile phones for temperature monitoring at control points. Initially, 35 units will be deployed.	<ul style="list-style-type: none"> * Health Industry/sector * DOH * General Public 	New
RuralSync: Providing Digital Content in Remote Communities through Opportunistic Spectrum Access	To address unavailability of internet access in remote communities or unserved areas, and provide a tool that will facilitate information sharing, the project aims to investigate the use of various wireless technologies based on TV broadcast signals in updating educational electronic materials such as encyclopedias, video tutorials, and other software tools.	<ul style="list-style-type: none"> * Department of Education * Public Schools * LGUs 	New