

DIGITAL INNOVATION PITCH DECK

Background Information

The Centre of Excellence for ICT in East Africa (CENIT@EA) is a regional innovation hub initiated by the East African Community (EAC) and the German Federal Ministry for Economic Cooperation and Development (BMZ) and launched in 2019 to support East African universities in providing the technical skills that meet the needs of the private sector, public sector and civil society stakeholders in the region's digital transformation.

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) implements the project in cooperation with the Inter-University Council of East Africa (IUCEA), the German Academic Exchange Service (DAAD), and an academic consortium consisting of the Nelson Mandela African Institution for Science and Technology, the University of Oldenburg and other East African and German universities and institutions.

To cater towards the concrete needs of the digital transformation in East Africa, CENIT@EA established a market-driven Master's programme in Embedded and Mobile Systems (MSc EMOs) and offers short technical trainings for professionals in the field of Information and Communication Technologies (ICT), and for unemployed graduates and university lecturers to provide them with relevant digital skills. To ensure this demand driven and value creating approach, CENIT@EA works very closely with the private sector in the development and delivery of its activities.

Discover our Digital Innovations!

This Digital Innovation Pitch Deck offers you insights into opportunities of digitalisation by showcasing recent innovations of CENIT@EA Young Professionals that tackle challenges of society and industry in East Africa. If you are interested in learning more about an innovation, supporting any of the projects or collaborate, please contact CENIT@EA using the information on the back of the booklet.



Smart Ugali Cooker

What is the technology used?

#sensors #arduino
#C_programming

What is the challenge you are solving?

The traditional method of cooking Ugali is time consuming and exhausting.

What is the benefit of your innovation to society and industry?

The smart cooking device saves time, ensures the right consistency and quality of the food and is less exhausting than using a cooking stick.



By:

Amrani Hassan (KE)
Samwel Katwale (TZ)
Ngollo Daudi (TZ)

How does your innovation tackle the challenge?

It is an electric smart cooking device that automates the Ugali cooking process and is a fast and comfortable way of preparing the popular meal. The device will consist of the main pan integrated with sensors, dispenser unit, stirring unit, control unit and communication interface.



Drowsiness Detector



By:

Jevinarlys Khamasi (KE)

Ange Uwayisenga (RW)

Josephine Mbandi (KE)

What is the technology used?

#Artificial_Intelligence #Machine_learning

#Embedded_engineering

What is the challenge you are solving?

In the East African Community (EAC), road accidents are the 3rd leading cause of death after Malaria and HIV/AIDS. Most Partner States officially record over 4000 deaths due to road accidents annually. As road transport is the dominant mode of transport in the EAC carrying about 95% of the region's goods traffic and about 99% of passenger traffic, it is about time to create an innovative solution to make the roads safer and save lives.

How does your innovation tackle the challenge?

The detection system has a camera that uses Artificial Intelligence to learn how normal behaviour of a driver's face looks like. When the camera recognizes deviation from the normal pattern, it will alert the driver. There will be no permanent recording to ensure privacy, but the camera will record the moments identified as abnormal for further verification. The system works with infrared technology to ensure the detector can be used at night and with drivers wearing spectacles.

What is the benefit of your innovation to society and industry?

For the society, it will help sustain life and prevent death lead to socio-economic growth for the innovation has the potential of offering employment to both skilled and unskilled labour. Contribute to industrial growth, both the manufacturing and the service industry from the manufacture and use of the innovation



Number Plate Detection System

T465 AAA

By:

Ceaser Wisdom Favor (UG)
Gloriose Nzasangamariya (RW)
Ivan Kojoo (UG)

What is the technology used?

#Machine_Learning
#Optical_Character_Recognition

What is the challenge you are solving?

The transport sector accounts for almost one quarter of all global greenhouse gas emissions and is one of the main contributors to urban air pollution in cities. This does not leave out East African countries where in particular a lot of not road-worthy vehicles are still being used and their circulation is difficult to control.

How does your innovation tackle the challenge?

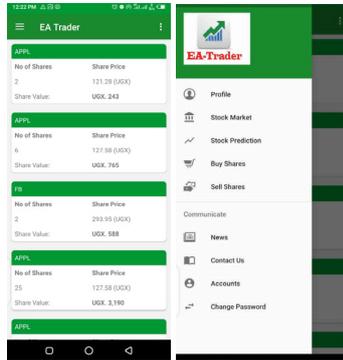
The first step is the detection and capturing of the vehicle's image, the second one is the extraction of the number plate as an image. The third step uses image segmentation technique to get the individual and optical recognition to recognize the individual characters with the help of a reference stored for every alphanumeric character. The captured data will be stored safely so that only the parties that are supposed to have access, can retrieve them.

What is the benefit of your innovation to society and industry?

The system is not only limited to checking and testing the road-worthiness of vehicles that trail the roads in many East African cities but its usefulness is further justified by its applicability in other environments. For instance, it can be integrated with mobile money systems and used at parking lots for the contactless paying of parking fees. In addition, it can also be adapted to smaller environments like controlling of cars that enter a private property.



App for integrated stock market in East Africa



What is the technology used?

#Machine_Learning
#Android_Mobile_Applications

What is the challenge you are solving?

Not many East African citizens trade stocks and the East African stock market is too small to attract foreign investors. East African countries are running the most expensive stock markets on the continent - a development blamed for the dropping trading volumes and investors' appetite. The combined equity of the East African stock market is only USD 22 billion and therefore, 43 times smaller than the one of Johannesburg (USD 951 billion).

How does your innovation tackle the challenge?

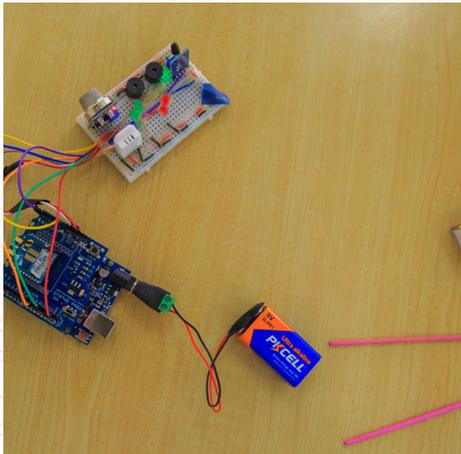
It is a user-friendly mobile trading platform that enables to trade in a combined capital market of East Africa without having to physically be in the region. This will allow any investor to easily access the East African stock market and transact without hassle in any stock market exchange across the region.

By:

Happyness Alexander (TZ)
Hillary Kaluuma (UG)
Alban Manishimwe (UG)

What is the benefit of your innovation to society and industry?

It is a centralized trading platform that supports both domestic but also cross border sale and purchase of stocks in East Africa. It is easily accessible to anyone who owns a smart phone, supports real-time purchase and makes price predictions for the upcoming days.



Market Fire Outbreak Early Detection System



By:
Hillary Rambo (TZ)
Philemon Rotich (KE)
Anna Geofrey (TZ)

What is the technology used?
#Mobile_Application
#Internet_of_Things

What is the challenge you are solving?

Existing fire detection systems in East Africa such as standalone smoke detectors or heat detection systems are not integrated systems and cannot give notifications of fire outbreak to people outside the affected building such as fire fighters or the property owners. When market fires happen during the night while vendors are absent, a lot of damage has already been done before help arrives.

How does your innovation tackle the challenge?

The system will periodically collect data of market environment parameters through a set of installed sensors that monitor the following: smoke, gas, carbon monoxide, and temperature. All collected data will be sent to the back-end server, where they will be processed to determine the state of the market environment. If the combination of data shows signs of a possible fire outbreak, an alert is sent to the nearest security guard and a fire rescue team.

What is the benefit of your innovation to society and industry?

This system will act as an early warning system by sending real time notifications to the nearest market security guard and fire rescue team. The combination of different sensors increases system accuracy that helps to avoid false alarm. The involvement of stakeholders instead of just having an alarm go off allows to act fast when a fire breaks out and thus, avoid economic loss and save lives.



Farming App

What is the challenge you are solving?

Traditional ways of farming have proven to be less productive and futile due to a number of reasons. While many countries are leaning towards use of technology to improve the agriculture and food sector, there is still low use of technology to digitalize the agricultural value chain in East Africa.

How does your innovation tackle the challenge?

By creating a Mobile Application that combines a number of technologies to create a reliable and cost-effective resource that informs stakeholders of the agricultural sector about, for instance, soil and weather conditions, food market prices and available trainings. Internet of Things is used to collect farm data through the use of sensors and respond with automated processes to the information received. Visualization of the sensor data and control of the responses is done through the mobile application.

What is the technology used?

#Mobile_Application
#Internet_of_Things #Sensors



By:

Yahya Maalim (TZ)
Shakila Mshana (TZ)
Emil Patrick (TZ)

What is the benefit of your innovation to society and industry?

It helps improve agricultural yields in quality and quantity as well as profitability while using fewer resources and less labour efforts.



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