Efficient Operations and Production of Goods Through Automation of Industry Processes

Photo: CENIT@EA students testing the mobile application for warehouse management with their host supervisor, Srinivasan.

In today's era, it is important that the needs of the industry are met by the result of the practical teaching curriculum and research initiatives of the academia. Organizations are constantly in search of skills that will accelerate the digital transformation efforts, solving challenges brought by the effect of traditional processes that hinder efficiency in production. The Centre of Excellence for ICT in East Africa (CENIT@EA) worked in a close collaboration with AtoZ Textile Mills, through the Young Professionals Programme, matching digital skills of students to drive innovations for advancement of the organization's operations. AtoZ Textile Mills, that is based in Arusha, Tanzania, is an organization that comprises of a group of manufacturing companies founded by NathalalHirji Shah in 1966 under the name "A to Z Clothing Company, that produces a line of products and services ranging from Bed nets, Agro fertilizers, Garments, Reflective Safety wear, polypropylene woven bags, Agriculture & Horticulture and Value-Addition Services. Currently one the largest manufacturing company in East Africa. With technology growing at a fast pace, AtoZ needed to keep up with the pace by reviewing its ICT infrastructures determining a need for enhancements and redesign of systems such as the Warehouse Management system and the Gate Pass Management system.

Many organizations depend on web-based gate pass management system which requires users to have access to a computer for creation, approval and security authorization of staffs and visitors. AtoZ Textile Mills is one among the organizations that uses a web-based gate pass system to eliminate all manual work of keeping record and tracking staff and visitors' movements. In this modern era, mobile applications and development is a new and rapidly growing area that provides an alternative and most useful resource to explore with the

availability of smartphones changing how people interact with computerized systems. Users prefer to use mobile applications running on a small hand-held mobile device which is moveable, portable, easy to use and accessible from anywhere and any place.

Hillary Rambo whose specialty is in mobile systems, has been engaged in analyzing the web-based gate pass management systems, providing AtoZ with enhancements of the system by integrating a mobile application to meet user demands and requirements. The application is integrated to the core system database for keeping records of visitors and staff's movements. The integration of mobile application incorporates barcodes that enhances user experience and interaction with the system, saving user time, quick notification of gate pass request and approval, eliminating manual entry of entrance and exit time data.

The mobile application is seen to enhance and further complement the existing web-based system by increasing its efficiency, effectiveness, and flexibility of timely engagement of personnel involved and provision of authorization.

The mobile application works in such a manner that the phone hardware component such as camera is utilized to scan gate pass barcode and with features such as picture capturing of visitors where necessary for security purposes.

"Through an extensive research and prototyping, I have successfully managed to develop the gate pass mobile application that proves to be a great resource for AtoZ operations and the same will help the organization track inflow and outflow of traffic at the premises", explains Hillary Rambo.

On the other hand, warehousing is a necessary key component of the organization's manufacturing activities and processes, with the expertise of Beatus Mbunda, AtoZ has been able to implement a warehouse management system through a mobile application. The platform will help AtoZ produce goods by imminently predicting the availability of raw materials to be used for consistent production, utilizing time to make goods available according to the demand, store surplus of goods to meet demand in future, price stabilization by regulating the supply of goods in the market, minimization of risk from fire, theft and insurance companies can compensate when a damage occurs and prepare goods for sale through packaging and grading.

The mobile application system solves the challenge of accessibility of warehouse and spares. Optimizing the warehouse and spares web application will enable staff to continue working effectively, the staff will be able to use their mobile application in the smartphone, synchronize with the remote server.

Due to covid-19, AtoZ is shifting its focus from manual operations and processes with regards to tracking of delivery. With the mobile application the organization is able to remotely track goods in real time. **"We want to improve customer experience and service delivery by helping clients plan for the sales being informed on the delivery route of their goods avoiding delays"**, stated Srinivasan Kumar, Information Systems Lead at AtoZ.

With the support of the CENIT@EA Young Professionals, the developed mobile applications will still undergo a series of coding, system testing, and validation even after the completion of the internship. The platform is planned to be effectively open for use in the organization's systems integration in the month of April.

AtoZ plans to engage the Young Professionals from CENIT@EA to assist in development and enhancement of other systems in the organization such as the Vehicle GPS tracking, Freebee

distribution receivers (proof capture and validation with biometrics data) and boiler/ETP Capturing with picture proof for reporting purposes and effectively running of operations.