

UNIVERSITY of RWANDA

College of Sciences and Technology

African Center of Excellence in Internet of Things (ACEIoT)

Virtual Research Seminar

DEVELOPMENT OF A TINYML BASED FOUR-CHAMBER REFRIGERATOR (TBFCR) FOR EFFICIENTLY STORING PHARMACEUTICAL PRODUCTS CASE STUDY: PHARMACIES IN RWANDA



Joseph Habiyaremye PhD Student, 1st cohort ECS Student Reg Number : 218014367 Email : hjoseph@iprckigali.ac.rw

DATE & TIME:

25th February 2022 10h00 AM- 11h00AM

Abstract:

Medical products are very sensitive to temperature; the improper temperature may lead to their inefficacity. Apart from products that are stored at room temperature, remaining medical products are stored in electronically controlled refrigerators. A lot of researchers have proposed different refrigeration systems controlled with the help of the internet of things (IoT). Due to some issues such as storage capacity, computing energy, and computing speed, data processing in IoT-based applications is generally done at the cloud through cloud computing technology. Those applications are suffering issues like latency, data control, internet connectivity, network traffic, and operation cost. This presentation, shows a developed four rooms fridge controlled with an Arduino board that embeds a machine learning (ML) algorithm to control the temperature for efficient storage of medical products. We tried to develop an ML model that will monitor the closing and opening of the fridge door (while taking some medicines), predict and display the remaining time for the internal temperature to go beyond the acceptable temperature range. The result from our experiments shows that the model runs onto the controller and can predict well the internal fridge temperature at an accuracy of 96%.

www.aceiot.ur.ac.rw

aceiot@ur.ac.rw

https://twitter.com/ACEIoT_UR