**DEVELOPMENT OF A WEARABLE DEVICE FOR HEALTH MONITORING AND REAL TIME NOTIFICATION SYSTEM FOR HYPERTENSIVE AND ASTHMATIC PATIENTS**

Recently, a Lecturer in the Federal University of Technology, Akure, was travelling from Akure to Ibadan, he alighted from his vehicle at a police check-point, he told them he was feeling dizzy and weak, not quite long, he sat down on the floor and was already passing out, before they could mobilize him to the nearest hospital, he died. He was confirmed to be an hypertensive patients, also drugs for hypertensive patients was found in his car.

He must have forgotten to take his drugs before leaving for the journey, or did he overlook the danger? At a point in time, before feeling dizzy, his blood pressure must have been increasing. Health service rescue wasn’t available on time, who cares?

Bridging the Gap between health services providers and their patients, also coming up with a friendly technology that will monitor the patient, in Nigeria is highly demanded.

An hypertensive patient has high blood pressure i.e. when the beats per minute rate of the heart is higher than normal (70bpm). At this point, if there is no counter-measure steps taken, there is higher risk of heart attack, a state of extreme high pressure that finally leads to inactivity (a patient stops breathing or falls to the ground with no motion).

Asthma is a common long-term inflammatory disease of the airways of the lungs. It is characterized by variable and recurring symptoms, reversible airflow obstruction, and bronchospasm. Symptoms include episodes of wheezing, coughing, chest tightness, and shortness of breath.

Monitoring the above cases using IOT technology is one possibly, best way out.

We hope to come up with a wearable technology such as Hexiwear smart watch from Mickroelectronika, which has a lot of features suitable for IOT development, ranging from, accelerometer to optical heart rate sensor, to gyroscopes, to temperature, humidity, light and pressure sensor. It can also run android apps. It can be programmed using python- Zerynth Studio support. This device is administered to hypertensive and asthmatic patients by their registered hospitals. It will help the patient to know about their current health status and regularly provide health tips using their current status, location and environment. For example, if the asthmatic patient is going to a smoky environment, the device notifies the patient. At appropriate time, the device can remind a patient of drugs or exercise to take or perform respectively.

A cloud server will be set in place:

I. Permanent storage: the device will be sending real time data about patients current health status: heart rate beat, pressure etc., current location, which will be monitored from the patient’s hospital. The logs of report from patient’s device to this server may help health service to know when to call a patient for visitation to the health center, suggest to him over the network, intake of food that will benefit such patient.

II. Notification system: a central application that will fire an alarm whenever there is a risk on the side of the patient. This will be installed in the hospital of the patient. Also, a notification will be sent to the relatives of the patient, notifying them of danger and also of patient’s current location. This is especially for emergency, whenever a patient is inactive, or when seizure has started.