

Paper Title

## **DESIGNING AN IOT BASED SMART MONITORING AND EMERGENCY ALERT SYSTEM FOR COVID19 PATIENTS**

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Published in 2021 6th International Conference for Convergence in Technology (I2CT)

### **Summary of the Introduction**

The introduction starts by reminding us how serious COVID-19 was more than 45 million confirmed cases worldwide by November 2020. It says that normal prevention methods (masks, social distancing, lockdown, hand washing) are helpful but not enough when cases explode. The authors explain that IoT (Internet of Things) technology can play a big role in fighting the pandemic by allowing doctors to watch patients remotely and get alerts immediately when something goes wrong. The main focus is on patients who only have mild symptoms (stage 1) and are told to isolate at home.

### **Problem Statement**

Many people with mild COVID-19 choose self-isolation at home. Some of them suddenly become very sick (especially low blood oxygen or very high fever) without anyone noticing in time. Because there is no continuous monitoring at home, patients often arrive at the hospital too late. This increases the death rate and puts extra pressure on already full hospitals. The current system depends on the patient or family calling for help, which is usually delayed.

## **Objectives of the Paper**

The researchers want to build a cheap wearable IoT system that

- Continuously measures body temperature, blood oxygen level (SpO<sub>2</sub>), and heart rate of COVID-19 patients who are isolating at home.
- Automatically detects when the values become dangerous (e.g., SpO<sub>2</sub> drops too low or temperature too high).
- Uses the patient's smartphone GPS to automatically find the nearest hospital that still has empty beds.
- Sends an emergency alert to that hospital and to the doctor.
- Helps the paramedic/ambulance team reach the patient quickly.
- The final goals are to save more lives, lower the number of deaths, and reduce overcrowding in hospitals.

## **Research Gap / What was missing before this paper**

After studying many previous papers, the authors noticed that

There are already IoT systems for monitoring heart patients, elderly people, or general body temperature, but almost none are made especially for mild COVID-19 patients staying at home.

Most existing systems only send data to the doctor; they do not automatically search for the nearest available hospital or contact the ambulance by themselves.

Very few designs combine temperature sensor + SpO<sub>2</sub> sensor + heart rate sensor + GPS location + automatic hospital bed checking in one low-cost Arduino-based package.

Previous works usually stop at “monitoring and alerting the doctor”, but this paper wants the whole emergency chain to happen automatically without waiting for a phone call.

That is the gap this research is trying to fill a complete, affordable, end-to-end emergency system specially for stage-1 COVID-19 patients in self-isolation.

## **My small comment as a student**

The idea is very practical, especially for Tanzania where many people isolate at home and hospitals can be far or full. Using Arduino Uno keeps the cost low so even regular families can use it. If this system is actually built and tested in real life, it can really help during the next pandemic wave.

Submitted by: LUCAS E ZENGO of Registration number RU/BSCSE/2023/015

Date: 12 December 2025