THERMAL SCANNING & GPS TRACKING SYSTEM

Anurima Majumdar [1], Antara Ghosal[1], Palasri Dhar[1], Sayan Mondal [1], Sayan Majumder [1], Sayan Bhattacharjee [1], Satish Singh [1], Uddipan Chowdhury [1]
[1]*Department Of Electronics & Communication Engineering, Guru Nanak Institute Of Technology*

***Abstract*– In this paper a thermal Scanning & GPS Tracking System with a self-sanitizing mechanism is proposed as a solution in the outbreak of COVID-19. Arduino borad, GPS NEO 6M module, GSM SIM900A, Thermal Camera AMG88833, Ultrasonic Sensors are used to make this system. The system will monitor a crowded place with a drone where the proposed mechanism will be installed. It will detect one potential COVID-19 affected by detecting either high body temperature or sneezing. It will collect and store the data of the suspected individual in it's database and send it to a registered phone number from nearest health management facility. The proposed system is easy to fabricate and efficient but less costly which makes it suitable for general purpose COVID-19 monitoring system.**

I. INTRODUCTION

COVID-19 is an infectious disease caused by a newly discovered coronavirus strain. This disease was first identified in December 2019, in China. World Health Organization (WHO) declare COVID-19 as a pandemic in March,2020. Near about 11 lakhs are affected and more than 59 thousand people are dead worldwide. Almost all the countries are affected by COVID-19. Doctors, nurse and health workers are doing their work continuously. when one group of researchers are trying to make vaccine for COVID-19 then another is trying to improve the controlling of the disease by improving the tracking and detection system for a potential COVID-19 affected individual. The whole world came together in this fight against the deadly virus.

In this paper a tracking system is proposed which is constructed with ARDUINO , GPS module , GSM module and a thermal camera along with a sound tracking system. This work is inspired from previously reported research works[1-4]. The system will monitor a whole area with help of a drone. It can detect an individual who may be a suspected COVID-19 patient on the basis of detection of sneezing/coughing or high body temperature. The system then takes picture and track location. It can store all the data collected and then send it to the nearby health management centre.

II. CONSTRUCTION OF THE SYSTEM

The system is constructed on an Arduino board. GPS NEO 6M module, GSM SIM900A, Thermal Camera AMG88833, Ultrasonic Sensor, Stepper Motor, Jumper wires are used to form the whole circuit as shown in Figure 1.

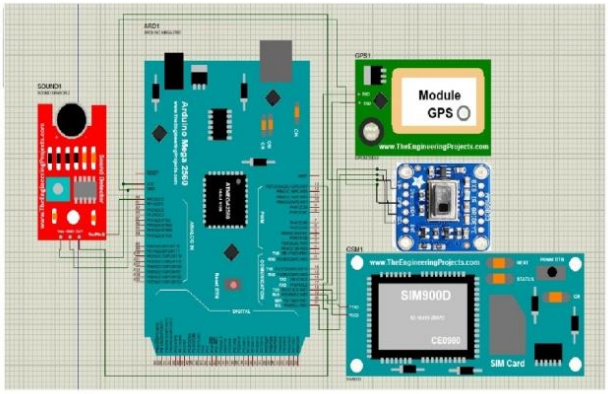

Figure 1 : Proposed system for potential COVID-19 suspect tracking

III. WORKING PRINCIPAL

Using "Thermal Scanning & GPS Tracking System", we can check primary symptoms of COVID-19. High temperature in human body, difficulty in breathing, cough and cold are primary symptoms. In the proposed system, the thermal camera detects high temperature in human body with a thermal scanner from a distance. If it detects the temperature of a human body is greater than 100^{o}C then thermal camera automatically mark the person , It will take the picture of the suspect , track the location with GPS module and store the information in its database. Using GSM module, picture of person and location will be sent in registered phone number form the control room. when

the detection tacking and data transmission is completed the drone system resume its monitoring process. Using this system, one can easily detect affected person from even a busy and crowded area like railway station, airport etc. The system comes with a self-sanitising mechanism. The working of the system is shown with a flow chart in Figure 2.

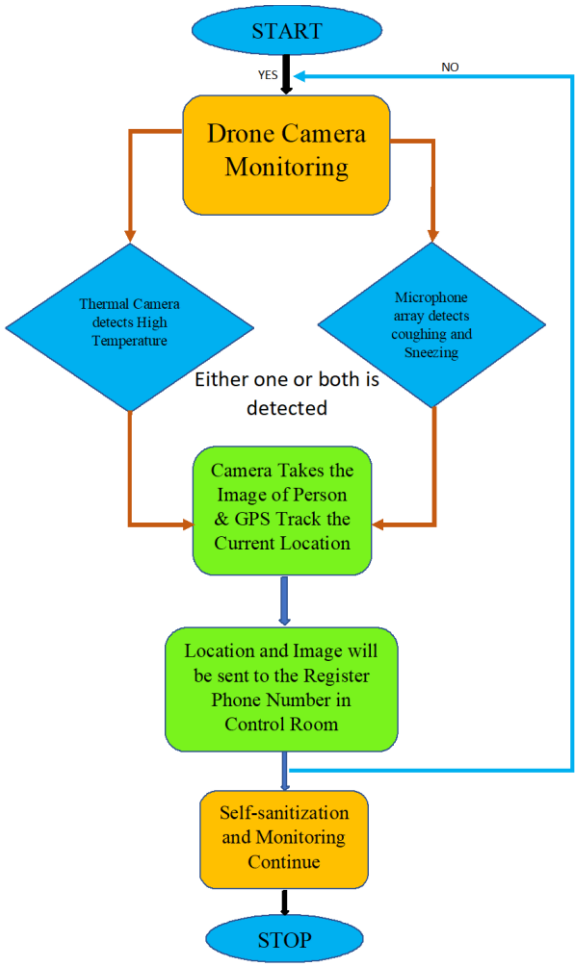

Figure 2 : Flow diagram of the working principal of the proposed system

Table I: Detailed role of the components used

Sl. No.	Equipment Name	Work
1	Arduino	Arduino is an open hardware development that can use for building new model, projects. It is microcontroller-based kit
2	NEO 6m GPS module	GPS module send us the current location. When triggered GPS send the current latitude and longitude of the location.
3	GSM SIM900A	GSM module is used to send messages. Using GSM module photo and location of suspected individual is sent to registered phone number from nearby health management facility.
4	Thermal Camera AMG88833	Thermal camera is used for monitoring body temperature. As high temperature of human body is one of the primary symptoms of COVID-19 so monitoring body temperature is
5	Microphone Array	Using a microphone detector, cough and sneeze of human can be detected. Microphone array is used for accurate monitoring.

Self-Sanitizing Ability:

After scanning a person this system can sanitize itself with self-sanitizing module which incorporated in this system. The mechanism works by using ultrasonic sensor and stepper motor. Due to this there is no risk of getting a healthy individual getting affected by the system itself.

IV. ADVANTAGES & FUTURE SCOPE

Manufacturing this system and making it compulsory in the airport, railway station or in any crowded area can control the spreading of Corona virus.

V. CONCLUSION

WHO declared COVID-19 as a pandemic in March 2020 after 3 months of the 1st reported case of COVID-19. This system will be helpful to detect and control the potential cases of COVID-19 and hence controlling the transmission and spreading of the disease which in turn can reduce the number of active cases. This time is very serious time for us. We should stay together and one time we can win again this COVID-19.

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