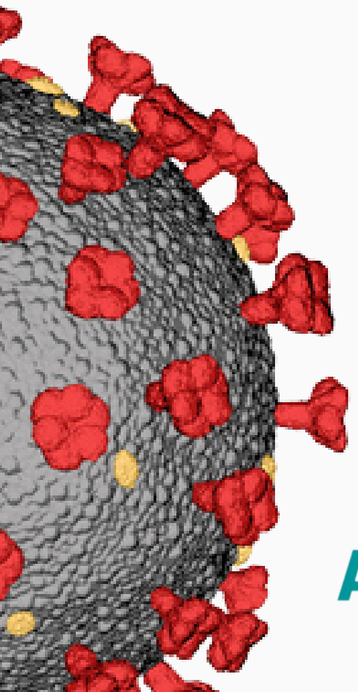
Covid-19 Patient Monitoring System

BY:TEAM_VCET



ARDUINO

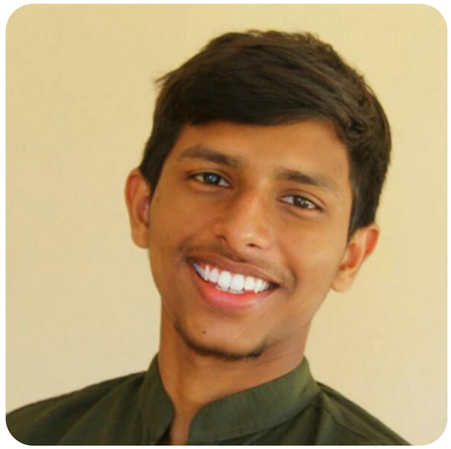
ESPRESSIF

ESP 32

ThingSpeak™

Meet the Team

TEAM_VCET



GAUTHAM SHANKAR N

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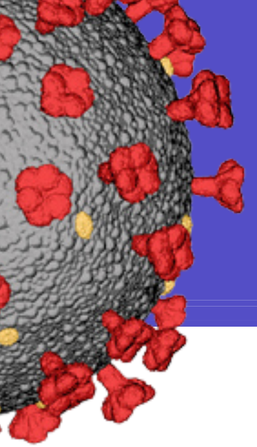
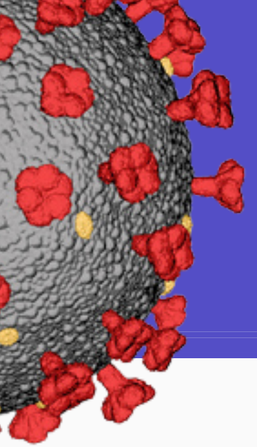


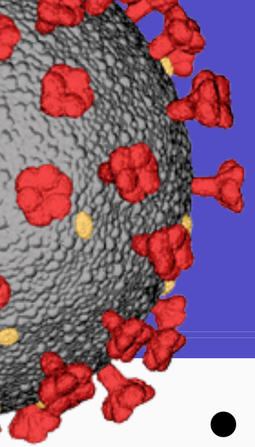
INTRODUCTION

- Covid-19 has increased burden on the healthcare organizations.
- It has drastically changed the formulations in the field of Education, Governance, and even some positive changes in environment.The mainly affected field is the healthcare.
- This monitoring system is designed in order to ensure the safety of frontline workers and also efficient situation handling in case of crisis
- Remote health tracking of quarantined patients can be achieved.



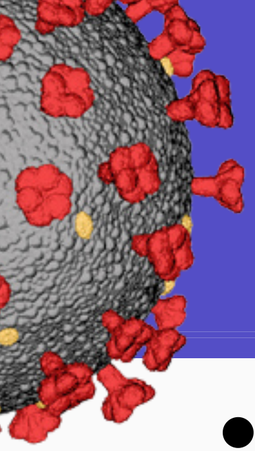
Why do we need to monitor a covid infected patient?

- As per the guidelines of W.H.O and the instructions from ICMR, they have clearly stated that the covid infected patient will have similar symptoms as that of fever.
- Mainly the body temperature, will start to vary and also the Heart rate along with Blood Oxygen level will start varying.
- These parameters help in knowing the health condition of the covid patient and helps in monitoring them.



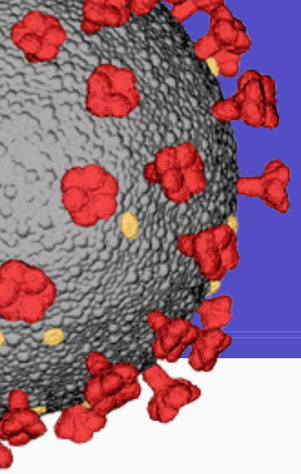
IDEOLOGY

- As per the guidelines of the regulatory body of doctors, the frontline workers has to wear PPE kits while treating the Covid infected patients.
- This increases the hospital bill which would be expensive for the poor and the middle class.
- By looking the data of the first wave in 2020, many frontline workers have lost their lives. On September 2, the WHO Pan American Regional Office in Washington, DC, reported that 570,000 HCW were infected and 2500 were dead due to COVID-19. This can be controlled by less contact with patient and more monitoring through the app



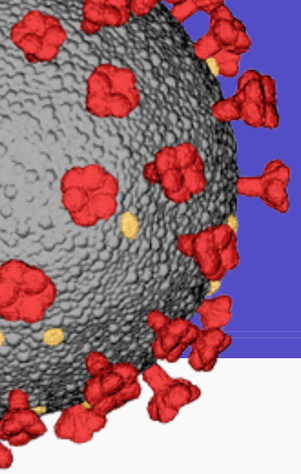
CHALLENGES

- The monitoring kit needs to be always embedded on the hands of the patients which sometimes make the patient feel uncomfortable.
- Continuous power supply to the system is quite challenging.
- Sometimes the output obtained may not be as appropriate as that of the original conventional oximeter.



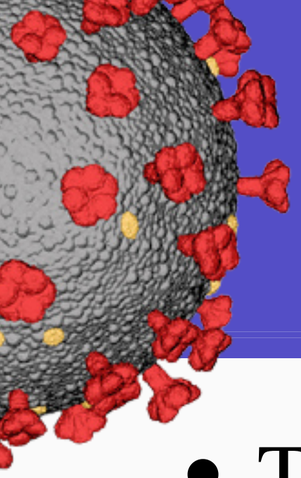
IMPLEMENTATION

- ESP32 module will be embedded on a band and the band will be worn by the patient.
- The sensors are linked (connected)to the ESP32 present in the band.
- The heart rate and Blood Oxygen level sensing sensor i.e MAX30102 will be embedded near the index finger of the patient.



IMPLEMENTATION

- The temperature sensor LM35 will be placed in the palm of the patient and connected to the ESP32 in the band
- The sensors MAX30102 and LM35 will sense the real time data and transfers the information to ESP32.
- ESP32 will be connected to the Wi-Fi of the hospital and this enables the module to send the sensed real time data to THINGSPEAK IoT Platform.

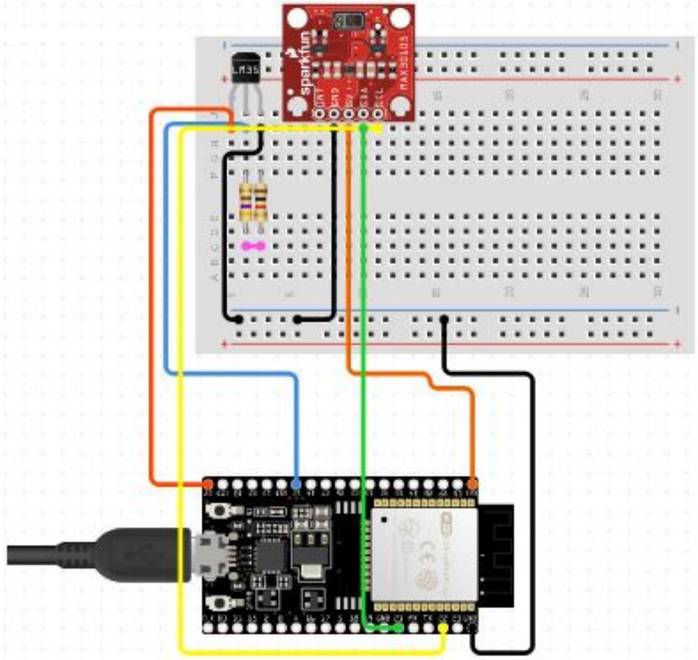


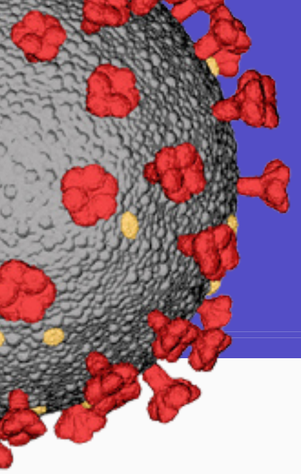
IMPLEMENTATION

- The data from the THINGSPEAK IoT Platform is then accessed through the app developed by us. The numerical data values can be accessed by using 'COVID-19_MONITORING.apk'.
- The pictorial(Graphical) data values can be accessed by using 'GRAPH.apk'.
- The snapshots of the app and the THINGSPEAK IoT Platform is attached in next slides.

IMPLEMENTATION

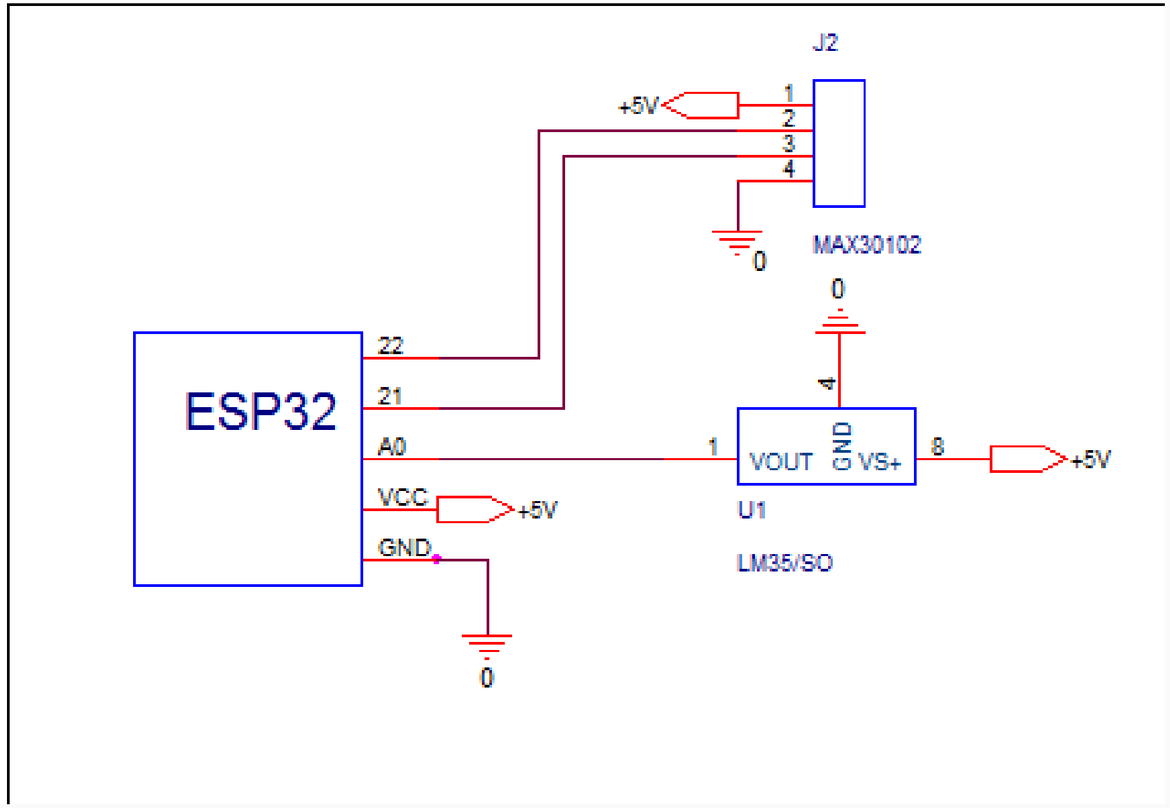
Simulation Model



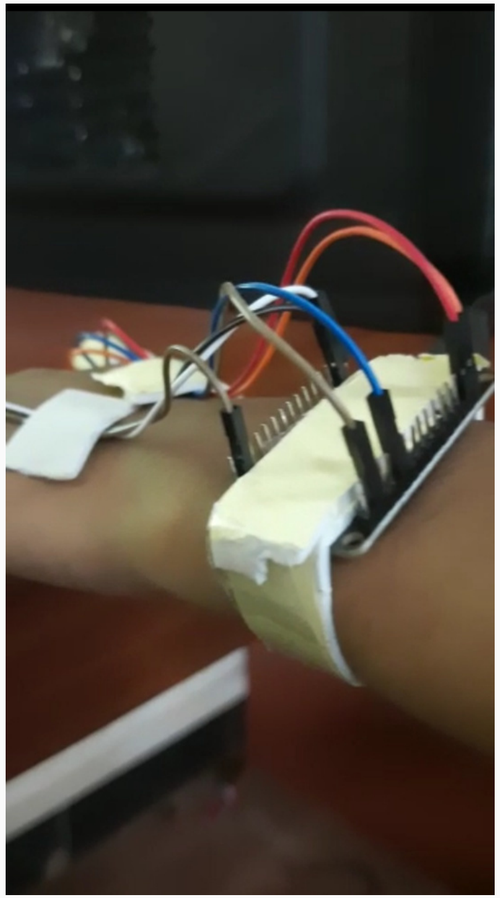


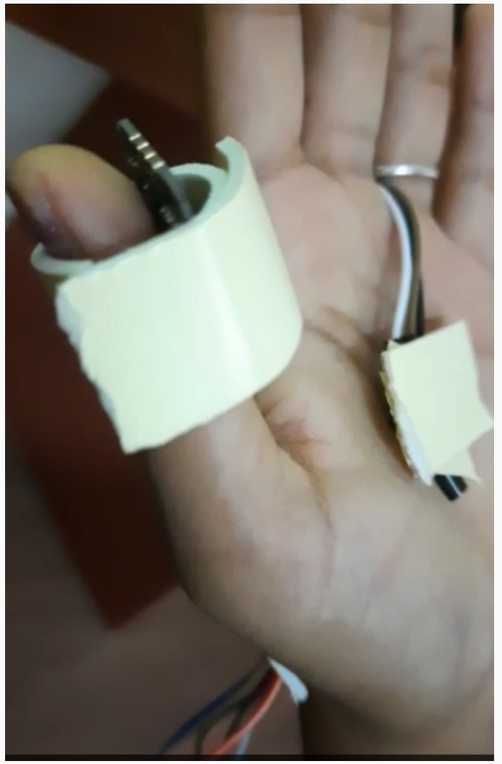
IMPLEMENTATION

OrCAD Design

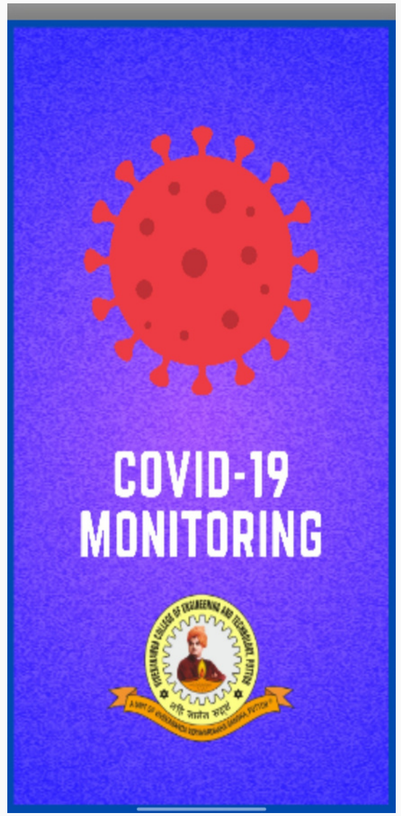


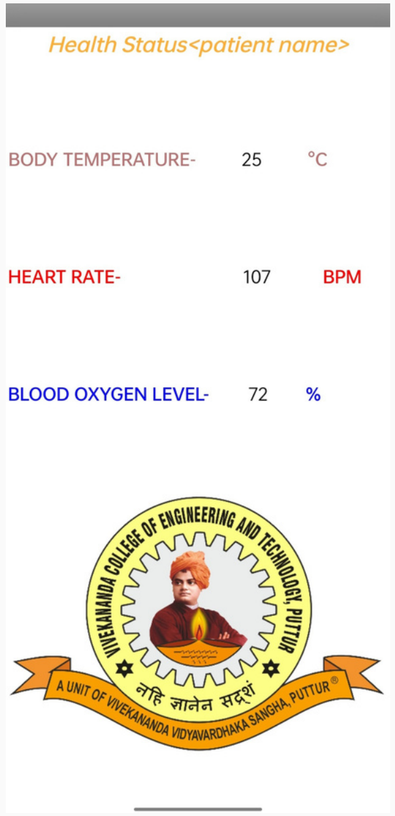
IMPLEMENTATION



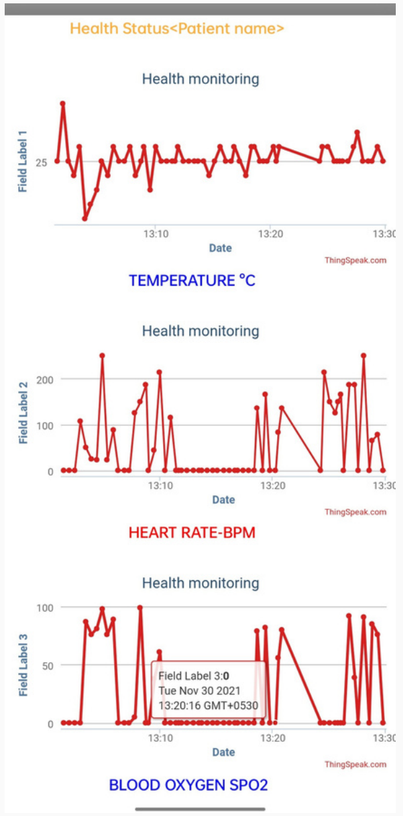


IMPLEMENTATION



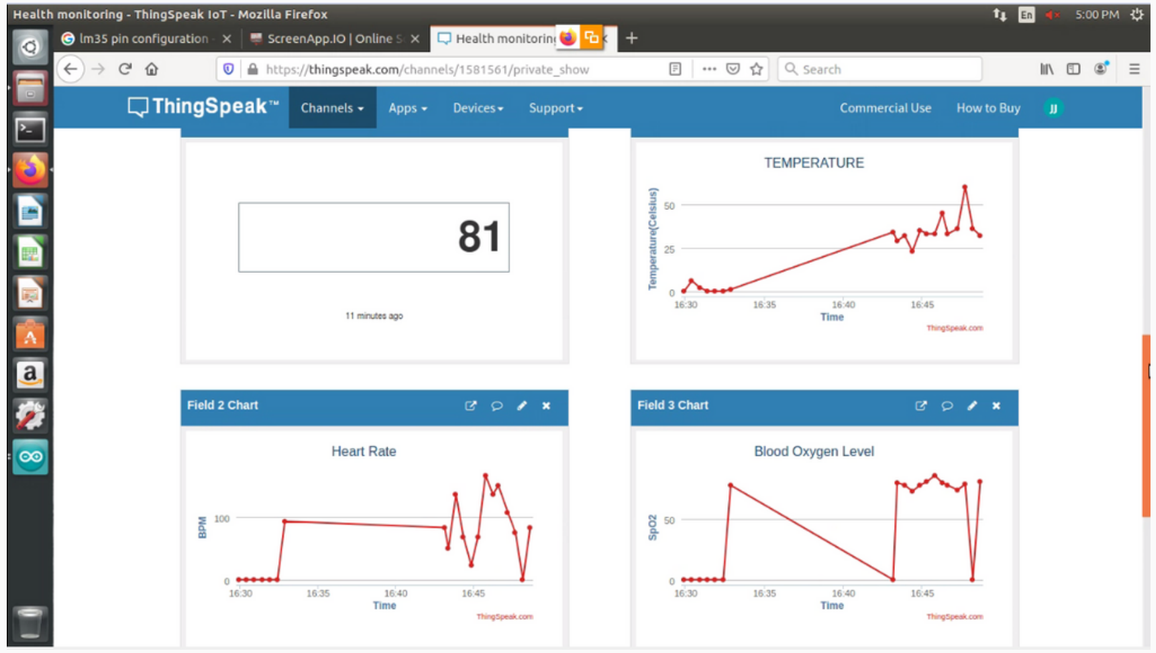


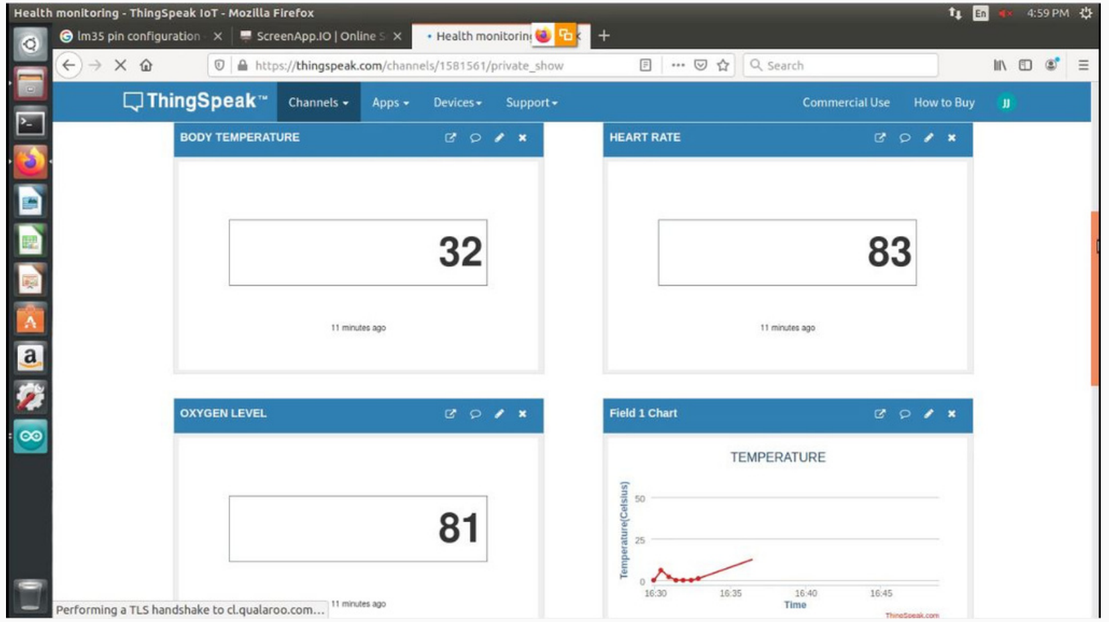
Developed Application to monitor

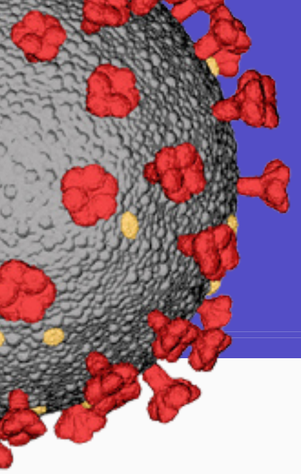


IMPLEMENTATION

THINGSPEAK IoT Platform Snapshots

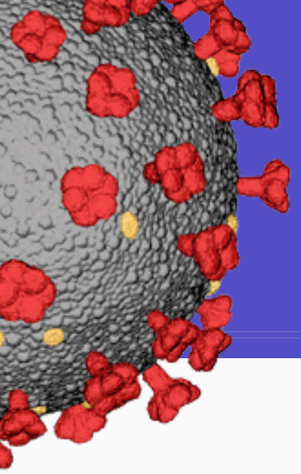






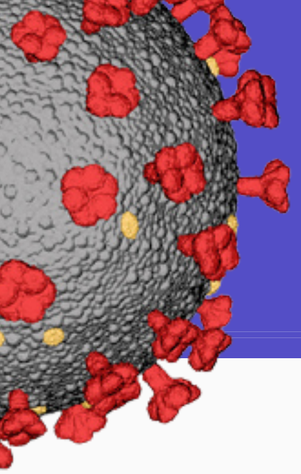
FUTURE SCOPE

- This idea can be implemented in a large scale so that the patients in a hospital can be monitored in a single database.
- Instead of Thingspeak a large database system like Google FireBase,SAP HANA can be used to handle more data.
- Added feature of doctor controlling the flow of oxygen through ventilators with same monitoring app is to be developed



FUTURE SCOPE

- This idea can be implemented in order to asses the health condition of the home quarantined Covid positive tested patients.



CONCLUSION

- The Covid-19 pandemic is haunting the world again and again by different waves of spreading.
- This monitoring system will be the cost efficient method in order to reduce the hospitalization havoc during the peak times of the pandemic.
- Lifes of life saving doctors and front line workers are made less risker while treating or coming in contact with the patient.

THANK YOU