EDL PROJECT

PROJECT TITLE: **IoT - Based Covid Monitoring System**

Team Members :

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PROJECT ABSTRACT :

"**IoT - Based Covid Monitoring System** " is a system that can be used for screening people covering several aspects like:

1) Temperature, and Pulse Monitoring System
2) Face mask Detection
3) Automatic sanitizer dispenser

This can be used for screening at the gate as well, opening the gate when all the parameters are passed.

PROJECT PLAN :

EVAL 1 PLAN :

- Temperature and Pulse Monitoring System: Exploring sensors, controlling with RPI, and displaying the results.
- Work on DL models for face mask detection [Pre-trained model].
- Sanitiser dispenser using sensors.

EVAL 2 PLAN:

- Integrate Temperature and Pulse Monitoring System with IoT (sending or storing results), setting limits, and giving alarms / displaying on LCD.
- Integrate Sanitiser dispensing with temp/Pulse: Loop -> Sanitiser, sensing, again sanitizer.
- Integrate camera module with RPI, work on face mask detection.

EVAL 3 PLAN :

- Complete Face mask detection.
- Integrate all three systems into one.

**Additionals (if time permits) - Notifying if sanitizer is finished in the bottle.

Materials required:

TOPIC	Components	Price	Links for Components
General	Raspberry Pi 3	--	Lab
	Jumper wires	--	Lab
	LCD, LED, Buzzer	--	Lab
	Arduino + Wifi Module (Extra)	--	Lab
Temperature and Pulse Monitoring System	MLX90614 - IR temperature sensor.	989.99	Link
	MAX30100 Sensor (pulse oximeter heart rate sensor module)	160	Link
Automatic Sanitizer Dispenser	Ultrasonic Sensor(HC-SR04);	--	Lab
	Servo Motor(metal Geared Preferred);	--	Lab
	Copper Solid Wire, Box, Sanitiser Bottle	--	--
FACE Mask Detection {RPI 4 is preferred}	16GB (or larger) microSD card	375	Link
	Pi Camera	1 - 349 2- 1190	1 - Link 1 2- Link 2
Total :		Rs. 1873.99 - 2714.99	

References :

[1]https://www.researchgate.net/publication/343231422_IoT-based_System_for_COVID-19_Indoor_Safety_Monitoring

References for face mask detection:

- https://create.arduino.cc/projecthub/karem_benchikha/facemask-detection-88fa1- Using Arduino
- https://www.google.com/amp/s/www.tomshardware.com/amp/how-to/raspberry-pi-face-mask-detector- Using Raspberry-pi.

References for Automatic Sanitizer Dispenser:

- https://create.arduino.cc/projecthub/MissionCritical/diy-hand-sanitizer-dispenser-using-arduino-143de1

Reference for Temperature Detection:

- https://circuitdigest.com/microcontroller-projects/iot-based-contactless-body-temperature-monitoring-using-raspberry-pi-with-camera-and-email-alert
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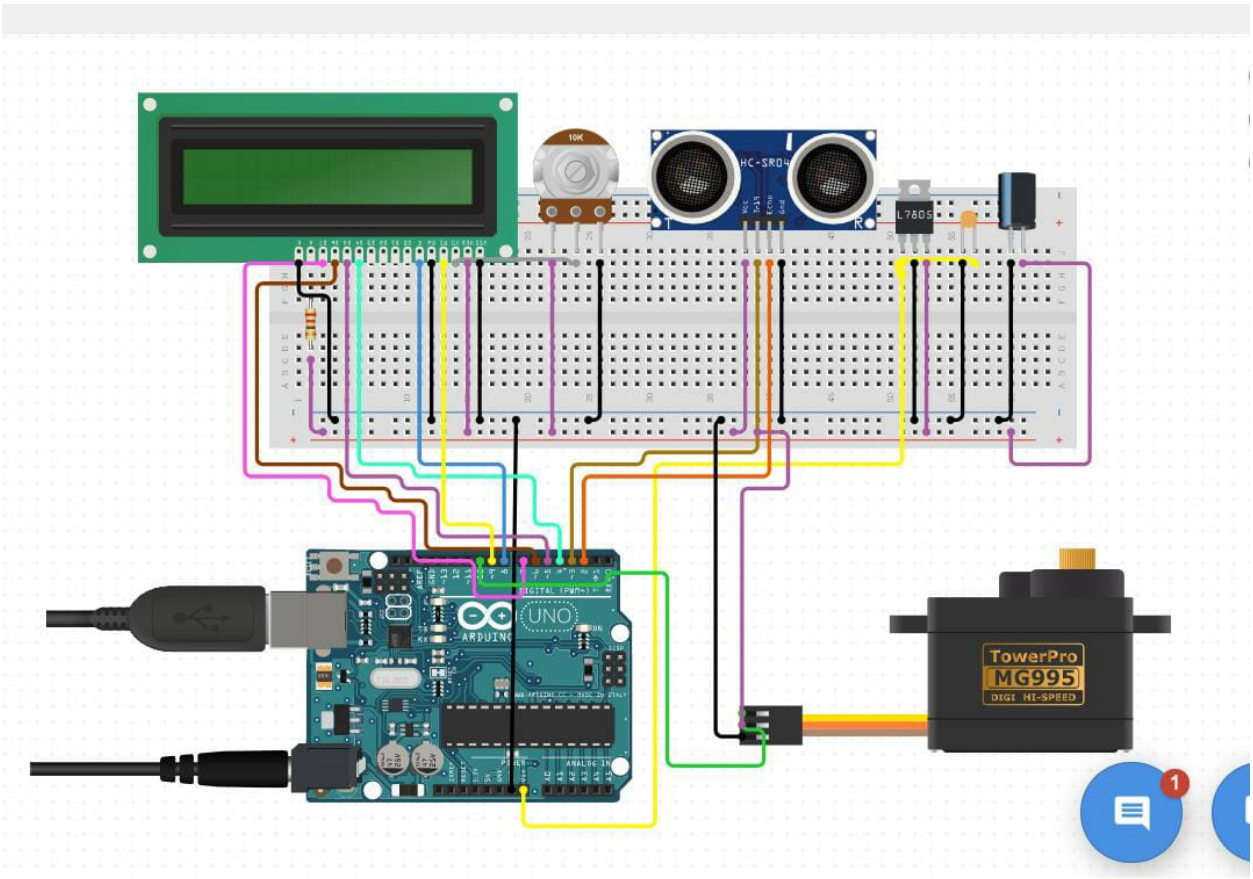
References for Pulse-Oximetry:

- https://youtu.be/OFUhfFsyVXI

Hand Sanitiser:

- Used Ultrasonic sensor to detect an object(hand) less than 10cm.
- Used Arduino Uno as a microcontroller.
- Used Servo motor to provide circular motion and used pulley mechanism using copper wires to convert rotational torque to push sanitizer.
- Used serial monitor to interact with users i.e We give Instructions like “Place your hand”, If hand is detected it shows “Hand Detected” etc.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