International Journal of Advances in Engineering and Management (IJAEM)
Volume 4, Issue 6 June 2022, pp: 2597-2599 www.ijaem.net ISSN: 2395-5252

Temperature and mask scan entry system with sanitization for covid prevention

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Submitted: 20-06-2022 Revised: 27-06-2022 Accepted: 30-06-2022

ABSTRACT:

The basic aim of the project is to detect the presence of a face mask on human faces. In this project we are implementing a long-range IR sensor that is used to detect the presence of humans' and an ESP32 camera modulethat will capture the image of a human and detect whether a person wearing a face mask or not.

When the person appears wearing a face mask the ESP32 cam detects and forwards the information to the microcontroller which is an Arduino Mega 2560 and the green LED turns ON. Now the microcontroller will command the relay to release the sanitizer thereafter it commands the servo motor to authorize the entry.

KEYWORDS: Object Detection,Mask scan,Temperature scaning,Mask scan,Sanitization, Gating

I.INTRODUCTION

The word wide pandemic covid 19 has been the most life-changing event which has startled the world since the year began affecting the health and lines of the masses. Strict measures are followed in order to prevent the disease to monitor the people as their following safety principles or not a strategy was developed. A face mask detector system was implemented to identify whether a person is wearing a mask or not.

To avoid getting infected or spreading it, It is essential to wear a face mask while going out fromhome, especially to public places such as markets or hospitals. The system is designed to detect the faces and to determine whether the person wears a face mask or not.

This project can be used in the hospital, markets, bus terminals, restaurants, and other public gatherings where the monitoring has to be done.

It consists of a camera that will capture the image of the people entering public places and detect whether the person wears a face mask or not using their facial features.

II.EXISTING METHODS

IOT Temperature & Mask Scan Entry System for Covid Prevention:

The camera is used to scan for mask and temperature sensor for forehead temperature. The raspberry processes the sensor inputs and decides whether the person is to be allowed. In this case the system operates a motor to open the barrier allowing the person to enter the premises. If a person is flagged by system for high temperature or no Mask the system glows the red light and bars the person from entry. Also the face and temperature of person is transmitted over IOT to server for authorities to take action.

III.WORKING PRINCIPLE

The aim of the project is to detect the face mask and also check the temperature of a person and determine whether the person wearing a face mask or not and also the person is having the temperature within the limits (below 37 degrees).

In this project we are implementing two microcontrollers they are ESP32 CAM which is used to detect the captured image of human and when a person appears wearing a face mask and the temperature value is below 37 then ESP32 CAM detect the person byreceivingthecommandsfromcameraandIRsensor and IR temperature sensor will forwardtheinformationtothe microcontroller which is Arduino Mega2560 it will process where the green led turns ON.AtthesametimeArduinoMega2560willcommandtherelaytoreleasethesanitizerthere after

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tommandsthe servomotorwhichactslikea tollgatesystemtoauthorizetheentry.

In the scenario of a person not wearing a face mask orhaving the temperature above 37 degrees then ESP32 CAM and ir temperature sensor will detect and forward the information to Arduino Mega2560 then the LCD display will instruct the person to wear a face mask, where a red led along with the buzzer turns ON and microcontroller will command the servomotor to unauthorize the entry. Finally, when a person wants to exit, theycanaccess apushbuttonsothattheservomotorwillbeopen.

IV. HARDWARE COMPONENTS

1.ARDUINO MEGA 2560

The Arduino Mega 2560 is a microcontroller board based on the ATmega2560. It has 54 digital input/output pins (of which 15 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started.

ARDUINO MEGA 2560

2. ESP 32 CAM

The ESP32-CAM is a full-featured microcontroller that also has an integrated video camera and micro SD card socket. It's inexpensive and easy to use and is perfect for IoT devices requiring a camera with advanced functions like image tracking and recognition.

ESP32 CAM

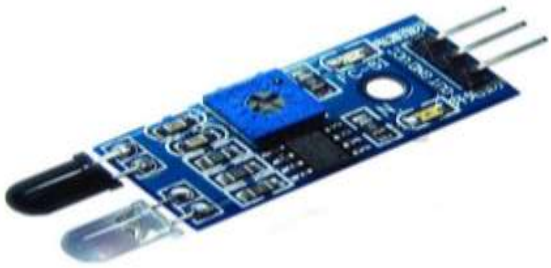
3.IR TEMPARATURE SENSOR

An infrared in temperature probe measures temperature by detecting the infrared energy emitted by all materials which are at temperatures above absolute zero, (0°Kelvin). This configuration facilitates temperature measurement from a distance without contact with the object to be measured.

IR TEMPERATURE SENSOR

4. IR SENSOR

An infrared sensor (IR sensor) is a radiation-sensitive and optoelectronic component with spectral sensitivity in the infrared wavelength range 780 nm … 50 µm. IR sensors are now widely used in motion detectors, which are used in building services to switch on lamps or in alarm systems to detect unwelcome guests.



IR SENSOR

V.RESULTS AND DISCUSSION

The project “Temparature and mask scan entry system with sanitization for covid prevention” is implemented successfully.

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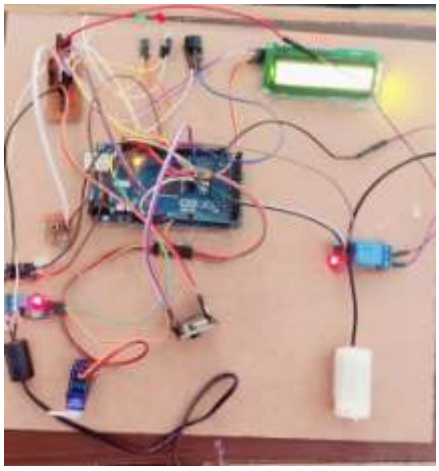
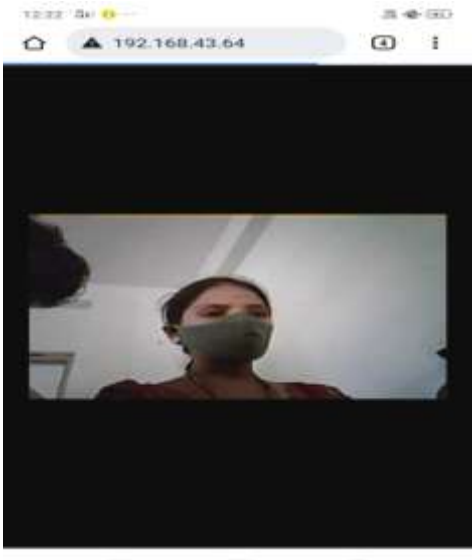


PRACTICAL DEVICE

When executing the project output will be displayed on the systems lcd display

The ouput is detected



The output is detected

The main objective of the system is to check whether the person is wearing mask and checking the temperature of the person and thereby controlling the gate locking mechanism and also having the automatic sanitisation for a person is added feature for the project. All the features of the project are successfully tested and executed.

VI. CONCLUSION

TheCOVID-19pandemichasforcedtheglobalpopulationtoadoptnewwaysofliving,including the wearing of masks as a new norm. It has even accelerated R&D efforts in maskmaterialsanddesign toofferbetterprotection forpollutantsandpathogens. This review therefore provides a holistic summary of the A to Z of face masks, togive readers a broad-view understanding of masks from the perspective of public health to thedomains of material development. The importance of mask-wearing in preventing the spreadof airborne and droplet-borne infections was discussed early in this review. Thereafter, theprotectionmechanism,production,andperformancetestingofmasksweredescribed.WethenexploredtheeffectivenessofDIYhomemademasksasanalternativetocommercialmasks.Asmentioned in the very beginning, the fight against any infectious diseases requires efforts andsolutions in prevention, detection, diagnosis, and treatment. The wearing of masks thereforeserves as a key strategy towards airborne disease prevention that cannot be easily substituted.Also, future studies can try other detection models and tune the hyper parameters to increasethe detectionaccuracy.

REFERENCES

[1]. R. Girshick, “Fast r-cnn,” in Proceedings of the IEEE international conference oncomputervision,2015,pp.1440–1448.

[2]. W. Liu, D. Anguelov, D. Erhan, C. Szegedy, S. Reed, C.-Y. Fu, and A. C. Berg, “S sd:Single shot multi box detector,” in European conference on computer vision. Springer,2016,pp.21–37.

[3]. S. Ren,K.He, R. Girshick,and J.Sun, “Faster r-cnn: Towards real-time objectdetectionwithregionproposalnetworks, ”