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THERMAL FLAP BARRIER SYSTEM FOR COVID-19 PREVENTION

Attendance monitoring system with covid prevention healthcare system Education and public

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Abstract : The rate at which the novel virus Covid-19 spread across the world in an alarming rate with high rate of death of the infected persons is quite disturbing, hence the need to checkmate its spread by quickly identifying persons with the symptoms of this viral infection. The proposed method discusses the development of an automated low-cost non-contact temperature scanner, sanitizer dispenser, mask monitoring system. The system automatically detects a human being, scans for temperature, sanitizes the person with no interference required and monitors for wearing of mask. The circuit for the system comprises an Arduino microcontroller, LCD display, IR sensors, temperature sensor and camera. The temperature sensor (MLX90614) senses the temperature, certifies that the value is within the specified range and displays the temperature on the LCD. Thereafter, an IR sensor activates the pump to dispense the sanitizer. At the disinfectant chamber, the IR will trigger the pump when it senses person, it dispenses the body sanitizer through the nozzles. The entire process helps to maintain personal preventive measures as well as detecting a possible symptomatic person as fever with high temperature which is one of the major symptoms of Covid-19. The device scans for persons wearing mask with camera using MATLAB. This proposed system is used to take attendance in colleges using biometric. It is positioned at the entrance of buildings to sanitize and scan all staff and visitors against Covid-19.

IndexTerms - Non-contact temperature scanner, sanitizer dispenser, mask monitoring system.

I. INTRODUCTION

Breast cancer constitutes a significant threat to women's health and is considered the second leading cause of death in women. Breast cancer is a result of abnormal behaviour in the functionality of normal breast cells. Therefore, breast cells tend to grow. Deep learning makes use of mathematical and statistical models to learn from data. Deep learning finds an important role in biomedical applications in which accuracy of measurements is a crucial factor. Subsequently, Deep learning algorithms can help diagnose breast cancer at its early stages. Deep learning tools can determine the most predicative features from complex and noisy data sets. As a result, false negative and false positive decisions could be significantly reduced, which yields better classification accuracy. Early Breast cancer detection is done using Deep learning approach to make the system detect the tumor cells automatically using advanced image processing techniques. It has four stages, Image is preprocessed by studying various parameters extractions such as color conversion, re-sizing and filtering is carried out by segmentation algorithms. This helps to identify the amount of lesions scattered over the body. Feature extraction is by Max Pooling and finally, mammogram image classified using Deep Convolution Network algorithm. Finally the results will be uploaded in IoT, whether it is normal, benign or malignant.

II. EXISTING SYSTEM

Automatic hand sanitizer with built in infrared thermometer for taking temperature of students in colleges and workspace but mask monitoring system is not included in existing system.

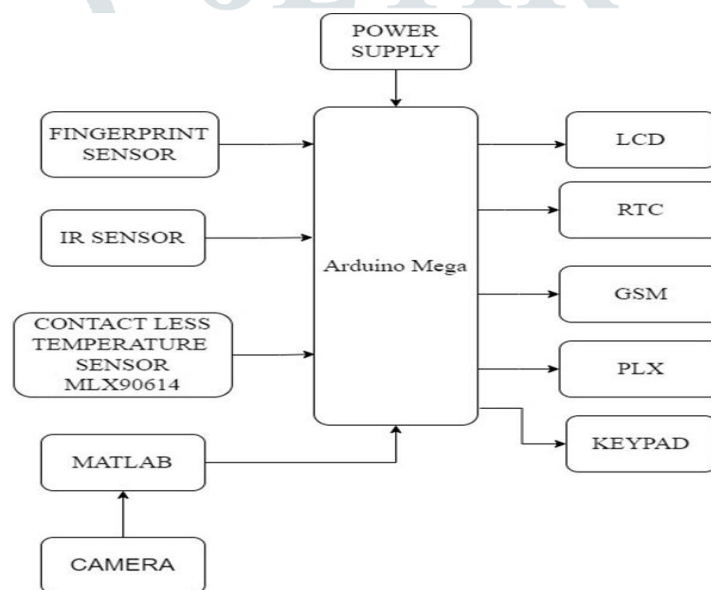
In existing system, the attendance is taken manually by staffs and manual time entry is very time consuming and ineffective and outdated process. The manual attendance leads to errors and more man power is needed to manage system.

The existing system consist of both these ideas available individually in the environment.

III. PROPOSED SYSTEM

This project is to provide the design and implementation of a contactless temperature scanner and sanitizer dispenser system. Using contactless temperature sensor MLX90614 it scans for the person's body temperature at the wrist and the displays the temperature measured. The IR sensor detects the person's hand and the dispenser is automatically triggered so that the sanitizer is poured in hand. the camera interfaced with the Arduino mega uses MATLAB for scanning the person whether he is wearing mask or not. Monitoring attendance is performed by biometric method. The proposed is used at the entrance of all the institutions for scanning people against covid-19.

IV. BLOCK DIAGRAM OF PROPOSED SYSTEM



V. METHODOLOGY

Step 1: DETECTION:

In this project our main motive is attendance monitoring system for students with covid 19 measures. Using IR sensor student will be detected and using contactless temperature sensor to detect the students body temperature. The LCD will be update all information.

Step 2: AUTHENTICATION:

Our projects main motive is to authentication for students. We are using the authentication for fingerprint and face match. We are using matlab for face matching and fingerprint sensor used for fingerprint authentication. LCD will be update the student information.

Step 3: UPDATE:

All the information will be update the excel sheet. RTC used for time to time update in the excel sheet. Keypad will be used for student count.

VI. DESIGN AND TECHNOLOGY:

VI.1. Fingerprint Module R305

R305 is a finger print sensor module with TTL UART interface. The user can store the finger print data in the module and can configure it in 1:1 or 1: N mode for identifying the person. The FP module can directly interface with 3v Microcontroller. A level converter (like MAX232) is required for interfacing with PC.

The R305 fingerprint module has two interface TTL UART and USB2.0, USB2.0 interface can be connected to the computer; RS232 interface is a TTL level, the default baud rate is 57600 , can be changed, refer to a communication protocol ; can And microcontroller, such as ARM, DSP and other serial devices with a connection, 3.3V 5V microcontroller can be connected directly. Needs to connect the computer level conversion, level conversion note , embodiments such as a MAX232 circuit.

VI.2. IR SENSOR

An IR sensor can measure the heat of an object as well as detects the motion. These types of sensors measures only infrared radiation, rather than emitting it that is called as a passive IR sensor. Usually in the infrared spectrum, all the objects radiate some form of thermal radiations. These types of radiations are invisible to our eyes, that can be detected by an infrared sensor. The emitter is simply an IR LED (Light Emitting Diode) and the detector is simply an IR photodiode which is sensitive to IR light of the same wavelength as that emitted by the IR LED. When IR light falls on the photodiode, The resistances and these output voltages, change in proportion to the magnitude of the IR light received.

VI.3. CONTACTLESS TEMPERATURE SENSOR

Thermopiles are mainly used for contactless temperature measurement in a wide range of applications. Their primary function is to transfer the heat radiation emitted from objects into a voltage output. Major applications include appliances such as microwave ovens, clothes dryers, and automated cooking, medical devices such as ear and fore head thermometers, automotive applications such as car climate control, seat occupancy, blind spot alert, and black ice warning, consumer products such as printers, copiers, mobile phones and many industry applications such as paper and plastics manufacturing

VII. SOFTWARE IMPLEMENTATION

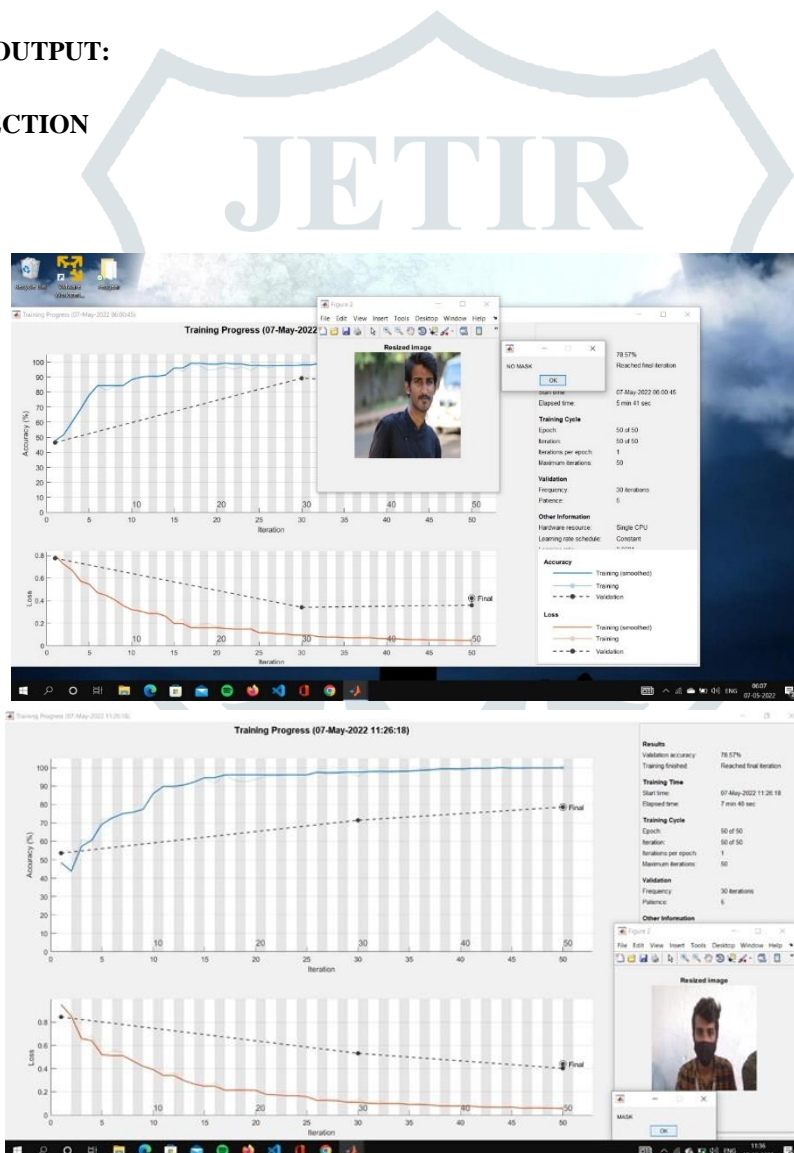
VII.1.MATLAB

MATLAB (MATrix LABoratory) is a numerical computing environment and fourth-generation programming language. Developed by Math Works, MATLAB allows matrix manipulations, plotting of functions and data, implementation of algorithms, creation of user interfaces, and interfacing with programs written in other languages, including C, C++, Java, and Fortran

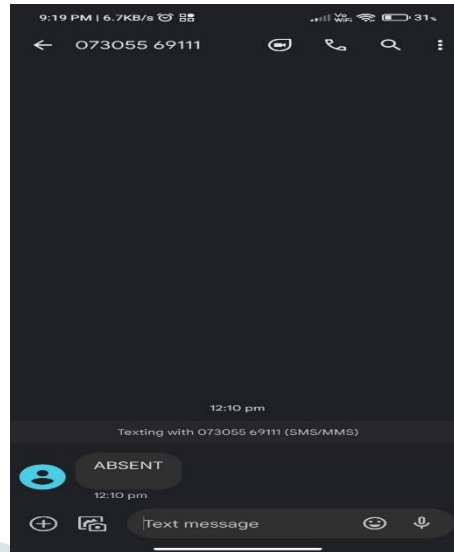
All the graphics features that are required to visualize engineering and scientific data are available in MATLAB. These include 2-D and 3-D plotting functions, 3-D volume visualization functions, tools for interactively creating plots, and the ability to export results to all popular graphics formats. You can customize plots by adding multiple axes; changing line colors and markers; adding annotation, Latex equations, and legends; and drawing shapes.

VIII. RESULTS AND OUTPUT:

VIII.1 MASK DETECTION



VIII.1 ATTENDANCE MARKING



IX. CONCLUSION AND FUTURE WORK

As the evolution of society, diseases and technologies continues, new mHealth scenarios and applications will appear and become a reality, these identified open issues will be ongoing. The research communities need to continue reporting on the benefits, challenges and lessons learned of IoT in-home health monitoring systems deployment so that new system development can learn from. This paper presents the needs, the technologies advances.

The patient-hub application of in-home health remote monitoring system must run unobtrusively to monitor different health-related attributes while supporting the patient's mobility at home (e.g. engaging in some simple home activities like gardening). • Interoperability: It must be fully interoperable with the cloud, and must synchronize the recorded medical data to the cloud. • Adaptability: The architecture should be modular and extensible to handle different sensor configuration changes. • User Experience: Reliability and timeliness are the most important performance requirements of the patient-hub side of in-home health remote monitoring applications. This in addition to measures to meet high accessibility and usability requirements of the patient-hub. • Security: As typical requirements in any e-health platform, considerable security and privacy are required to support confidentiality, integrity and availability

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