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An Automated System for Regular Monitoring of People to Adopt Safety Guidelines to Avoid COVID19 using Deep Convolution Neural Network Model

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Abstract- The Corona virus which is currently threatening in the world, originated in the province of Wuhan on the China continent. Covid-19 is a Corona Virus family that spreads very fast and easily. Although many countries have worked together to find a vaccine for the Covid-19, it has not been fully effective .So, we have to follow areaways to protect ourselves from the social distance, wearing mask, washing and sanitizing hand. In this paper helps to diagnose the symptoms of the most common Covid-19 in this world without being touched by technological advances i.e., fever, cough, sneezing. In deep Convolution Neural Network (CNN) are implemented to monitoring. This monitoring is spontaneously monitored and recorded in difference places and people to adopt safety guide lines to avoid Covid-19. Thus, helps to people fight against Covid-19 and protect them from it.

Keywords:- RFID, fever, mask detection, temperature.

I. INTRODUCTION

The whole world is now in a dangerous situation, there is no security for life due to Covid-19, and the safety is a primary thing for everyone who comes out for their survival in their life in this Covid-19situation. The corona virus originated on the Chinese continent in the province of Wuhan. Although the pyrethrum was discovered six months after its formation, its potency remains ineffective.

So, people should follow the following steps to protect themselves.

- Avoid social contacts and Keep social distance.
- Stay home, if you feel fever
- To avoid sneezing, cough and spitting in open place
- Wear mask where you go
- Sanitizing and washing hand properly

Government, Doctor, law enforcement agencies, police and many others play a key role in situation.

If any person entering a company or institution has a sign of corona, they can spread it too theirs by air or touch. Therefore, we are in need of an unmanned monitoring system to solve this problem.

This cannot be easily controlled by the government so the intelligent system Safety of lives there as we can't confirm that all of them are following the safety measures or not. While workers entering into the office, the system checks their body temperature, provides sanitizers to keep them clean, detects the face masks to avoid direct transmission of virus sand also allows only the staffs in to the office by verifying their ID cards.

These processes are done with the help of IoT system in four stages namely Fever Detection, Hand Sanitizing, and Mask Detection and Tag based Entry. This system helps to keep the workers safe and secured from the Covid-19 pandemic. This project is very helpful in controlling the corona cases.

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II. PROPOSED SYSTEM

The project has proposed our solution the overcome this covid19 situation using the IOT system which will ensure the safety of people. Because the internet of things has become one of the major communication tool that is spreading over a different range of application which can connect numbers of sensor and appliances together to the internet which allows the user to share data and information.

However we can ensure the safety of each and every person who comes out of their homes for their survival on the basis of four stages they are,

- Fever detection
- Hand sanitization
- Mask detection
- Tag based entry

These four stages help the people to survive the life outside, without any danger from the dangerous Corona virus.

1. Advantages

- More accuracy
- Accurate locations with the help of RFID
- Works long range data transfer Using LoRa Communication

The proposed system consist of two categories as,

- Monitor
- Maintain

Monitor is one of the types which judge a person who wear the mask or not maintain is another type which judge the mask during the working hour in college/office. The RFID is the tag which is used to identify a person who enters the office/college.

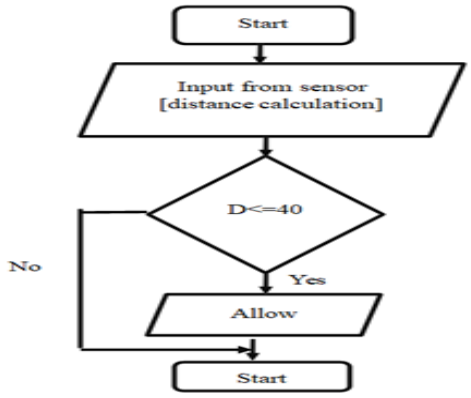

Fig 1. Flow chart for our proposed work to control COVID-19 pandemic Monitoring of human activities.

These four stages of entry help the people to have a normal life outside the premises,Without any infection from the corona virus.

Table 1. The categories in the controlled COVID 19 data set along with the number of images divided into train and test data sets.

Label	Category	Train	Test
0	Coughing	880	176
1	No social distance	760	152
2	With gloves	785	157
3	Handshaking	865	173
4	Without gloves	1015	203
5	With mask	830	166
6	No handshaking	1105	221
7	Spitting	700	140
8	Social distance	845	169
9	Hugging	735	147
10	Without mask	705	141
11	Sneezing	675	135

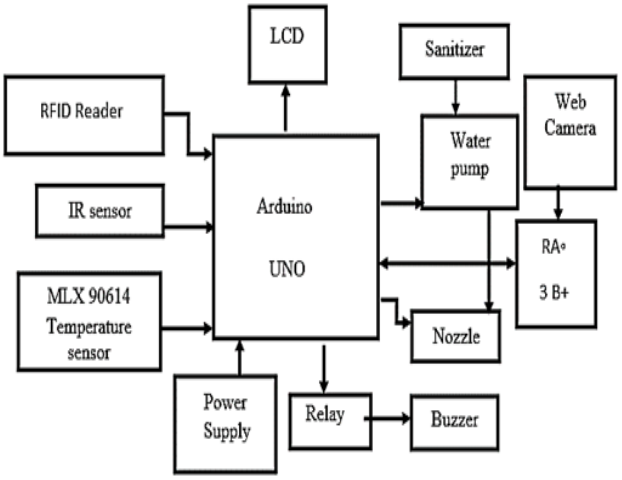

Fig 2. Block Diagram for the Analysis of COVID-19 for the healthcare system.

The thermal camera is used, that visualizes the body temperature as an image and the temperature at multiple points over a certain region can be measured.

In this category was high alert and keep keeping distance from are informed to test the person for the possibility of having COVID- 19.

2. IR Sensor:

There are different types of infrared transmitters depending on their wavelengths, output power and

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response time. An IR sensor consists of an IR LED and an IR Photodiode; together they are called as Photo coupler or onto coupler. Infrared receivers or infrared sensors detect the radiation from an IR transmitter. IR receivers come in the form of photodiodes and phototransistors. Infrared Photodiodes are different from normal photo diodes as they detect only infrared radiation.

3. Temperature Sensor mlx90614:

The IR Thermometer Evaluation Board is equipped with an MLX90614-ABB -- a simple-to- use, but very powerful single-zone infrared thermometer, capable of sensing object temperatures between -70 and 380°C. Using SM Bus -- an I2C-like interface – to communicate with the chip means you only need to devote two wires from your microcontroller to interface with it.

4. Arduino:

Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board

5. Raspberry pi3+:

The Raspberry Pi is a low cost, credit-card sized computer that plugs into a computer monitor or TV, and uses a standard keyboard and mouse. It is a capable little device that enables people of all ages to explore computing, and to learn how to program in languages like Scratch and Python.

6. RFID:

Radio Frequency Identification (RFID) technology uses radio waves to identify people or objects. There is advice that reads information contained in a wireless device or "tag" from a distance without making any physical contact or requiring a line of sight.

7. Sanitizer:

Often used on the go, hand sanitizers contain ethyl alcohol, isopropyl alcohol or both to kill bacteria and viruses on your hands. Alcohols have long been known to kill germs by denaturing the protective outer proteins of microbes and dissolving their membranes.

8. Relay:

Relay works on the principle of electromagnetic induction. When the electromagnet is applied with some current it induces a magnetic field around it. Above images how working of their lay. A switch is used to apply DC current to the load.

III. EXPERIMENTAL RESULTS

The outcome of this paper is monitoring people who can survive themselves through detection. It is immensely workout the entire world.

The data-based monitoring system will clearly identify the employer's temperature level which helps us to social distance. The stages which are highly recommended to follow and will be monitor through the processing management.

Fig 3. Hardware output of the proposed work.

Table 2. Final results shown by the proposed system.

	Day (1-10) Test Results									
Abnormal Temperature	0	3	7	0	10	30	16	8	18	19
Normal Temperature	9	1	0	4	32	9	23	25	6	46
With Mask	0	0	3	6	19	43	22	43	0	54
Without Mask	4	14	22	36	21	0	4	23	11	28

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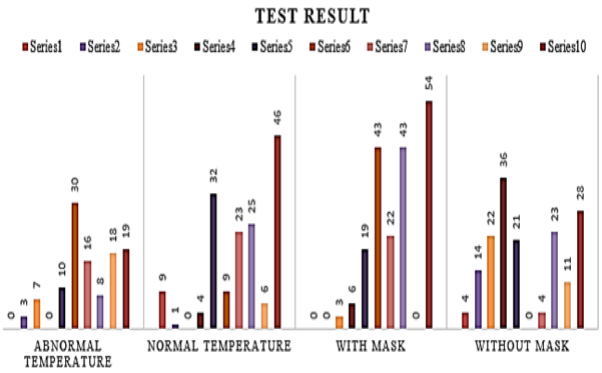

Fig 4. Day 1-10 Covid-19 testing result chart.
(a) Abnormal Temperature (b) Normal Temperature
(c) With Mask (d) Without Mask.

IV. CONCLUSION

This Covid19 pandemic shows various difficulties faced by the people and its utmost survival for the day-to-day life. The process that is done by IoT system which ensures the safety measures of people in the world. With the help of monitoring system people can secure them with fearlessly.

The detection-based networks highly enlightened in IoT system. Within these, we get clear identification of people who are suffering through covid19. Through RFID based tag system, it will the database and monitor each database of the employers. Self-solutions were instructed along with these kinds of measurements like usage of detection in daily basis of life. A short alert message will be given to those who are not aware of wearing a mask.

Some hardware tools or materials which we used to found out the temperature of the employers. The future proposals can come up with attempt to monitor and manage various different diseases with the same methodology and can also be worked on better data accuracy and privacy.

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