

e-ISSN: 2319-8753 | p-ISSN: 2320-6710

DIA

#### International Journal of Innovative Research in SCIENCE | ENGINEERING | TECHNOLOGY

# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

000

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 10, Issue 7, July 2021

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 7.569

9940 572 462

6381 907 438

0

🚽 ijirset@gmail.com





| e-ISSN: 2319-8753, p-ISSN: 2320-6710| <u>www.ijirset.com</u> | Impact Factor: 7.569|

||Volume 10, Issue 7, July 2021||

| DOI:10.15680/IJIRSET.2021.1007159 |

### IoT Based Temperature and Mask Scan Entry System

K.Pavithra<sup>1</sup>, M.Leelavathi<sup>2</sup>, B.Mounika<sup>3</sup>, M.Mahesh<sup>4</sup>, R.Lavanya<sup>5</sup>, K.D.Mohana Sundaram<sup>6</sup>

B.E Final year Student, Department of Electronics and Communication Engineering, Siddharth Institute of

Engineering & Technology, Puttur, India<sup>1,2,3,4,5</sup>

Assistant Professor, Department of Electronics and Communication Engineering, Siddharth Institute of

Engineering & Technology, Puttur, India<sup>6</sup>

**ABSTRACT:** COVID-19 (Corona virus) has affected day to day life and is slowing down the global economy. This pandemic has affected thousands of peoples, who are either sick or are being killed due to the spread of this disease. The first step to detect Covid is by scanning for fever. Also we need to monitor every person for a mask. We have temperature checking systems for every entrances for scanning but manual temperature scanning has a lot of disadvantages .Such as the person are not well trained on using temperature scanner devices. There may be error in reading values. Many of times peoples are not barred from entry even after higher temperature readings are no masks. The scanning is skipped by the person, if supervisors are not watching .Manual scanning system is not suitable for large crowds.

To solve this problem, we propose a fully automated temperature scanner and entry provider system. It is automation system that has a wide range of applications. The system makes use of a contactless temperature scanner and a mask monitor. The scanner is connected directly with a human barrier to bar entry if high temperature and no mask is detected. 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 and test the person for Covid. Thus the system provides a 100% automated system to prevent the spread of COVID.

**KEYWORDS:** Light fidelity, wireless fidelity, data transmission.

#### INTRODUCTION

In the current wake of the COVID-19 pandemic, preventing and/or limiting the community spread of the virus is a mammoth task, with governments and administrations across the world applying different strategies to restrict population movement and social interaction. A result has been serious socio-economic impacts. A recent survey conducted on 5800 small US businesses concluded that 43% of businesses were temporarily closed and falls in the employment of 40%.

Preventing community transmission is the key to reducing the load on healthcare systems and to keep the economy rolling. Businesses are required to follow standard operating procedures (SOPs) provided by their governments in efforts to curb community transmission of the virus. However, there is a financial impact on small businesses to implement specific SOPs and compliance rules and this is exacerbated when required to hire or re-appropriate staff members to implement compliance such as measuring the temperature of incoming customers and ensuring physical distance between them. Internet of things (IoT), as an enabler of data sharing through connectivity, is very attractive in healthcare applications. An advantage of this technology is that it enables remote health monitoring. IoT also enables human-to-human, machine-to-human, and machine-to-machine communication without any external intervention. It can therefore be a very useful tool in implementing and monitoring human social interaction during COVID-19. Safework Australia has prepared a checklist for small businesses in retail that outlines workplace safety procedures.



| e-ISSN: 2319-8753, p-ISSN: 2320-6710| <u>www.ijirset.com</u> | Impact Factor: 7.569|

||Volume 10, Issue 7, July 2021||

| DOI:10.15680/IJIRSET.2021.1007159 |

**II.LITERATURE SURVEY** 

## Bartik, A.W.; Bertrand, M.; Cullen, Z.; Glaeser, E.L.; Luca, M.; Stanton, C. The Impact of COVID-19 on small business outcomes and expectations. Proc. Natl. Acad. Sci. USA 2020, 117, 17656–17666, doi:10.1073/pnas.2006991117.

To explore the impact of corona virus disease 2019 (COVID-19) on small businesses, a survey of more than5,800 small businesses between March 28 and April 4, 2020 was conducted. Several themes emerged. First, mass layoffs and closures had already occurred—just a few weeks into the crisis. Second, the risk of closure was negatively associated with the expected length of the crisis. Moreover, businesses had widely varying beliefs about the likely duration of COVID-related disruptions. Third, many small businesses are financially fragile: The median business with more than \$10,000 in monthly expenses had only about 2 week of cash on hand at the time of the survey. Fourth, the majority of businesses planned to seek funding through the Corona virus Aid, Relief, and Economic Security (CARES) Act. However, many anticipated problems with accessing the program, such as bureaucratic hassles and difficulties establishing eligibility. Using experimental variation, we also assess take-up rates and business resilience effects for loans relative to grants-based programs.

Summary: From this article, We have taken the concept of covid-19 and its problems facing.

### Pang, Z. Technologies and architectures of the Internet-of-Things (IoT) for health and well-being. Ph.D. Thesis, KTH Royal Institute of Technology, Stockholm, Sweden, January 2013.

To improve human health and well-being is the ultimate goal of any economic, technological and social development. The rapid rising and aging of population is one of the macro powers that will transform the world dramatically, it has caused great pressure to food supply and healthcare systems all over the world, and the emerging technology breakthrough of the Internet-of-Things (IoT) is expected to offer promising solutions (National Information Council 2008). Therefore the application of IoT technologies for the food supply chain (FSC) (so-called Food-IoT) and inhome healthcare (IHH) (socalled Health-IoT1) have been naturally highlighted in the strategic research roadmaps (European Commission Information Society 2009). To develop practically usable technologies and architectures of IoT for these two applications is the final target of this work

**Summary:** From this article, We have taken the concept of IoT and sensing different parameters like healthcare using IoT.

#### **III.PROPOSED SYSTEM**

In this proposed IoT Based Temperature and Mask Scan Entry System, raspberry Pi acts as the controlling unit. Along with raspberry pi camera, infrared temperature sensor (MLX901614), IR sensor, water pumping motor, dc motor makes the complete entry scan method for covid-19.

This proposed system is applicable where lots of people coming outside their house like shops, malls, even public functions. The transmission of covid-19 is spreading fastly day by day. So to prevent or avoid transmission in public, safety methods should be taken. In this proposed system, firstly will scan for mask using web camera. If mask is not detected, then the buzzer will start to hoot, the buzzer will hoot until mask detected. If the mask detected, the second stage is temperature measuring. Temperature is measured using infrared temperature sensor. If temperature value is high, the buzzer will again start to hoot. If temperature value is normal, it will proceed to next stage like hand sanitizing. For hand sanitizing, the hand is detected using IR sensor. If hand detected IR sensor will give 0v as output and if hand not detected means, it will give 5v as output. If hand detected the pump motor will start dispensing water or sanitizer for 5 second. After hand sanitizing is done, the door will opened using dc motor.

#### **IV.WORKING PRINCIPLE**

In this system, Raspberry Pi acts as a main primary unit. Raspberry Pi is a single board computer. It can be used as a proper desktop computer. The 16GB memory card is used and this acts as a hard drive. A 5V Power supply is required



| e-ISSN: 2319-8753, p-ISSN: 2320-6710| <u>www.ijirset.com</u> | Impact Factor: 7.569|

||Volume 10, Issue 7, July 2021||

| DOI:10.15680/IJIRSET.2021.1007159 |

for the Raspberry Pi. In this technology, python programming is used .camera and GPS activator acts as input units. GSM module, RFID reader acts as output units. The controller and the mobile are connected to the internet cloud server acts as an intermediate unit to exchange information and data between child and parents mobile .In this proposed IoT Based Temperature and Mask Scan Entry System, raspberry Pi acts as the controlling unit. Along with raspberry pi camera, infrared temperature sensor (MLX901614), IR sensor, water pumping motor, dc motor makes the complete entry scan method for covid-19.This proposed system is applicable where lots of people coming outside their house like shops, malls, even public functions. The transmission of covid-19 is spreading fastly day by day. So to prevent or avoid transmission in public, safety methods should be taken. In this proposed system, firstly will scan for mask using web camera. If mask is not detected, then the buzzer will start to hoot, the buzzer will hoot until mask detected. If the mask detected, the second stage is temperature measuring. Temperature is measured using infrared temperature sensor. If temperature value is high, the buzzer will again start to hoot. If temperature value is normal, it will proceed to next stage like hand sanitizing. For hand sanitizing, the hand is detected using IR sensor. If hand detected IR sensor will give 0v as output and if hand not detected means, it will give 5v as output. If hand detected the pump motor will start dispensing water or sanitizer for 5 second. After hand sanitizing is done, the door will opened using dc motor.

#### V.RESULTS

The camera, various types of modules, RFID reader and tags are integrated into the board. In the below diagram, we can see the child location, longitude, latitude from the parent mobile through the cloud server connected to the mobile .if any problem occurs to the child, an alert message will be indicated to the mobile of the parent, so the parent can view the location and the position of the child immediately. The following diagram shows the output of this monitoring system.



FIG .1. IOT based temperature and mask scan entry system

#### VI.CONCLUSION

An effective solution to ensure COVID-19 safety compliance is presented in this work. The system relies on open source software and widely available sensors to make a low cost and easy to configure and customize set up. It relays useful real-time information wirelessly to a dashboard which can be used to monitor and assist in COVID-19 SOP. The system is currently limited to entry level scanning future efforts will be focused to expand the detection for the complete floor area, contact tracing, and support for additional queues. The system can be extended easily with minimal time and is quickly adaptable to different situation.

#### REFERENCES

[1]. Bartik, A.W.; Bertrand, M.; Cullen, Z.; Glaeser, E.L.; Luca, M.; Stanton, C. The Impact of COVID-19 on small business outcomes and expectations. Proc. Natl. Acad. Sci. USA 2020, 117, 17656–17666, doi:10.1073/pnas.2006991117.

#### IJIRSET © 2021



| e-ISSN: 2319-8753, p-ISSN: 2320-6710| <u>www.ijirset.com</u> | Impact Factor: 7.569|

||Volume 10, Issue 7, July 2021||

| DOI:10.15680/IJIRSET.2021.1007159 |

[2]. A Hefty Price Tag for Small Businesses Complying with NSW Health COVID-19 Restrictions. ABC News: Mridula Amin, 17 August 2020.

[3]. Pang, Z. Technologies and architectures of the Internet-of-Things (IoT) for health and well-being. Ph.D. Thesis, KTH Royal Institute of Technology, Stockholm, Sweden, January 2013.

[4]. Kumar, K.; Kumar, N.; Shah, R. Role of IoT to avoid spreading of COVID-19. Int. J. Intell. Netw.2020, 1, 32–35, doi:10.1016/j.ijin.2020.05.002.

[5]. Otoom, M.; Otoum, N.; Alzubaidi, M.A.; Etoom, Y.; Banihani, R. An IoT-based framework for early identification and monitoring of COVID-19 cases.Biomed. Signal Process. Control 2020, 62, 102149, doi:10.1016/j.bspc.2020.102149.

[6]. Kaplan, R.B.; Johnson, T.M.; Schneider, R.; Krishnan, S.M. A Design for Low Cost and Scalable Non-Contact Fever Screening System. J. ASEE Annu. Conf. Expo. 2011, doi:10.18260/1-2-17316.

[7].Sabancı, K.; Yigit, E.; Üstün, D.; Toktaş, A.; Çelik, Y. Thing speak Based Monitoring IoT System for Counting People in A Library. In Proceedings of the 2018 International Conference on Artificial Intelligence and Data Processing (IDAP), Malatya, Turkey, 28–30 September 2018; pp. 1–6, doi:10.1109/IDAP.2018.8620793.

[8]. Petrović, N.; Kocić, Đ. IoT-based System for COVID-19 Indoor Safety Monitoring. IcETRAN Belgrade 2020. Available online: https://www.researchgate.net/publication/343231422\_IoTbased System for COVID19 Indoor Safety Monitoring (accessed on 21 October 2020).

[9]. Things peak. Available online: https://thingspeak.com/ (accessed on 21 October 2020).

[10]. Bootstrap. Available online: https://getbootstrap.com/docs/4.5/about/overview/ (accessed on 22 October 2020).

[11]. RS Components, MLX90614 family Datasheet Single and Dual Zone Infra-Red Thermometer Datasheet. Available online: https://docs.rs-online.com/bc45/A700000006488813.pdf (accessed on 21 October 2020).

[12]. Chen, H.Y.; Chen, A.; Chen, C. Investigation of the Impact of Infrared Sensors on Core Body Temperature Monitoring by Comparing Measurement Sites. Sensors 2020, 20, 2885, doi:10.3390/s20102885.





Impact Factor: 7.569





# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY





www.ijirset.com