PROJECT REPORT
ON

New Social Distancing Indicator and Alarming System

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2021-22

CERTIFICATE

This is to certify that

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S. E. (E&TC) have successfully completed the project titled **'New social distancing Indicator & Alarming system**' during the academic during the academic year 2021_-22

This is to certify that the based laboratory report entitled'New social distancing Indicator & Alarming system 'submitted by Snehal Kawade, Ranjit Kshirsagar, Atish Mane and Pranav muley studying in Electronics and Telecommunication Engineering has completed Projet in the semester IV during the academic year2021-22

Principal **H.O.D.** **Project Guide**

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(Size 14 Times New Roman, bold)

ACKNOWLEDGEMENT

In successfully completing this project, many people have helped me. I would like to thank all those who are related to this project.

Primarily, I would thank God for being able to complete this project with success. Then I will thank my Principal (Mrs Joshi) and (Mrs Mugdha Kango) our guide, under whose guidance I learned a lot about this project. His suggestions and directions have helped in the completion of this project.

Finally, I would like to thank my parents and friends who have helped me with their valuable suggestions and guidance and have been very helpful in various stages of project completion.

ABSTRACT

The rampant coronavirus disease 2019(COVID-19) has brought global crisis with its Deadly spread almost all countries.

The absence of any active therapeutic agents and therefore The lack of immunity against COVID19 increases the vulnerability of the population. Though is better than cure, social distancing is the best & feasible approach to fight against pandemic. of the foremost important practice in these outbreaks is to make sure a Secure distance between people publicly. This tool could assist the efforts of the governmentsTo regulate the virus.

Itare often implemented in closed areas or institutions, monitor the extent
Of people's commitment, and supply analysis and a faster approach to detect possibly corona Suspicion cases. The results showed the success of our approach in detecting the distance with

Accuratemeasures of the important world coordinates. Motivatedby this notion, we have created This distance detector to find the people are maintaining the rules.

Keywords: Arduino UNO, Ultrasonic sensor, social distance, Corona virus

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1. Introduction

Coronaviruses are a type of RNA virus that infects all living things and causes sickness. They Induce respiratory tract infections in humans, which can leadto breathing difficulties. Some cases Of the common cold (which can also be caused by other types ofinfluenza viruses) cause mild Symptoms in humans, whereas other Cov strains can cause SARS, MERS, and other disorders.

COVID was first infected in animals in the late 1920s, causing respiratory diseases in them Throughout North America. In North Dakota, Arthur Schalk and M.C. Hawn published the first Detailed report on a new COVID-related respiratory infection in 1931. Infectious bronchitisvirus Was the name given to this virus afterwards(IBV). In 1937, Charles D. Hudson and Fred RobertBeaudette were the first to successfully culture the virus. In mice, JHM and MHV, two new animal

Coronaviruses, were found. Animal coronaviruses were discovered in large numbers in the1960s. Coronaviruses were given their name because of their unusual physical appearance.

Human coronavirus 229E and human coronavirus OC43 were investigated further in laterdecades. Other human coronaviruses, such as SARS-CoV in 2003, HCoV NL63 in 2003,

2. LITERATURE SURVEY

[1] Created to determine the safe distance between individuals in public places. In this Study, the deep CNN approach and computer vision techniques are used.

Initially, the Pedestrian in the video frame was detected using an open-source object detection network Based on the YOLOv3 method. Only the pedestrian class was used as a result of the Detection, and other object types were ignored in this application. As a result, theBounding box that bestfits each identified pedestrian can be drawn in the image, and this Data will be utilized to calculate distance.

[2] Focused on a video of a street view of people is given as input, and it produces a Video with rectangular boxes surrounding each person, with red highlighting the boxes Where social distancing norms are breached and green highlighting the boxes where social Distancing norms are broken. The solution also generates a bird's eye picture of the Detected objects, with circles indicating humans on the street and colored appropriately.

3. Specifications Of Theory

The system's development was divided into three major phases:

Hardware design, Software design, and Working.

The circuit was first designed and simulated during the hardware development phase. The Circuit was built after it was confirmed that it produced the required output correctly. The Software development phase occurred concurrently with the hardware development phase, and A modular approach was used in which the programme was divided into several modules, each Of which was tested separately before being combined to form a working programme.

4. Block Diagram and Description

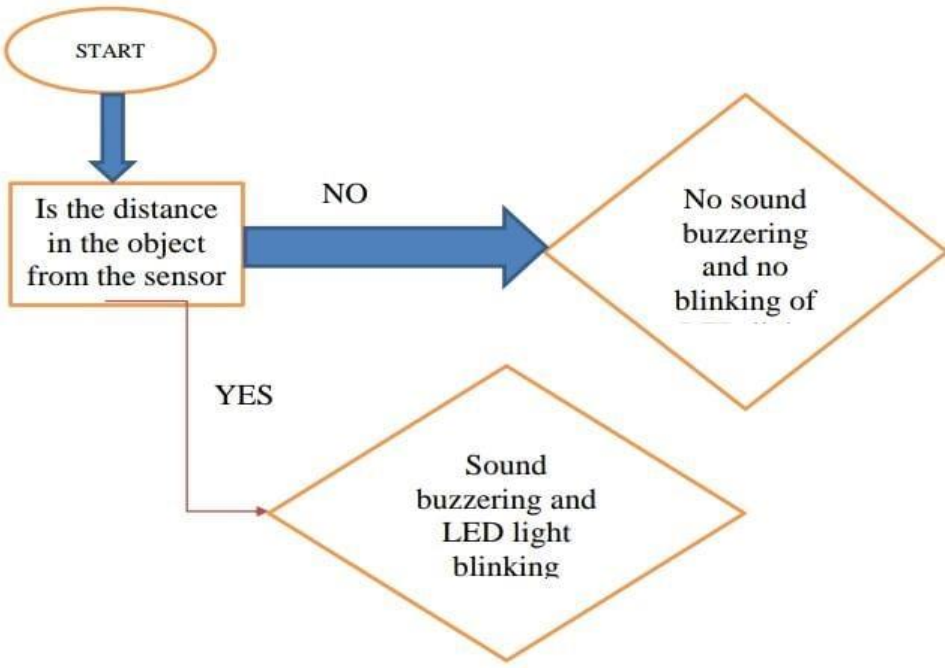
ARDUINO UNO
The Arduino UNO is a microcontroller board based chip on the ATmega328P(spreadsheet). It has sets of digital input/output pins (of which can be used as ultrasonic sensor inputs), 6 analog inputs,14 digital inputs 4 which are programmable with Arduino IDE using USB cable .
Arduino uno can be powered using an external power supply which ranges from 7- 20 volts

ULTRASONIC SENSOR
This ultrasonic sensor shown used to measure the distance up to the range of 30-500kHz frequencies. There are also some low frequency ultrasonic sensors but here we were using high range of ultrasonic sensor. It usually measures the distance of an obstacle by its waves getting emitted and hit on the obstacle or a person and converts the reflected wave into an signal which is electric.

BUZZER
A device whichgives signal by producing sound when an the electric signal is induced to it.

LED
a emitting diode which emits light to warn the person wearing thesystem.

PIR sensors
PIR sensors have ranges of up to 10 meters (30 feet), a single detector placed near the entrance is typically all that is necessary for rooms with only a single entrance. PIR sensor is Motion detector

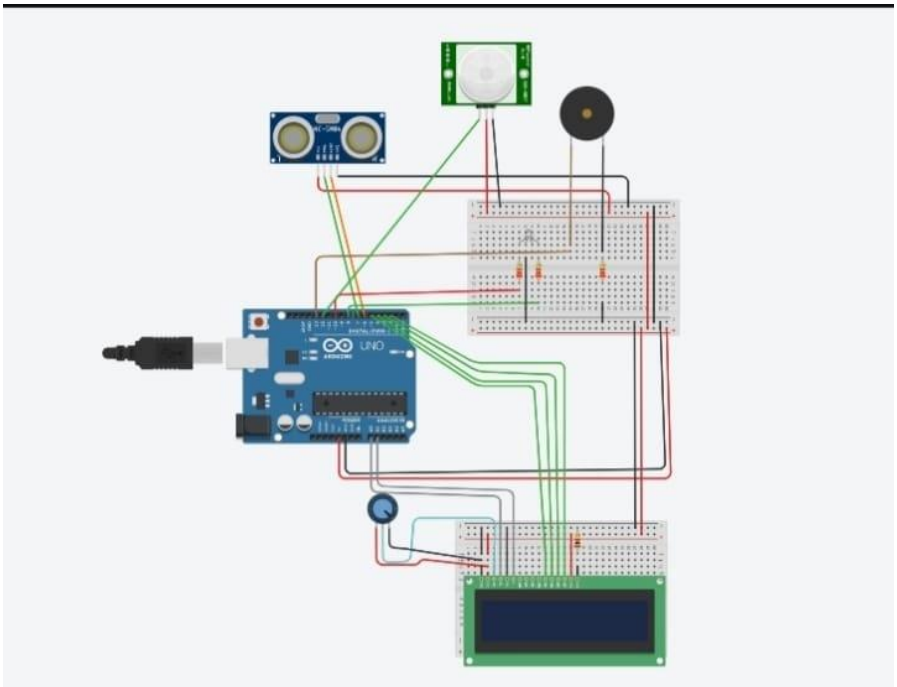


5. Software system design

ALGORITHM

STEP 1: The power supply get the Arduino and sensor to get activate
STEP 2: The activated sensor emits the invisiblelight which hit the person behind or before the
personwho is wearing this system.
STEP 3: The emitted wavelength is then return back to the sensor.
STEP 4: Then the sensor output is checked by the estimated distance as per input.
STEP 5: If the distance is less than x meter then the LED will start to glow and the buzzer will be turned ON.
STEP 6: If the distance is not less than x meter then the LED will not glow and the buzzer will remain OFF.

6. Simulation Result and Performance Evaluation



the circuit and code with no object detected at front PIR and Back
PIR sensors. Te introduced delay for both sensors is 1000 ms.
that the object is human at the front PIR. Similar results are observed in the back PIR sensors in

Te same code and same devices are compatible with the mainly designed for wearable products only. Hence, this device will
be worn by the user at his/her wrist. Tis has an in-build rechargeable battery. Also, the
used PIR sensor is the Grove Mini PIR sensor to detect human presence in a vicinity. Tis wristband can be easily worn by men or women in a vicinity.

Maintaining social distance is the most effective strategy to keep COVID-19 from spreading.
As aresult, the created SD-Tag is an effective social distance monitoring system that can be used bothindoors and outdoors to reduce the spread of infectious diseases.
COVID-19 is a virus that can be found in publicplaces.
Other than existing solution, the proposed system is wearable and make the person to make sure that he/she is in safe distance without getting in contact with other people which may reduce the rate of transmission of viruses not only COVID-19 but also other influenza viruses

7. Applications and Future Modifications

1)To reduce the spread of COVID-19, offices & factories ,college.
2)Very simple and easy to make project
3)To prevent the spread of infectious diseases.
4)WHO prescribed to maintain 6 feet of distance, we have given it has the input. We can modify the distance value at anytime.

8. Conclusion

Lockdown cannot be implemented permanently, and this is not the ultimate solution to stop the spread of the COVID-19 virus. Despite lockdown, we need to concentrate on such a machine due to which we can minimize the spread of the virus. Hence, this suggested device will be a preventive measure to avoid the spread of the virus by wearing every individual in a vicinity. Tis device can be worn by any individual. And after resuming the work in the unlocking phase, we need to maintain social distancing in the proximity along with mask and sanitization practice. But maximum people are not sufficiently assured about maintaining social distancing. To this problem, the solution is provided through the PIR wrist. Tis wristband will continuously monitor and alert to reduce the possibility of being infected. Tis will be a very useful and better solution to minimize the possibility of being infected because of ignorance of social distancing.

9. Reference / Bibliography

1. Www3WeforumOrg (2020)
http://www3.weforum.org/docs/WEF_NES_COVID_19_Pandemic_Workforce_Princ
iples_2020.pdf. Accessed 10 Apr 2020.
2. Tian H et al (2020) An investigation of transmission control measures during the frst 50 days of the COVID-19
epidemic in China. Science 368(6491):638–642. https://doi.org/10.1126/science.abb6105
3. Bouchnita A, Jebrane A (2020) A hybrid multi-scale model of COVID-19 transmission dynamics to assess the poten-
tial of non-pharmaceutical interventions. Chaos, Solitons Fractals 138:109941.
https://doi.org/10.1016/j.chaos.2020.
109941
4. Cdc.Gov (2020) https://www.cdc.gov/coronavirus/2019-ncov/community/critical-workers/implementing-safety-
practices.html. Accessed 30 Mar 2020.
5. WHO (2020) Operational considerations for case management of COVID-19 in health facility and community.
https://www.who.int/publications/i/item/10665-331492. Accessed 30 Mar 2020.
6. WHO Int (2020) WHO Western Pacifc|COVID-19 Information For The Public
https://www.who.int/westernpacifc/
news/multimedia/infographics/COVID-19. Accessed 2 Apr 2020.
7. Qld.Gov.Au (2020) How to protect yourself and others — Coronavirus (COVID-19).
https://www.qld.gov.au/health/
conditions/health-alerts/coronavirus-COVID-19/take-action/social-distancing. Accessed 2 Apr 2020.
8. Etgovernment.Com (2020) AI-Powered Drishti For Ensuring Social Distance - ET Government
https://government.
economictimes.indiatimes.com/news/technology/ai-powered-drishti-for-ensuring-social-distance/76638334#:
~:text=DRISHTI%20is%20an%20AI%20driven%20indigenous%2C%20innovative%20and,a%20place%20are%20more%20than%20the%20threshold%20values. Accessed 30 June 2020.
9. Who.Int (2020) Mental Health And Psychosocial Considerations During The COVID-19 Outbreak. https://www.who.int/publications/i/item/WHO-2019-nCoV-MentalHealth-2020.1. Accessed 30 Apr 2020.
10. Sen-Crowe B et al (2020) (2020) Social distancing during the COVID-19 pandemic: staying home save lives. Am J Emerg Med 38(7):1519–1520. https://doi.org/10.1016/j.ajem.2020.03.063
11. WHO.Int (2020) https://www.who.int/docs/default-source/wrindia/india-situation-report-1.pdf?sfvrsn=5ca2a672_0 Accessed 2 Apr 2020.
12. Center For Disease Dynamics, Economics & Policy (CDDEP) (2020), COVID-19 In India: Potential Impact Of The Lock-
down And Other Longer-Term Policies - Center For Disease Dynamics, Economics & Policy (CDDEP). https://cddep.publications/covid-19-india-potential-impact-of-the-lockdown-and-other-longer-term-policies/. Accessed 1Apr 2020.
13. 2020, https://www.apsc.gov.au/covid-19-social-distancing-and-transmission-reduction-advice-agency-managers Accessed 2 Apr 2020.