

Article

The Social Distancing- ID card

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A B S T R A C T

The Sustainable Development Goals (SDGs) are collection of 17 global goals set by the United Nations General Assembly in 2015 for the year 2030. This paper shows how important to maintain the social distance in the current outbreak of COVID 19. In short, on the small scope a prototype is used to maintain social distance in social places like school, college, organizations and etc. This prototype will alert the user if someone is coming within the area specified. Using sensor, the user can maintain appropriate distance while working.

Keywords: Good Health & Well Being, COVID-19, Social Distancing, ID card

Introduction

Ensuring healthy lives and promoting well-being at all ages is essential to sustainable development. Currently, the entire world is facing a global health crisis unlike any other, COVID-19 is spreading human suffering, destabilizing the global economy and upending the lives of billions of people around the globe.¹

Social distancing, also called as the “physical distancing” it means keeping a safe space between we and other people who are not from your household. Social distancing should be practiced in combination with other everyday preventive actions to reduce the spread of COVID-19, including wearing facemasks, avoiding touching face with dirty or unwashed hands, and frequently washing your hands with soap and water for at least 20 seconds.²

Social distancing is a response to the idea that, during a COVID-19 outbreak, many people cannot stay at home for the long time. “People have lives that they need to continue to live so rather than fully isolate, by maintaining distance between themselves and other people you can reduce the likelihood that the virus can be transferred”.³

Literature Review

Social distancing is one of the community mitigations measures that may be recommended during these current pandemics. Social distancing can reduce COVID-19 transmission by increasing physical distance or reducing frequency of congregation in socially dense community settings, such as schools, workplaces and etc. Social distancing in non-healthcare workplaces reduces or slows influenza transmission. Although many factors could affect the size of influenza epidemic, extensive application of non-pharmaceutical interventions including facemask wearing and social distancing in response to COVID-19 seems to be a major factor of reduced influenza of COVID-19. Establishment of guideline for workplace social distancing is needed and it would contribute to reduce disease burden of influenza. Social distancing measures are most effective when the infectious disease spreads via one or more of the following methods, droplet contact like coughing or sneezing, direct physical contact, indirect physical contact and airborne transmission. The measures are being less effective when an infection is transmitted primarily via contaminated water or food or by vectors such as mosquitoes, housefly or other insects. Currently

not all the people are following the rules given by World Health Organization (WHO). It is even difficult to maintain social distance in schools, colleges, organizations, grocery stores, shopping malls and etc. But there is not a proper way by which maintaining social distance can be achieved, i.e., a human has to stand physically to assist peoples to maintain social distance among themselves. Which is not possible always?

Raksh is a 360-degree proximity detection device that senses other objects within its proximity and sounds a warning as soon as another device comes within its defined range. The warning is given by a combination of sound alarm, vibration and an LED to ensure that the corrective action is taken immediately, and a safe distance is maintained at all times Figure 1.⁴



Figure 1. Raksh Social Distancing Device

Raksh is owned by Pari bandh Solutions Private Limited, a Private Limited Company set-up under the Indian Companies Act, 2013. Pari bandh Solutions is recognized as a "Startup" by the Department for Promotion of Industry and Internal Trade (DIPP) under the "Startup India" program of Government of India. The company is registered as an MSME with the Ministry of Micro Small and Medium Enterprises, Government of India. Pari bandh Solutions holds the Certificate of Importer-Exporter Code (IEC) issued by the Ministry of Commerce and Industry, Government of India.

Raksh is built with using proximity sensor and we have used ultrasonic sensor for better detection purpose. And the major difference about Raksh and Social Distancing ID card is cost to be paid for a single unit. Around more than rupees 3,000 need to be pay whereas the Social Distancing ID card will cost only rupees 460.

Considering this situation, we made a cost-effective prototype called Social Distancing-ID card.

Materials and Methods

For making Social Distancing- ID card following some basic materials were used:

ARDUINO: Code implementation

Ultrasonic Sensor HC-SR04: To detect nearby objects.

Battery: To provide power supply

Buzzer: To alert user by making noise.

Switch: For device ON/OFF purpose

Plastic Box: To hold the circuit.

Wires: For connecting components together

Result

Social Distancing- ID card is a prototype model which is used to maintain social distance in places like schools, colleges, organizations and etc Figure 2 and Figure 3.

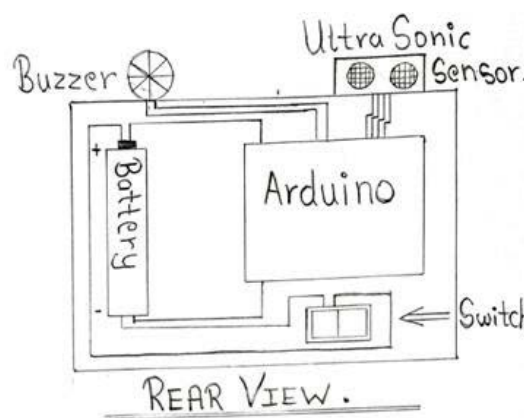


Figure 2. Rear View Social Distancing-ID card

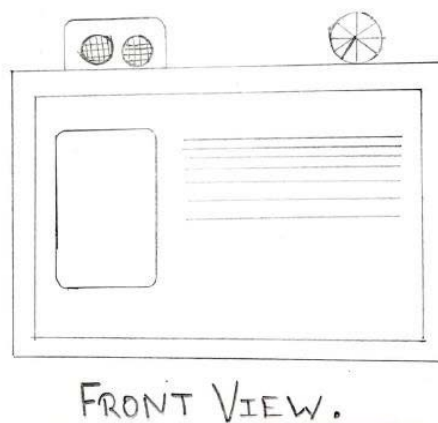


Figure 3. Front View Social Distancing-ID card

As it works on batteries. The ultrasonic sensor attached will make buzzer pin high if there is an object found in the specified range. Then the buzzer will start buzzing unless and until the person/object goes out of the specified range.⁵ Technical and Hardware resources available. The social impact of this new prototype will help in maintaining social distance. It will help also help in breaking chain of COVID-19 and indirectly reducing the work of COVID-19 warriors like doctors, nurses, pharmacist Figure 4, etc.

The prototype has been used for the duration of two



Figure 4. Social Distancing-ID card

months in a grocery store. As a result of our work, we provided a feedback form for users and the overall results listed below: Figure 5.

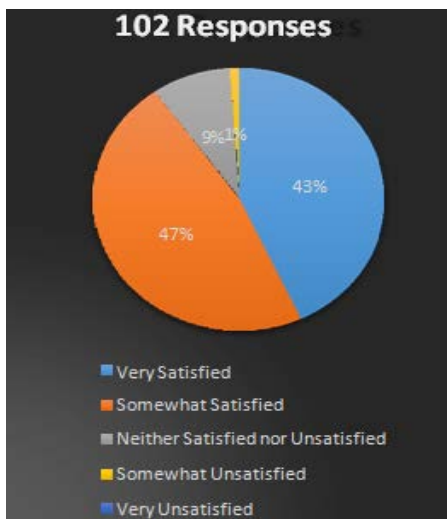


Figure 5. Feedback for Social Distancing-ID card

Recommendation

The Social Distancing ID card is developed and implemented on a small scope i.e., for class in school or in grocery store. It can be used for entire school, college, organizations, shopping malls, etc. GPS system can be installed. Through GPS system we can detect the device location and we can monitor particular area where social distancing is not practiced and even, we can detect whether the people are not gathering too close in a small area. Even better-quality sensors can be used for better detection. Rechargeable batteries can be included along with USB charging support. Thus, it will be easy to use on regular basis. The size of the prototype can be reduced using micro-controllers like Arduino Nano and creating own PCB (Printed Circuit Board).

Limitations

As the prototype is battery operated, there comes the

need to change batteries. The prototype is not yet water resistant, so one should take care of it. The ultrasonic sensor is unable to work in excess sunlight as the sunlight contains infrared rays, which interrupts the working of sensor. The maximum range of only 400cm can be covered by the ultrasonic sensor. Sensor can sense only in omnidirectional way. Ultrasonic sensors can detect false signals coming from the airwaves disturbed by an air conditioning system and a pulse coming from a ceiling fan, for instance.

Conclusion

This paper focuses on how to maintain social distance in social places like schools, college, organizations and etc. As it's our need to fight these COVID-19. We are using technology the proposed system will generate a positive result towards maintaining social distance and can help to break the chain of COVID-19. Which will indirectly be helping the human being as well as our COVID-19 warriors like Doctors, Nurses and etc.

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