RESEARCH ARTICLE   **OPEN ACCESS**

Social Distancing Indicator and Alarming System Using AURDINO

G.Appala Naidu
Assistant Professor in ECE Department, UCEV, JNTU-GV, Dwarapudi,

ABSTRACT
In recent years, the utilization Embedded systems in ever where like, Health, Military, Industry, Agriculture, Feet Management etc., whenever there is need for atomization, reduce power consumption and minimize human resources with effective utilization, the embedded modules are best solution. In this paper, implement Social Distance indicator and alarming system using Aurdino to utilize the peoples will need to maintain a social distancing of one meter. The person will be able to see only the front side and will not be able to see whether anyone is there behind him.
Keywords – Aurdino, Embedded System, PIR sensor, Ultrasonic sensor

I. INTRODUCTION

Nowadays, the Embedded System are very popular because of their own advantages like reduce human resource, proper management operations, cost effective and enhanced safety precautions, etc,.

The COVID-19 pandemic scenario, social distance is fundamental norm in any social interaction. In this connection various unique modules have been created to help to reduce the spread of the deadly disease. The social distancing indicator and alarming system using Aurdino is helpful us to maintain proper social distance according World Health Organization (WHO) norms[1]-[3].

In this work, the Aurdino play the vital role.. It contains ATmega328P processor, six analog input pins, 14 digital IO pins in which includes PWM outputs, one of each UART,I2C and SPI,32Kbytes of flash memory in which 0.5Kbytes used as bootloader,16MHz of clock frequency, USB port with 5V of operating Voltage. The Aurdino IDE is open source and cross-plot form software which is used to write code, compile and dumped executable code into Aurdino board. The Passive Infrared (PIR) sensor identifies emitted infrared energy from human, animals, etc. in form of heat. This sensor helps in this work is to detect temperatures around us to alter ourselves [4]-[5]. The Ultrasonic sonic sensor is used to find the distance of any objects .it contains Transmitter and receiver module in single pack.

The remaining of work is organized as follows. Section II, Discussed basic block diagram as well as software and hardware prototype models. In section III, software and hardware prototype result can be elaborated. Finally, conclude this work in Section IV.

II. METHODOLOGY

One of the classifications of embedded system is small, medium and sophisticated embedded systems. In small scale use only 8 bit processors and does not use any operating systems. Where as in medium scale 8/16 processor and operating systems are used. In sophisticate, co-designs are preferred [6]. In this work is belongs the medium scale embedded systems. The overall block diagram of the design is illustrated in Fig.1. In this prototype model consists Aurdino Uno, PIR sensor, Ultra sensor, LED and Buzzer hardware components.

The main aim of this paper is to stop the reproduce and stay away from infection from the virus. The Fig.1 represents overview of block diagram of the prototype model. The detailed designed procedure elaborated in the flowchart of is given in Fig.2.
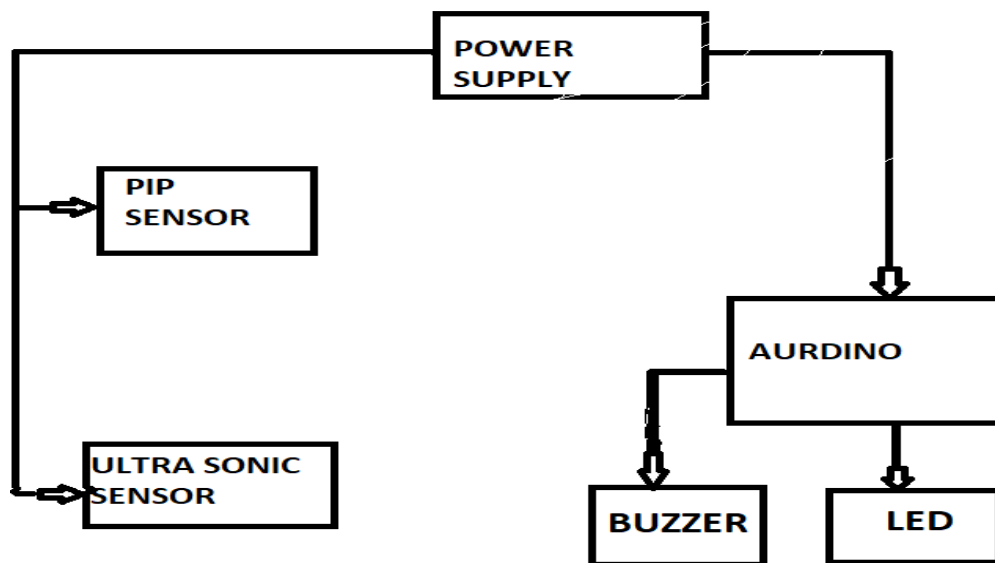
Fig.1. Overview of General Block diagram prototype model

The Operations of the aurdino has been programmed by Arduino IDE software and basic block diagram of the project has been discussed in the above terminal. Now we will look at the software simulated model of the project before going into the hardware implementation of the circuit.
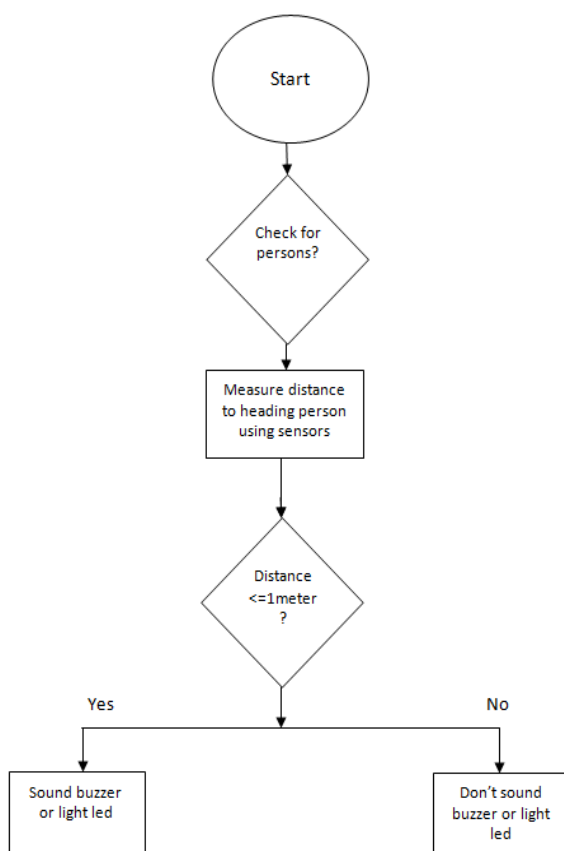

Fig.2. flow Chart of social distance indicator and alarming system

Fig.3 Interface of the Arduino IDE Software

The ultrasonic sensor and PIR sensor have been interfaced with the aurduino for sensing and detecting the distance, and the buzzer and led are interfaced with aurduino for alerting the people to main the social distance. After making those connections, first implemented the software simulated model in order to get an idea of the final prototype of the project. The program for the

aurduino has been written in the Arduino IDE software.

Now, the software simulated model of the project before going into the hardware implementation of the circuit. Fig. 4 represents the software developed circuit by using thnkercad online tool. The thnkercad is an open-source CAD tool, which helps the designer to support experimenting with a prototype to building a more permanent circuit.

We first implemented the software simulated model in order to get an idea of the final prototype of this model. The program for the processor has been written in the Arduino IDE software. Fig. 3 shows the interface of the Arduino IDE Software.

A. Hardware Implementation:

Once obtain desired response and satisfy those simulation results, then move on hardware prototype model. In this scenario, there were five hardware components are in prototype model: Aurdino Uno, PIR sensor, Ultra sensor, LED and Buzzer. The hardware design prototype model is shown in Fig.6

III. RESULTS

In this results section, first the circuit was verified in thnkercad open source online tool, if any other person is entered into with in premises identify by Ultra sensors, then alarm gives alert. That is represented in fig.5.
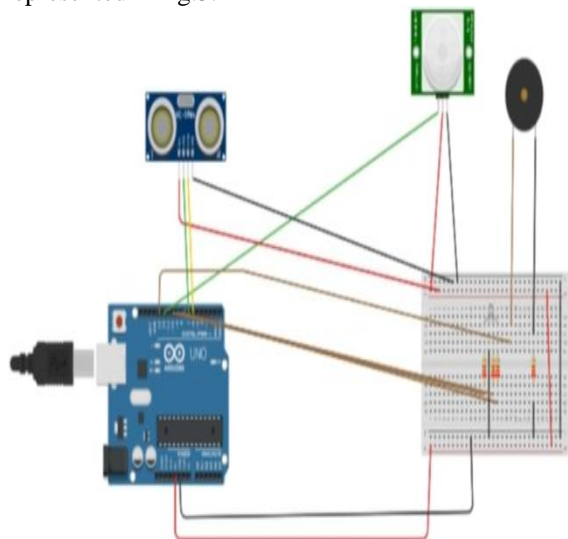

Fig.4.software implantation circuit

Once to meet desired requirements in simulation part, then shift on hardware design prototype model. The Fig. 6 represents hardware prototype model for social distance indicator and alarming system using Aurdino.
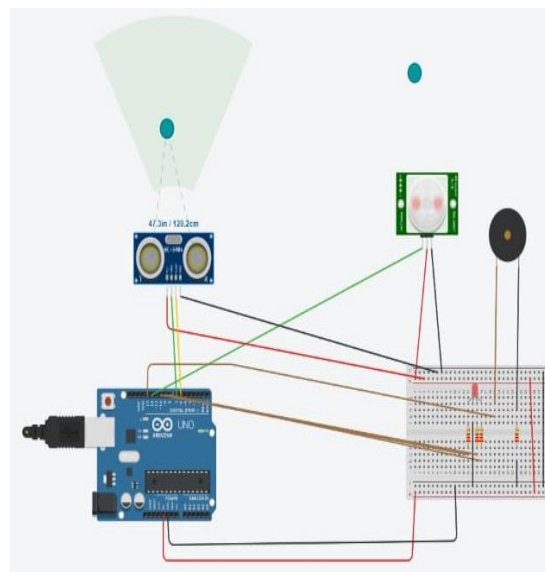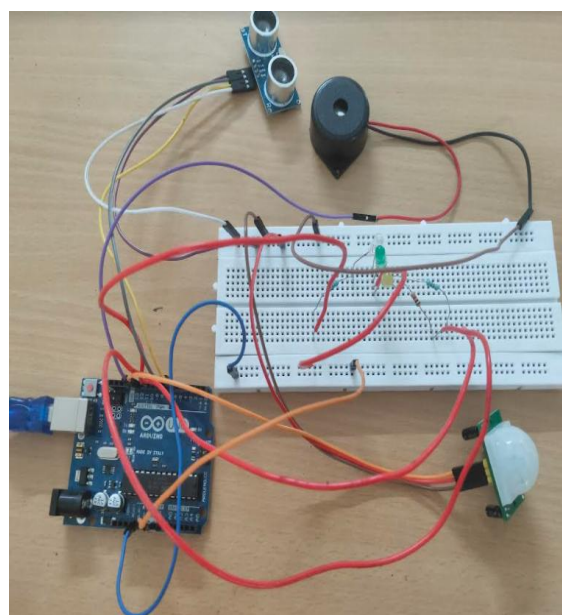

Fig.5.software implemented response

Fig.6. hardware prototype model for social distance indicator and alarming system

By Implementing this hardware prototype could reduce the diseases like COVID-19 and to allow you to display body temperature by PIR sensors.

IV. CONCLUSION

In this paper, social distancing indicator and alarming system using Aurdino. The distance of one meter is fixed according WHO (world Health Organization) recommendations, based on this measurement only to implement prototype models.
First this prototype model verified by thnkercad online tool. Once satisfies our requirements then move on hardware prototype model. These hardware

modules are embedded into caps that may useful to measures social distance and if any one approaches ourselves then cap taken care and gives alarm to alter users to maintain proper distance. These devices also help us to measure body temperature

REFERENCES

[1]. Bharavi U, S. Rao M, "Design and development of GSM and GPS tracking module", *2nd IEEE International Conference On Recent Trends in Electronics Information & Communication Technology (RTEICT),* May 19- 20,2017.

[2]. M. A. Dzulkifli , S.Sulaiman , A.Saparon ,"Tracking system for missing person", 2017 *International Conference on Electrical, Electronics and System Engineering(ICEESE),* Nov.2017, 1-9

[3]. P. Zeng, Z. Ling, L. Liao, "Design of remote temperature detection system on the base of GSM SMS module", *Applied Mechanics and Materials, Tech Publications*, Switzerland. 2013,652-655

[4]. P. Zappi, E. Farella, and L. Benini, "Tracking motion direction and distance with pyroelectric IR sensors*", IEEE Sensors Journal, 10(9),* 2010, 1486- 1494.

[5]. Y. Pawar, A. Chopde, M. Nandre, "Motion detection using PIR sensor", *International Research Journal of Engineering and Technology (IRJET), 5 (4),* Apr-2018

[6]. Raj Kamal, *embedded systems: architecture, programming and design*, *Tata McGraw-Hill Education*, 2011