INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X
Impact Factor: 6.078
(Volume 7, Issue 3 - V7I3-1313)
Available online at: https://www.ijariit.com

Automatic sanitizer dispenser with temperature screening

Nawaz Abass
nawazabbas313@gmail.com
Bharati Vidyapeeth College of Engineering, Navi Mumbai, Maharashtra

Ashwini parab
Parab.ashwini28@gmail.com
Bharati Vidyapeeth College of Engineering, Navi Mumbai, Maharashtra

Ruchita Vaidya
Vaidyaruchita86@gmail.com
Bharati Vidyapeeth College of Engineering, Navi Mumbai, Maharashtra

Rutuja Satav
Satavrutuja1505@gmail.com
Bharati Vidyapeeth College of Engineering, Navi Mumbai, Maharashtra

Dr. J. Jeyavel
j.jeyavel@bvcoenm.edu.in
Bharati Vidyapeeth College of Engineering, Navi Mumbai, Maharashtra

ABSTRACT

As the whole world is dealing with Covid-19 pandemic the most significant solution to this is sanitize hand and monitor temperature. We have designed a system where we can sanitize our hand and monitor temperature without any contact with the machine. Also sanitizing spray is inserted for the object's sanitization

Keywords: *Arduino nano, MLX90614 sensor, IR sensor, Covid-19, sanitizer*

1. INTRODUCTION

The whole world is battling against COVID-19. Though now we are having a vaccine we have to keep using masks and sanitize. Sources of the spread of the Corona virus are mainly through human interaction. Person to person spread of virus is controlled by sanitizing hands regularly in the specific time interval. The Easy Non-Contact Automatic Hand Sanitizer Dispenser or Automatic Soap Dispenser with Arduino, it has the Arduino microcontroller to control the sanitizer liquid with the help of a Servo motor. [1] This is used to power up the system by the external power supply of 6v battery or through computer USB cable. This method is good to use and the drawback is the battery replacement for the usage of the system. [1]

The above system does not contain temperature monitoring system as well as it uses Arduino UNO which require more space. The Automatic Hand Sanitizer Dispenser and temperature detection have Arduino Nano. It has two sanitizer pumps, first for hand sanitization and second for object sanitization. We can also monitor our body temperature. Drawback of system is it requires continuous power supply.

2. METHODOLOGY

In house, we all are safe but some people are still working outside and they need to sanitize their Hand regularly for prevention from Covid-19. This virus is spread through the touch so we make a Covid-19 protection device which is used for sanitize the hand as well as check the body temperature without touching any object. If the person comes in front of our system, then using IR sensors as well as touch-less temperature sensor, the sanitization as well as temperature checking will be done.

3. PROPOSED SYSTEM

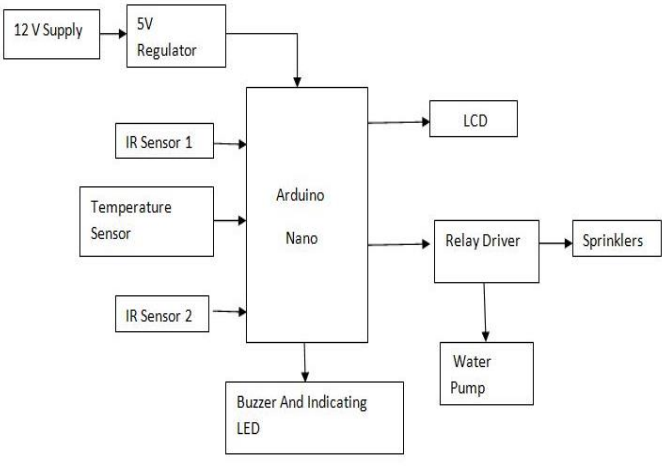

Fig. 1: Block diagram

4. WORKING

In this proposed system, we use two IR Sensors one for object sanitization through spray and second one is to detect the person to sanitize hand. In this project we used Arduino Nano 3.x as Main Controller. LCD, temperature, sensor, IR sensor all are connected to Arduino Nano. For this project, we use the two-power supply of LM2596 which gives 5V. One 5V supply is for relay and second power supply is for other circuitry like Arduino Nano, IR Sensors, touch-less temperature sensor, buzzer and LCD.

© 2021, www.IJARIIT.com All Rights Reserved

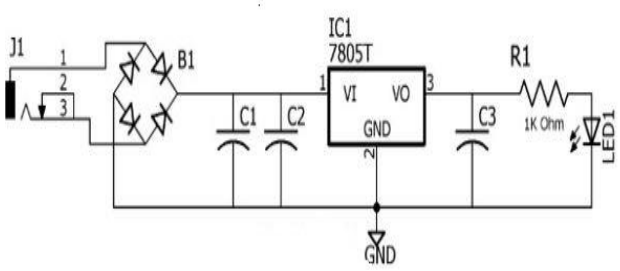

Fig. 2: Power supply circuit diagram

In the above circuit, rectifier converts 230V AC into 12V DC. IC 7805T is a regulator which converts 12V DC into 5V DC. Now we see the working of first IR sensor is that when first IR sensor is triggered which means someone is in front of the sanitizer dispenser, then Arduino commands to turn ON the pump which dispenses the Sanitizer for some time and after few second, turn OFF the pump. To check the body temperature of a person without any contact, we are using MLX90614 sensor. If Temperature is normal then it displays on LCD but if body temperature exceeds the normal temperature (37 C) then buzzer will beep and also it displays on LCD so that necessary action can be taken.

5. HARDWARE SPECIFICATION

There are basically three main hardware components used:

5.1 Arduino Nano 3.x

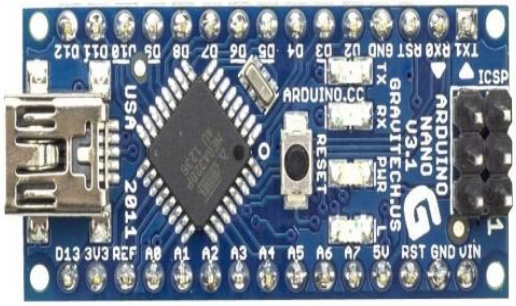

Fig. 3: Arduino nano

Features:
Microcontroller ATmega328

Specifications:
Operating voltage: 5 V
Analog Input Pin: 8
Digital I/O Pin: 14
Clock Speed: 16 MHz

5.2 MLX90614-

Fig. 4: Temperature sensor

Features:
MLX90614 is a non-contact temperature sensor.
It has automotive blind angle detection.
Specifications:
Temp range-70°c to 382°c
Distance range -2 to 5 cm
Accuracy- (+-) 0.5°c
Supply voltage: -3v to 5 V

5.3 IR Sensor

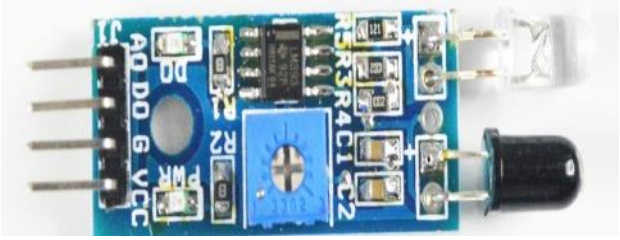

Fig. 5: IR sensor

Features:
Built-in Ambient Light Sensor
Adjustable Sensing range

Specifications:
Operating voltage: 5 V
Range: up to 20cm
Detection angle: 35 degree

6. RESULT AND ANALYSIS

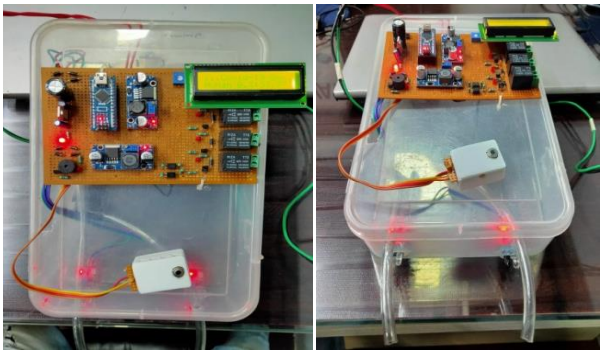

Fig. 6: Assembly setup

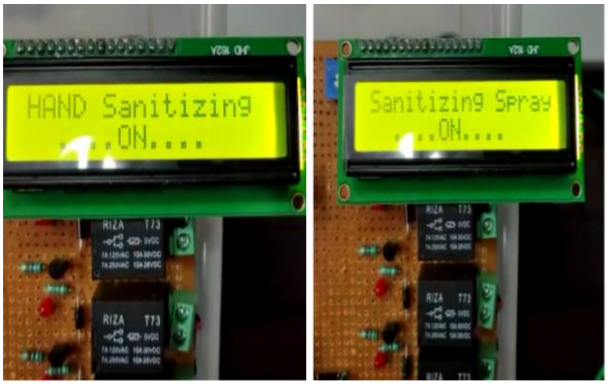

Fig 7.1: Hand Sanitization output

Fig 7.2: Sanitizing spray output

Fig 7.3: Measured Temperature

© 2021, www.IJARIIT.com All Rights Reserved

7. FUTURE SCOPE

Even if virus is cured, there are high chances of viruses to be spread. We need to take precaution in the coming future. Hand sanitizer dispensing machine is need to install at every crowded place such as malls, railway stations, education premises, and industries.

8. CONCLUSION

Automatic hand sanitizer dispenser with temperature screening is efficient and price is minimized. The main advantage of this system is that it is completely contactless so person can sanitize hand and any object without worrying about getting infected. Only solution for this pandemic situation is sanitizing hand and objects, regular checking of body temperature.

9. REFERENCES

[1] https://www.instructables.com/id/DIY-Easy-Non-Contact-Automatic-Hand-Sanitizer-Disp/

[2] WORKING PRINCIPLE OF ARDUINO AND USING IT AS A TOOL FOR STUDY AND RESEARCH Leo Louis International Journal of Control, Automation, Communication and Systems (IJCACS), Vol.1, No.2, April 2016

[3] https://store.arduino.cc/usa/arduino-uno-rev3

[4] https://www.arduino.cc/en/Tutorial/ping

[5] https://www.electronicsforu.com/resources/learnelectronics/16x2-lcd-pinout-diagram

[6] https://www.bc-robotics.com/tutorials/using-a-tmp36-temperature-sensor-with-Arduino/

[7] https://learn.adafruit.com/pir-passive-infraredproximity-motion-sensor

[8] Public Health Response to the Initiation and Spread of Pandemic COVID-19 in the United States, February 24–April 21, 2020 Weekly / May 8, 2020 / 69(18);551–556 On May 1, 2020, this report was posted online as an MMWR Early Release. Anne Schuchat, MD; CDC COVID-19 Response Team.

[9] (https://www.cdc.gov/mmwr/volumes/69/wr/mm6918e2.htm)

© 2021, www.IJARIIT.com All Rights Reserved