

AUTOMATIC HAND SANITIZER DISPENSER **USING ARDUINO**

B.Tech. PROJECT REPORT

Submitted in partial fulfilment of the requirements for
Automatic Hand Sanitizer Dispenser Using Arduino.

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CERTIFICATE

This is to certify that the project entitled “Automatic Hand sanitizer Dispenser Using Arduino” has been successfully completed by Mr. Muniswamy A, Mr. Nicanor R Marak, Mr. Nikhil U Shet, Mr. Nishanth and Praveen Kumar D of 6th semester B.Tech. at **Presidency university, Bengaluru**. As the Internet of Things project in partial fulfilment for the award of B.Tech. Degree course conducted by the Presidency University. The Project Report presented here is the bonafide work of the student.

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Acknowledgement

While performing our project, we had to take the help and guidelines of some respected persons who deserve our greatest gratitude.

The completion of this project gave us immense pleasure. We are highly indebted to - for their guidance, constant supervision and for their support in completing our project.

We would like to express our gratitude to our parents for their kind co-operation and encouragement.

Abstract:

The aim of this project is to make an automatic soap dispenser using Arduino.

We have made an accessory that can be attached to most hand sanitizer/soap dispensers and turn them completely hands-free and automatic.

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Abstract

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COMPONENTS REQUIRED

- ✓ **ARDUINO BOARD**
- ✓ **BREAD BOARD**
- ✓ **SERVO MOTOR [2]**
- ✓ **IR SENSOR**
- ✓ **JUMPER WIRES**
- ✓ **ARDUINO CABLE**
- ✓ **SANITIZER BOTTLE**

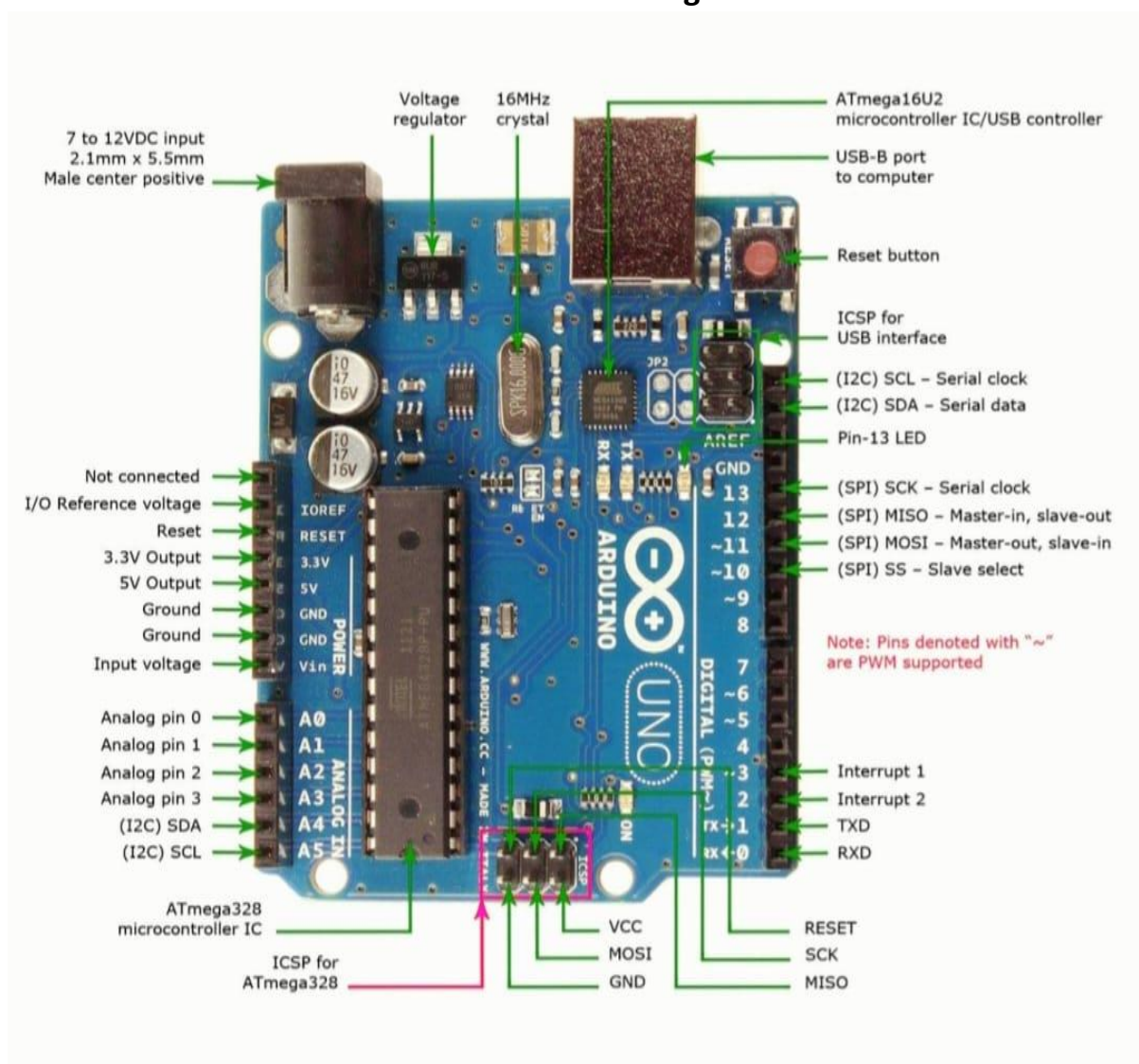
DESCRIPTION OF COMPONENTS

1.Arduino Board

Arduino is a prototype platform (open source) based on an easy-to-use hardware and software. It consists of a circuit board, which can be programmed (referred to as a microcontroller) and a ready-made software called Arduino IDE (Integrated Development Environment), which is used to write and upload the computer code to the physical board.

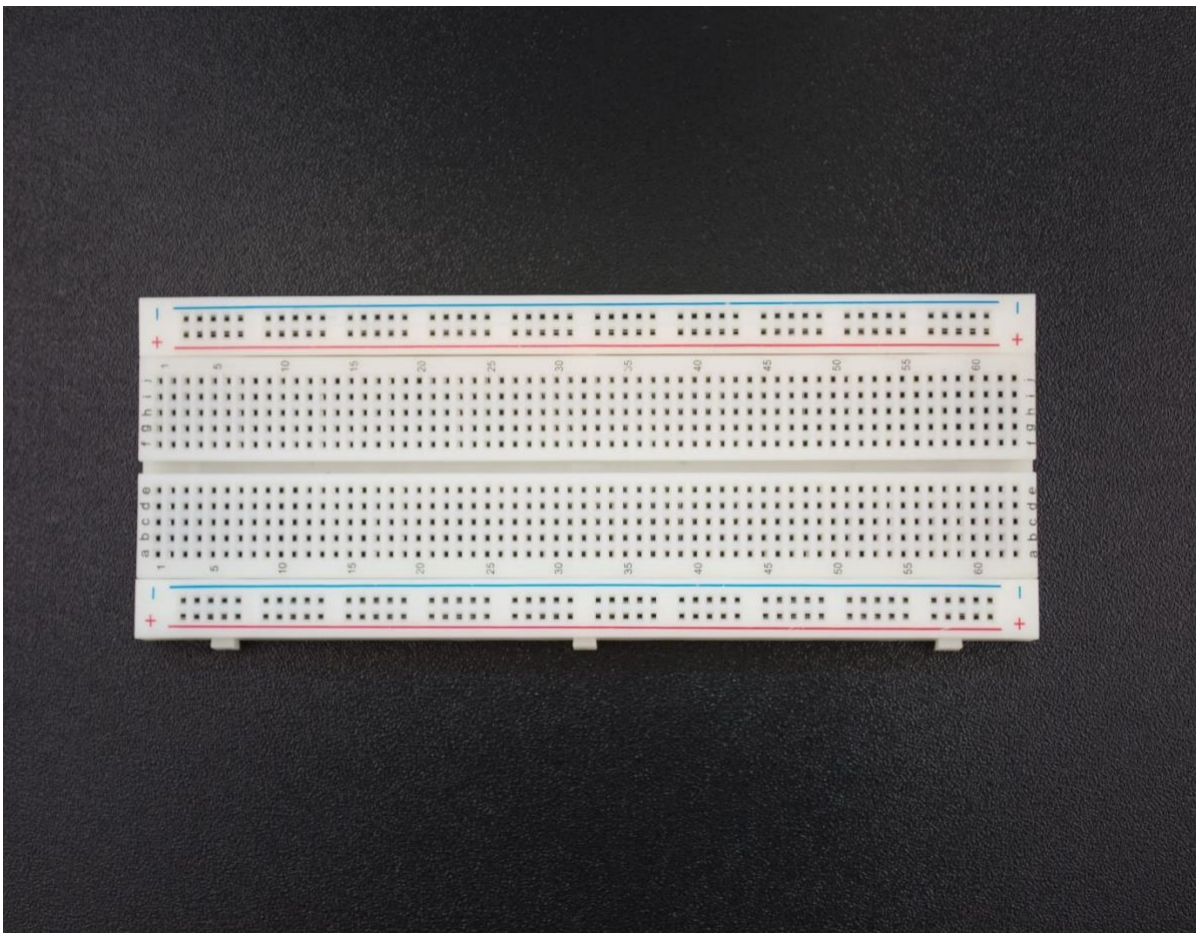
Arduino provides a standard form factor that breaks the functions of the micro-controller into a more accessible package.

Arduino Pin Out Diagram



2.Bread board

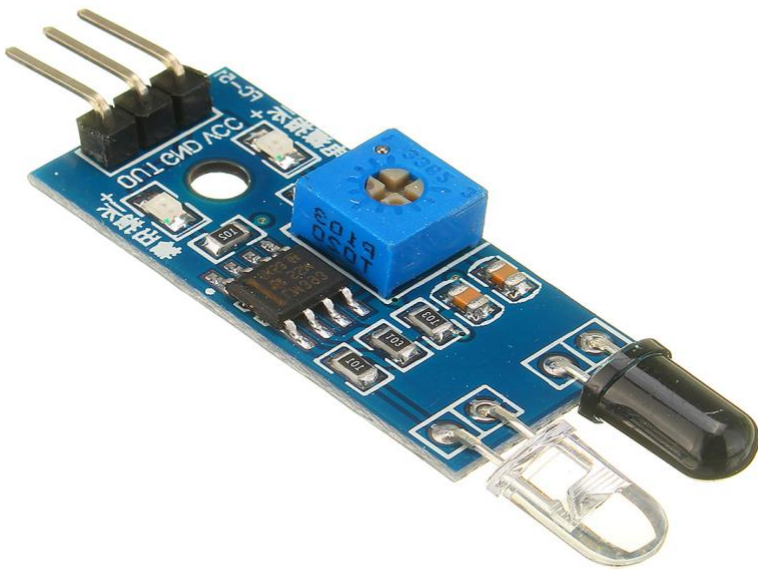
A breadboard is a construction base for prototyping of electronics. Originally the word referred to a literal bread board, a polished piece of wood used for slicing bread.[1] In the 1970s the solderless breadboard (a.k.a. plugboard, a terminal array board) became available and nowadays the term "breadboard" is commonly used to refer to these, Because the solderless breadboard does not require soldering, it is reusable. This makes it easy to use for creating temporary prototypes and experimenting with circuit design. For this reason, solderless breadboards are also popular with students and in technological education. Older breadboard types did not have this property. A stripboard (Veroboard) and similar prototyping printed circuit boards, which are used to build semi-permanent soldered prototypes or one-offs, cannot easily be reused. A variety of electronic systems may be prototyped by using breadboards, from small Analog and digital circuits to complete central processing units (CPUs).



3.IR SENSOR

An infrared sensor is an electronic device, that emits in order to sense some aspects of the surroundings. An IR sensor can measure the heat of an object as well as detects the motion.

Usually, in the **infrared spectrum**, all the objects radiate some form of thermal radiation. These types of radiations are invisible to our eyes, but infrared sensor can detect these radiations.



4. SERVO MOTOR

A **servomotor** (or **servo motor**) is a [rotary actuator](#) or [linear actuator](#) that allows for precise control of angular or linear position, velocity and acceleration. It consists of a suitable motor coupled to a sensor for position feedback. It also requires a relatively sophisticated controller, often a dedicated module designed specifically for use with servomotors.

Servomotors are not a specific class of motor, although the term *servomotor* is often used to refer to a motor suitable for use in a [closed-loop control](#) system.

WORKING:

Servo Motor consists of a DC Motor, a Gear system, a position sensor, and a control circuit. The DC motors get powered from a battery and run at high speed and low torque. The Gear and shaft assembly connected to the DC motors lower this speed into sufficient speed and higher torque. The position sensor senses the position of the shaft from its definite position and feeds the information to the control circuit. The control circuit accordingly decodes the signals from the position sensor and compares the actual position of the motors with the desired position and accordingly controls the direction of rotation of the DC motor to get the required position. Servo Motor generally requires a DC supply of 4.8V to 6 V.



5. Jumper wires

A jump wire (also known as jumper wire, or jumper) is an electrical wire, or group of them in a cable, with a connector or pin at each end (or sometimes without them – simply "tinned"), which is normally used to interconnect the components of a breadboard or other prototype or test circuit, internally or with other.



Male to Male Jumper
Wires



Female to Female Jumper
Wires



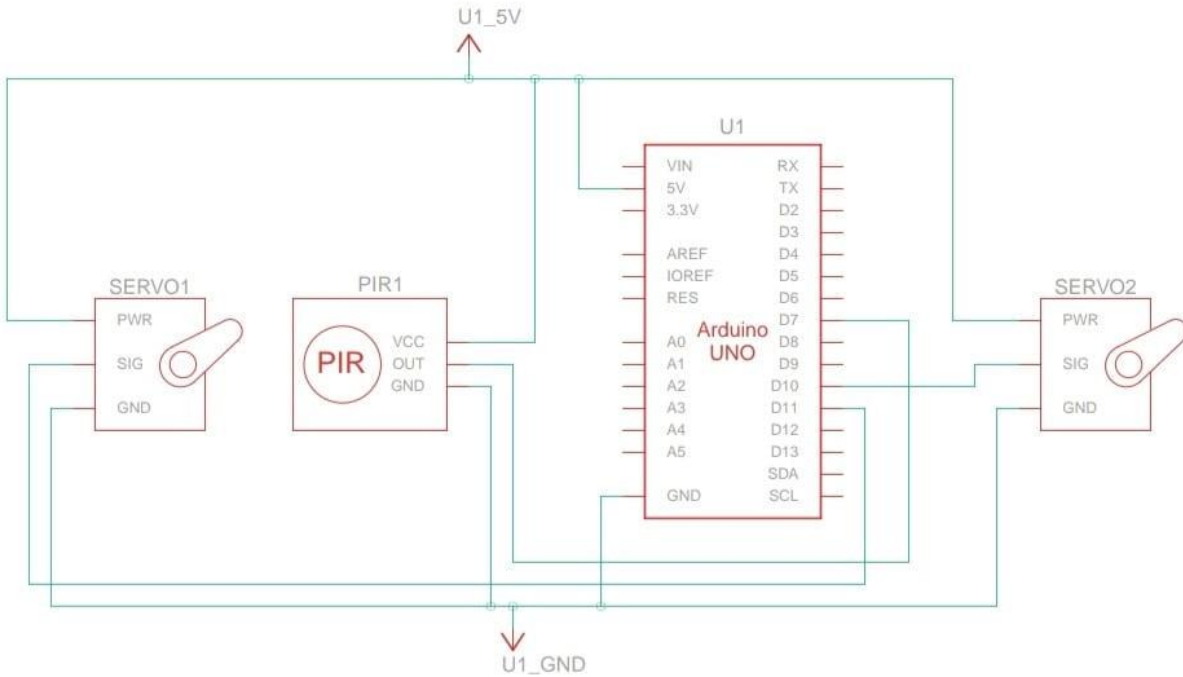
Male to Female Jumper
Wires

5. Sanitizer bottle

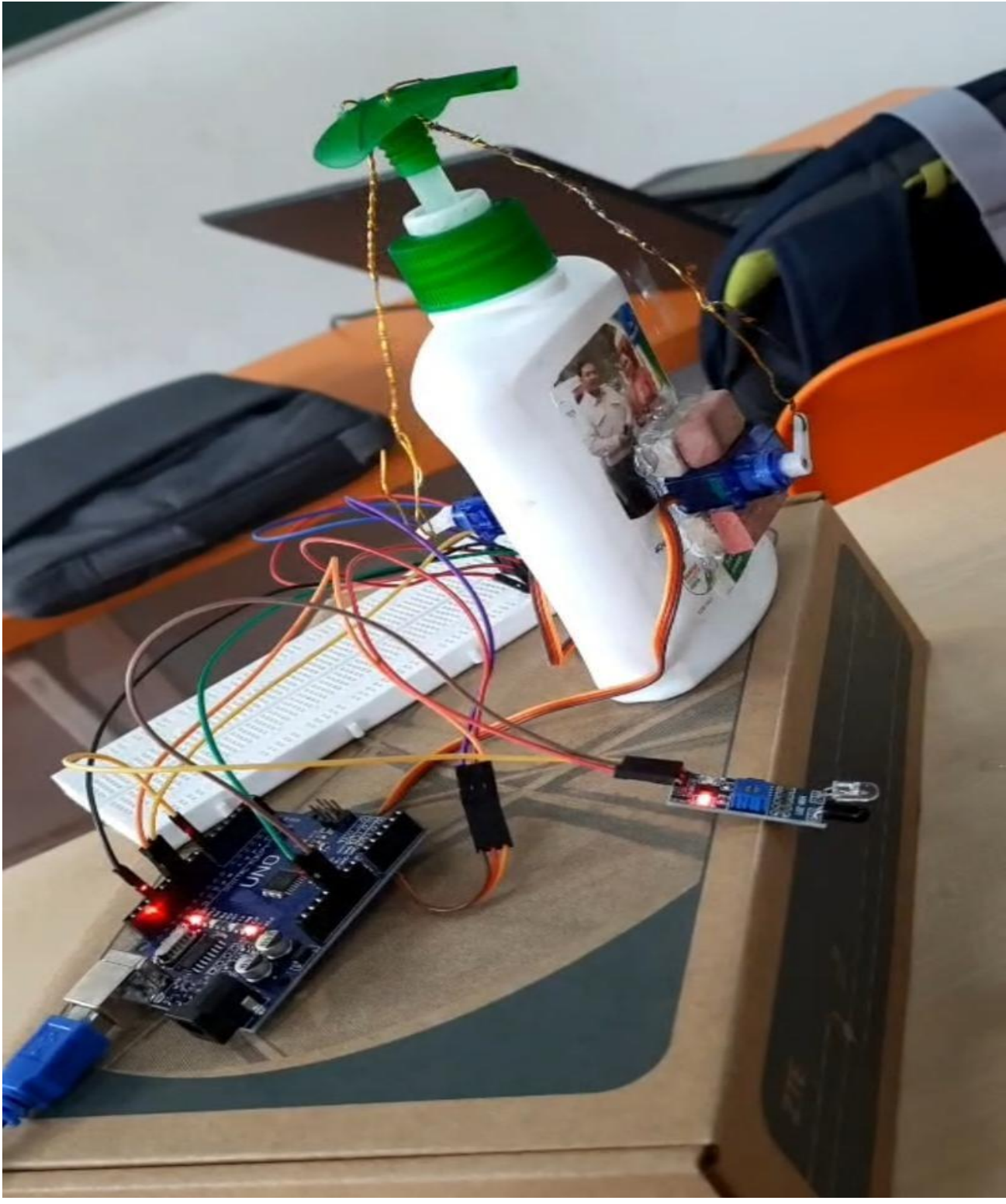
This non-alcoholic sanitizer comes in a compact spray bottle.

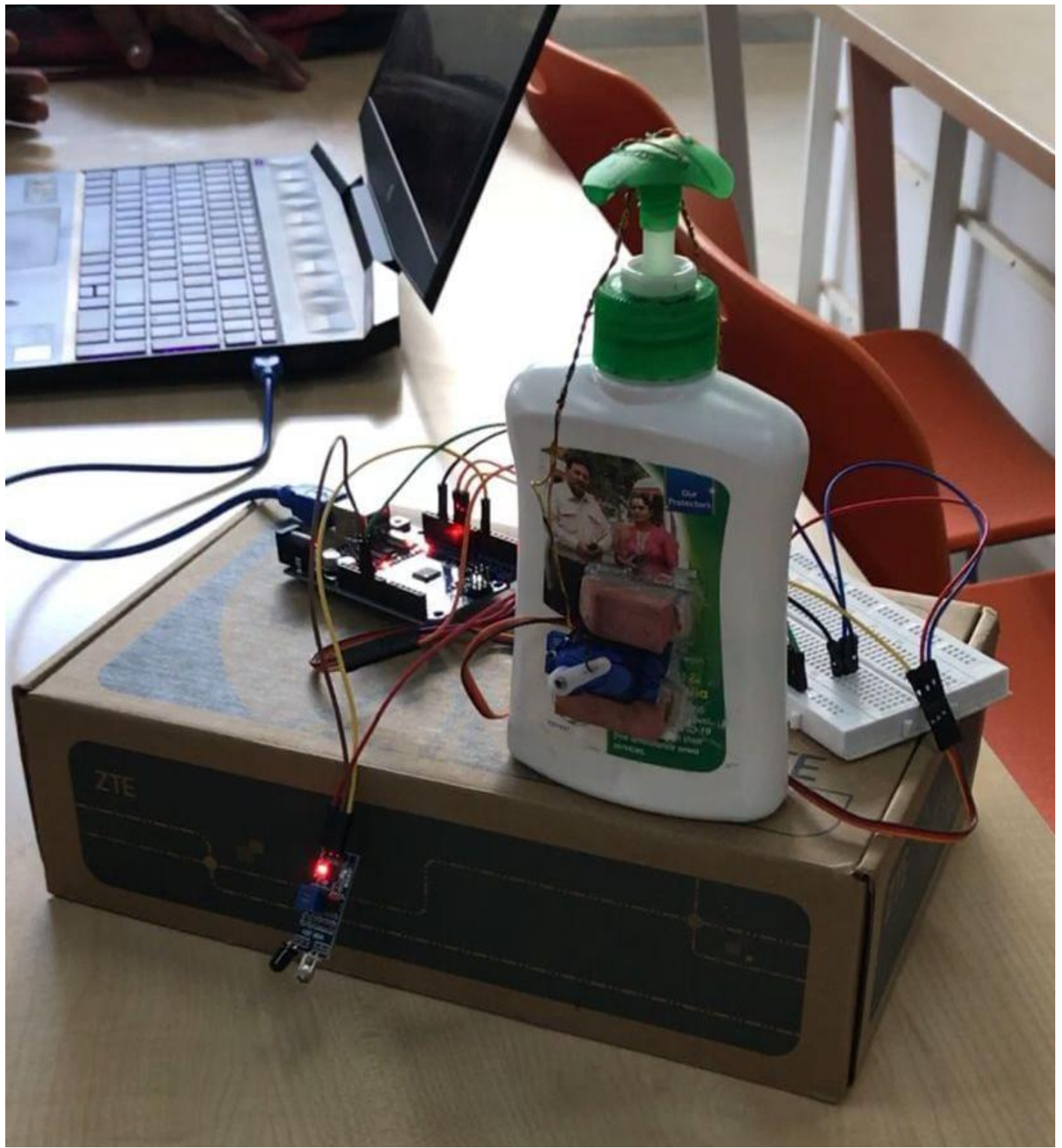


PINOUT DIAGRAM



Manual connections of the project





CODE:

```
#include<Servo.h>

Servo servo1;

Servo servo2;

int irsensor = 7;

int servoPin1 = 11;

int servoPin2 = 10;

void setup() {
  pinMode (irsensor, INPUT);
  servo1.attach(servoPin1);
  servo2.attach(servoPin2);
}

void loop()
{
  int status = digitalRead(irsensor);
  if (status == 1)
  {
    servo1.write(100);
    servo2.write(100);
  }
  else
  {
    servo1.write(0);
    servo2.write(0);
  }
}
```

READ ME

1. First give the power supply to Arduino board.
2. The IR sensor and Servo motor is connected.
3. Waits for the sensor
4. As soon as we place the hand near the sensor sense the heat signature or motion of the object.
5. Servo motor rotates.
6. Handwash outlet pushes down and dispenses the sanitizer
7. As soon as the hand is moved away from the IR sensor the servo motor stops.

CONCLUSION: -

Through this project we came across various components which gave us more insight about the subject “**Internet of Things**”.

Our project was about automatic hand sanitizer dispenser using Arduino.

In this project we used Arduino with IR sensor, servo motor and a hand sanitizer and successfully automated the dispenser.

When you put your hand in front of the IR sensor, it sends a signal, and the servo motor rotates and pushes the dispenser down upon which the sanitizer gets dispensed.

THANK YOU