ICL –LAB

Assignment 1:

Project Title: Automatic Hand Sanitizer using Arduino.

Aim: To design and experiment the Automated Hand Sanitizer.

Purpose:

Due to current COVID 19 Pandemic situation, everyone is advised by World Health Organization (WHO) to use Hand Sanitisers to be safe. So our team mates decided to build the Automated Hand Sanitiser for ICL Lab's I have designed the prototype module. Below is the block diagram and description of the Circuit.
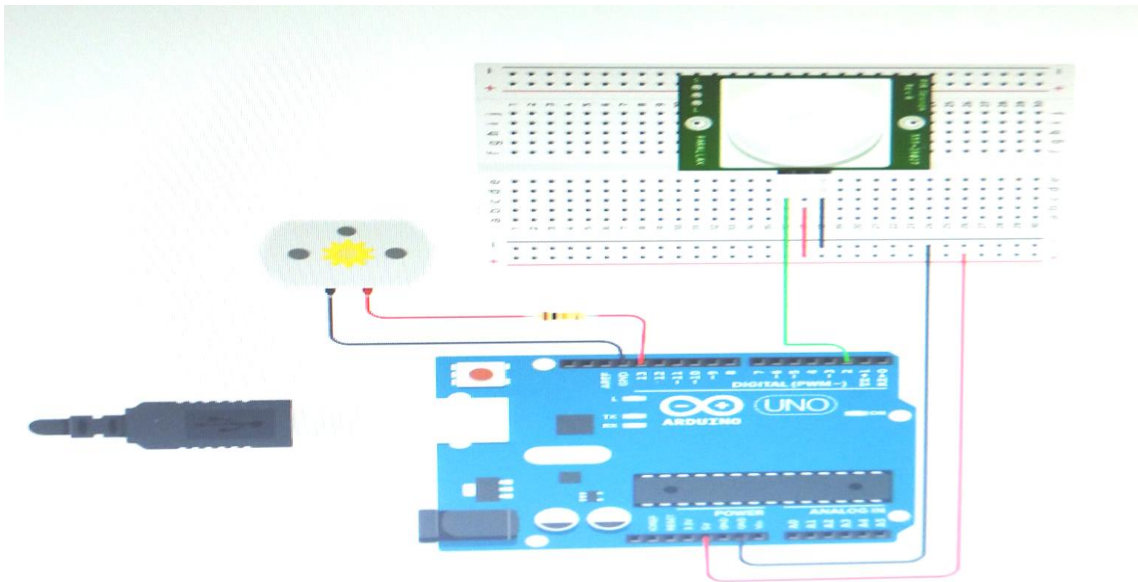
Block Diagram:

Figure 1: Diagram Description of Hand Sanitizer

Hardware Description:
Arduino Uno R3:
It is an open source micro controller board based on Microchip ATMEGA328P. Board is equipped with sets of digital and analog input / output pins that may be interfaced to various expansion boards. Programs can be loaded on to it from the Arduino Computer.

PIR SENSOR:

  PIR is referred as "Passive Infra-red" or Pyro-electric motion sensor. PIR Sensor allows us to sense motion, almost always used or out of sensor range. They are small inexpensive low power energy. It is a 3 pin device.

PIR sensor Pin 1 -------Pin 2 of Adriano.

PIR sensor pin 2 -------Pin +5Volts of Arduino.
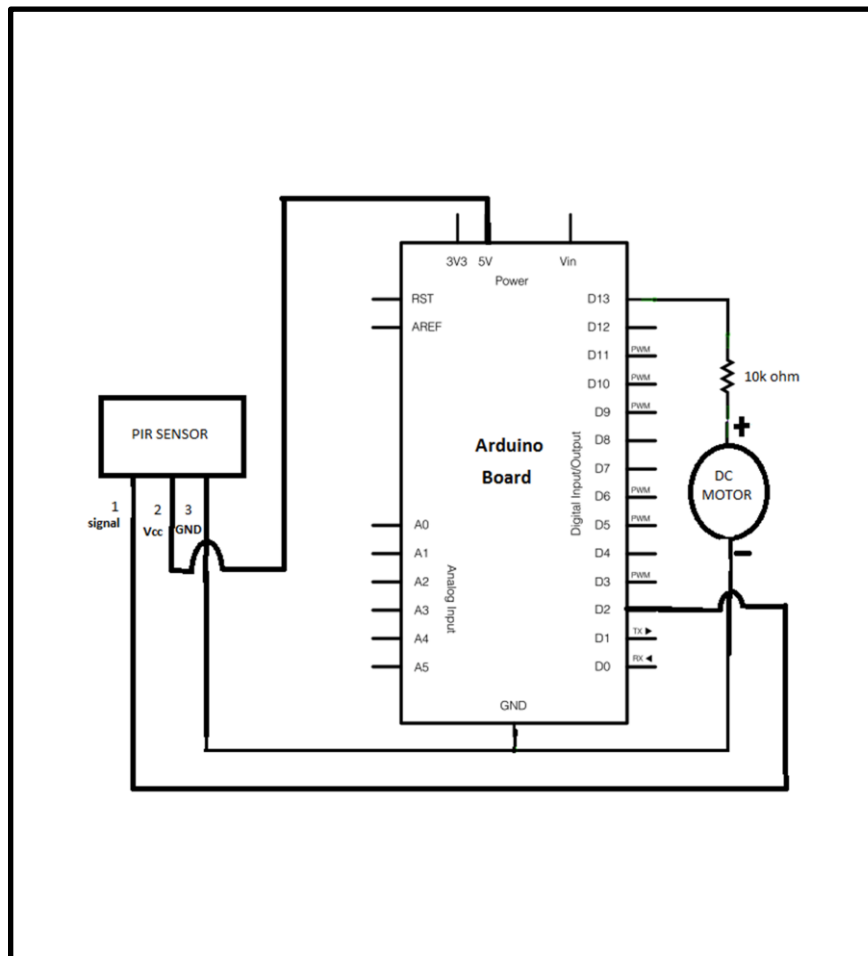
PIR sensor pin 3 -------Pin GND of Arduino.

DC MOTOR:

  In our experiment we have to use Mini Aquarium Water Pump. DC motor has two wires. Positive and negative wire.

Positive wire (RED) ---------------Pin 13 of Arduino Board.

Negative wire (BLACK) -------GND Pin of Arduino board.

SOFTWARE: Arduino IDE (Integrated Development Environment) is required to program the Arduino Uno Board.

CIRCUIT DIAGRAM:

Program:

```
int ledPin = 13;      // DC MOTOR  is connected to pin 13
int inputPin = 2;     // PIR SENSOR is connected to pin 2

void setup() //
{
   pin.Mode (13, OUTPUT);   // Initialize DC Motor as output.
   pinMode(2, INPUT);       // Initialize pin 2 as PIR sensor input.
   Serial.begin(9600);      // Baud rate is set for serial communication..
}

 // Main loop auto-repeats.
void loop()
{
    int sensor_status;  // Initialise variable to check status of PIR SENSOR.

    sensor_status = digitalRead (2);  // Read the status of PIR sensor pin 2

    Serial.println(sensor_status);    // Print status of motion detection.
// Check the PIR sensor status.
    if (sensor_status == HIGH)
    {
       // If Any motion is detected signal the DC motor to operate.
      digitalWrite(13, HIGH);
       // Give delay of 1 second.
      delay(1000);
       // If any motion is not detected Turn OFF the DC motor.
    } else {
       // Turn OFF the DC MOTOR.
      digitalWrite(13, LOW);

       // Wait for one second to check the PIR Sensor staus.
      delay(1000);
    } }
```

Outcome:

> Whenever the object is moved within the range, object movement is detected along with its assigned parameters.

Scope of Improvement:

> Hardware implementation has to be carried out.