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DEPARTMENT: MECHANICAL ENG

COURSE: ENG 224

MARTIC NO : 18\ENG06\051

#include <stdio.h>

#include <stdlib.h>

int main()

{int WATERPUMP = 14; //motor pump connected to pin 13

int sensor = 6; //sensor digital pin connected to pin 8

int val; //This variable stores the value received from Soil moisture sensor.

void setup() {

 pinMode(14,OUTPUT); //Set pin 14 as OUTPUT pin

 pinMode(6,INPUT); //Set pin 6 as input pin, to receive data from Soil moisture sensor.

 //Initialize serial and wait for port to open:

 Serial.begin(9400); // opens serial port, sets data rate to 9600 bps

 while (! Serial);// wait for serial port to connect. Needed for native USB

 Serial.println("Speed 0 to 250");

}

void loop()

 {

 if (Serial.available()) //loop to operate motor

 {

 int speed = Serial.parseInt(); // to read the number entered as text in the Serial Monitor

 if (speed >= 0 && speed <= 250)

 {

 analogWrite(WATERPUMP, speed);// tuns on the motor at specified speed

 }

 }

 val = digitalRead(6); //Read data from soil moisture sensor

 if(val == LOW)

 {

 digitalWrite(14,LOW); //if soil moisture sensor provides LOW value send LOW value to motor pump and motor pump goes off

 }

 else

 {

 digitalWrite(14,HIGH); //if soil moisture sensor provides HIGH value send HIGH value to motor pump and motor pump get on

 }

 delay(600); //Wait for few second and then continue the loop.

 return 0;

}

**. DC motor using water pump:**

I use DC motor to make water pump. DC motor has two leads one is positive and another one is negative. If we connect them directly to the Arduino board then it will damage the board. To overcome this problem, NPN transistor is used to control the switching activity of the motor according to the code.

Water pump made by 5 volt DC motor

Arduino pin 14 (named as WATERPUMP in code) is used to turn on and off the transistor. According to the code to control the speed of th***e*** motor we need to enter a value between 0 and 250 in the Serial Monitor. I used 200 value for the speed of the motor***.***

**Soil moisture sensor:**

The soil moisture sensor consists of two leads that are used to measure volume of water content in soil. These leads allow the current to pass through the soil and in return calculates the resistance value to measure the moisture level. If there is more water in soil then soil will conduct more electricity, means less resistance value along with high level of moisture. In the same manner if there is less water in soil then soil will conduct less electricity, means high resistance value along with low level of moisture.

ND SUPPLIES

A000066 iso both

Arduino UNO & Genuino UNO

× 1

Fairchild semiconductor 1n4004. image

1N4007 – High Voltage, High Current Rated Diode

× 1

Fairchild semiconductor pn2222abu. image

General Purpose Transistor NPN

× 1

826 04

Male/Female Jumper Wires

× 1

Mfr 25fbf52 221r sml

Resistor 221 ohm

× 1

5v DC Motor

× 1

Water tube

× 1

Glue gun

× 1

Weter container

× 1

Bread board

× 1

Soil Moisture Sensor