



SMART IRRIGATION

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INTRODUCTION

- Water irrigation system based on **Internet of Things (IoT)**.
- Irrigate the farmland in an efficient manner with automated irrigation System based on **soil moisture**.
- Operates by monitoring the value on soil moisture **sensor** and based on the reading, **motor** is kept ON or OFF.
- Node MCU transports the data to the digital platform of the server for processing of the data. Then those data are sent to the mobile application of the user.
- User-friendly experience with the help of **mobile application**.

LITERATURE REVIEW

YEAR	NAME OF THE PAPER	AUTHOR	DESCRIPTION	LIMITATIONS
2019	<i>Automatic Plant Watering System</i>	M. Mayuree P. Aishwarya A. Bagubali	User will be notified to switch ON/OFF the motor	User should be alert every time to OFF the motor.
2020	<i>Water irrigation using IoT</i>	J. Karpagam I. I. Merlin P. Bavithra J. Kousalya	Pump get ON and OFF automatically	no customized settings, expensive
2021	<i>IoT Enabled Smart Farming and Irrigation System</i>	M. Rohith R. Sainivedhana N. Sabiyath Fatima	switch on the motor to water the plants automatically	user cannot interfere with the process

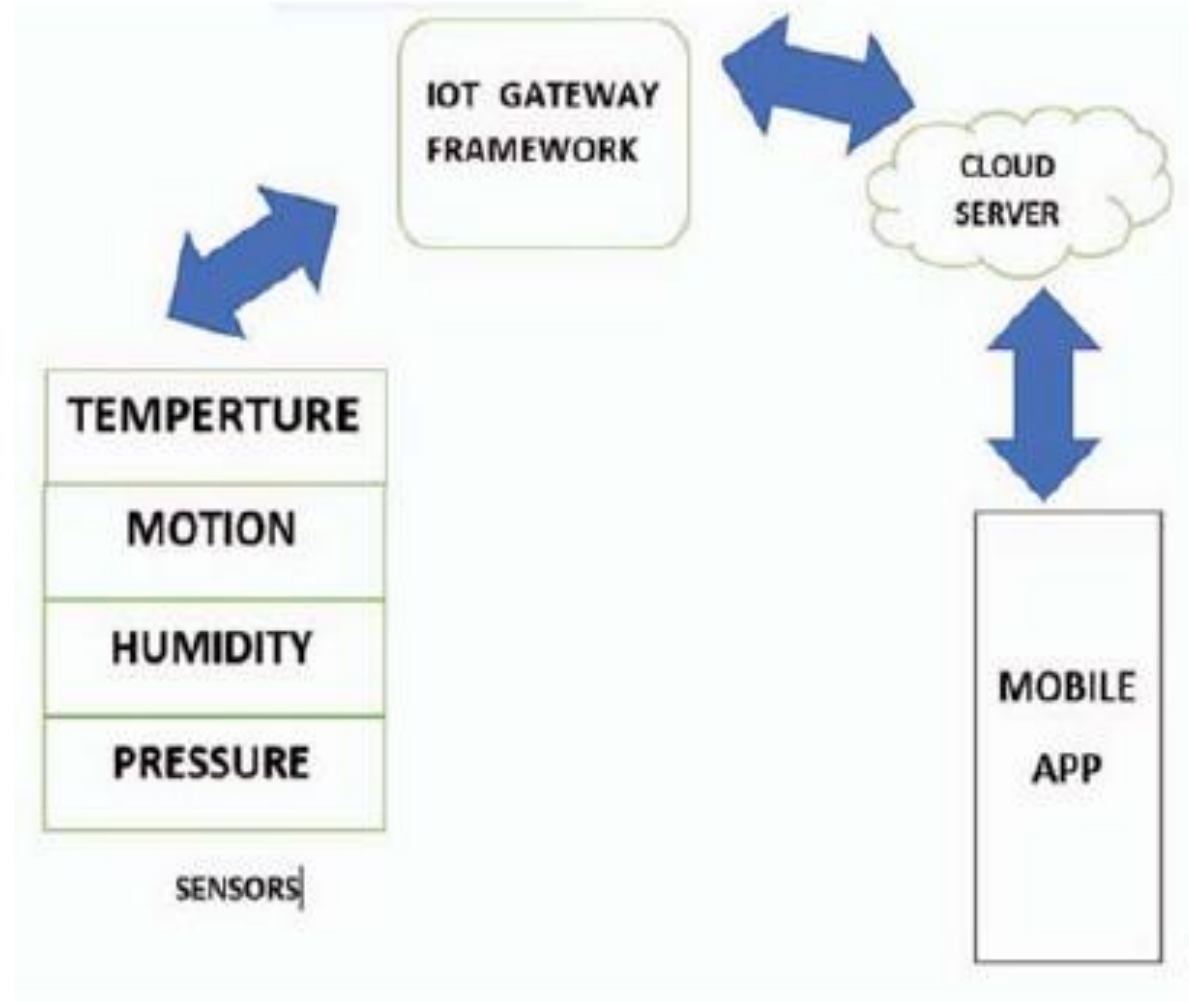
EXISTING SYSTEM

- In existing system, we require manual supervision and labour for proper irrigation.
- As per the paper *"An IoT Based Smart Irrigation System," 2021* , existing system consist of a motor that pumps water automatically based on the value of sensor.
- No user intervention
- Expensive
- No customized settings

PROPOSED SYSTEM

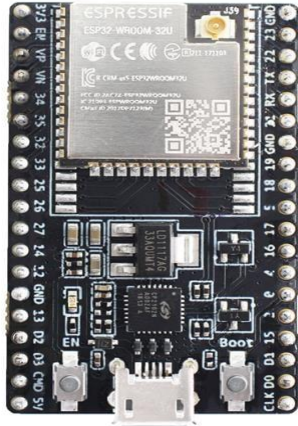
- In the proposed system, the watering process is automated which reduces manual work.
- Various parameters of the plant and soil such as temperature, humidity and moisture are sensed with the help of sensors and is displayed in the mobile application.
- When there is a increase in any of these sensed values, it sends a signal to the user and the user can turn ON the motor by a simple click on mobile phone.

ARCHITECTURE

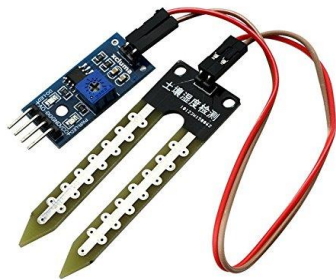


COMPONENTS

1. ESP32



2. Soil moisture sensor



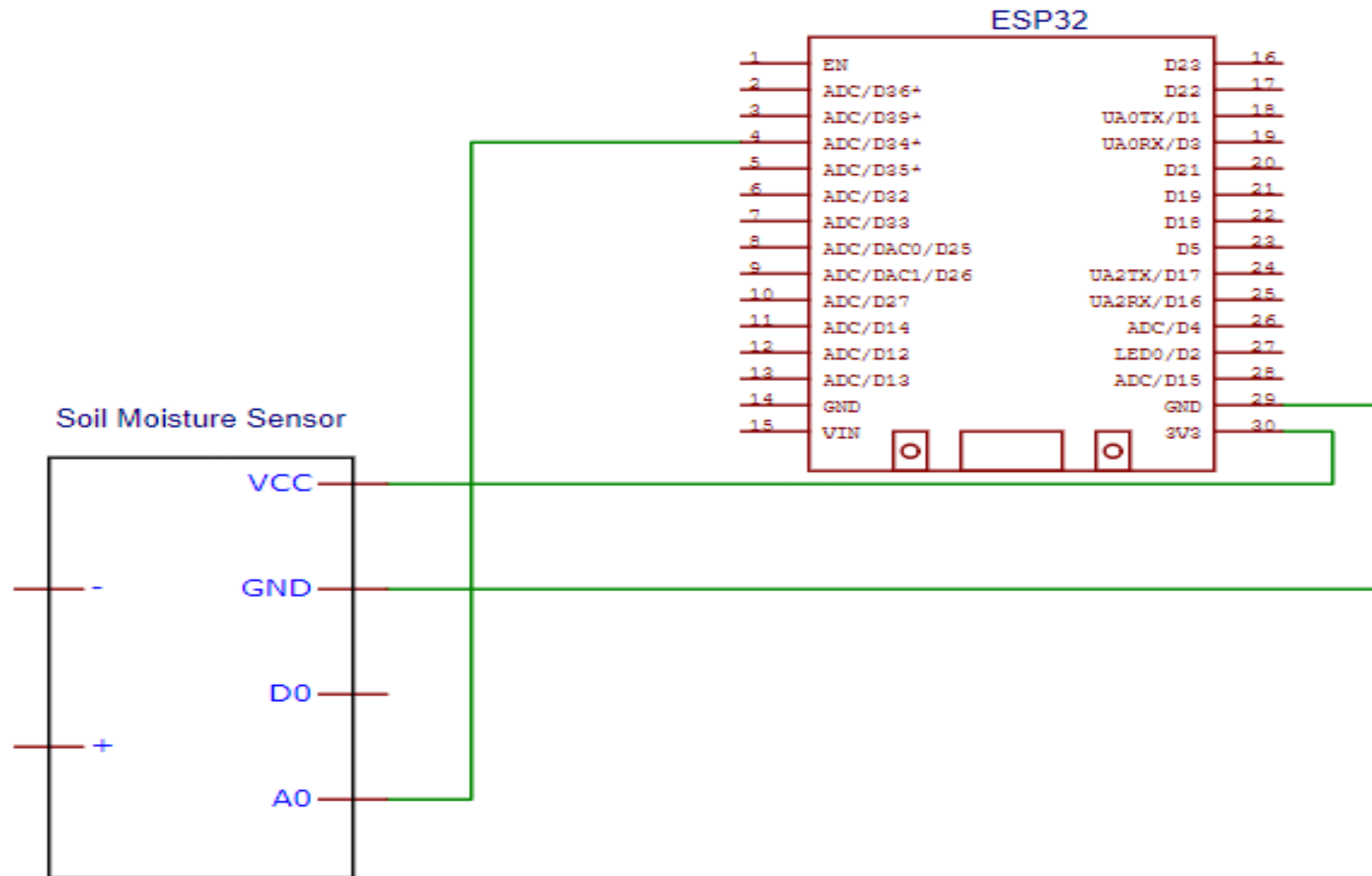
3. Water pump

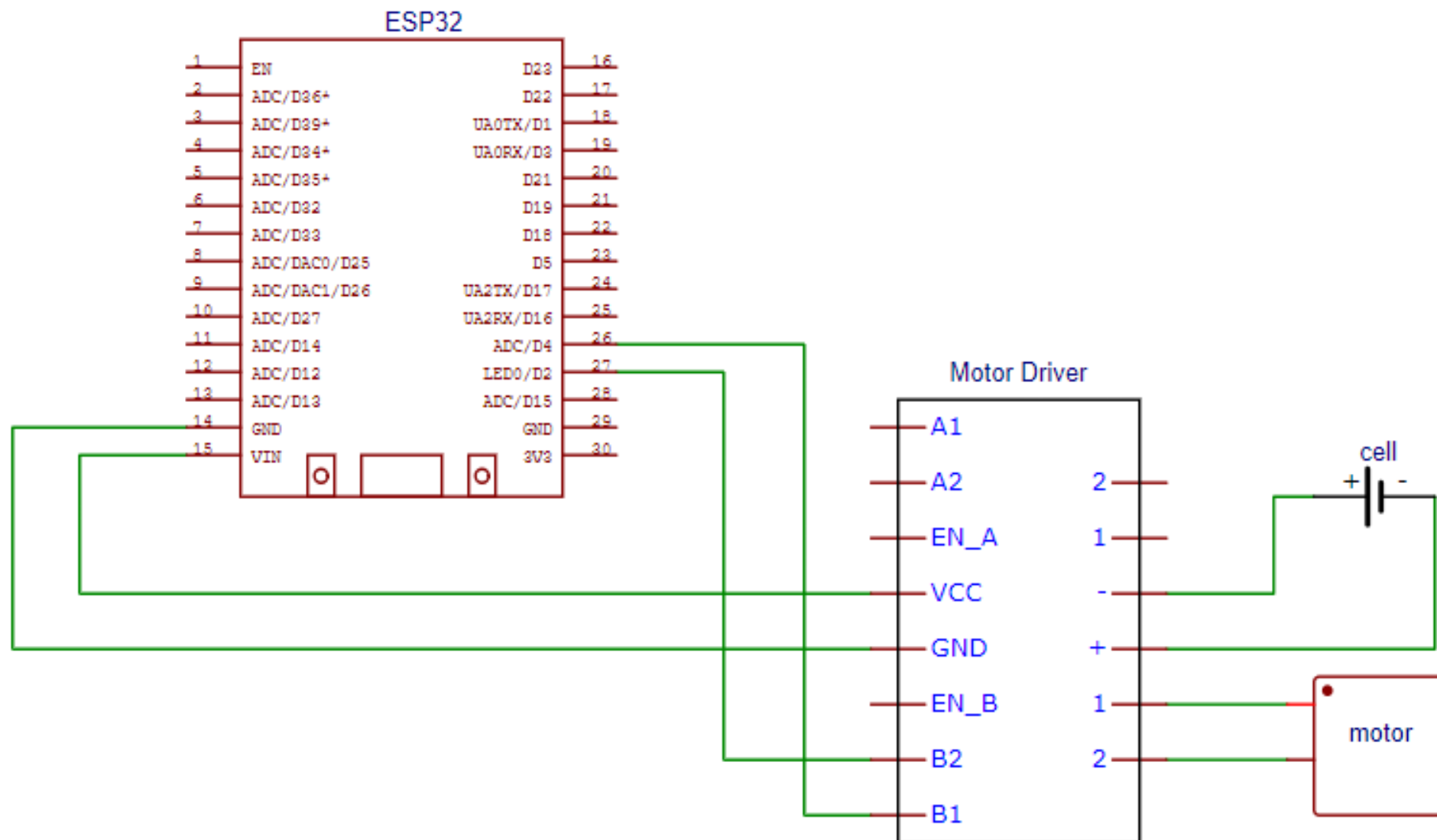


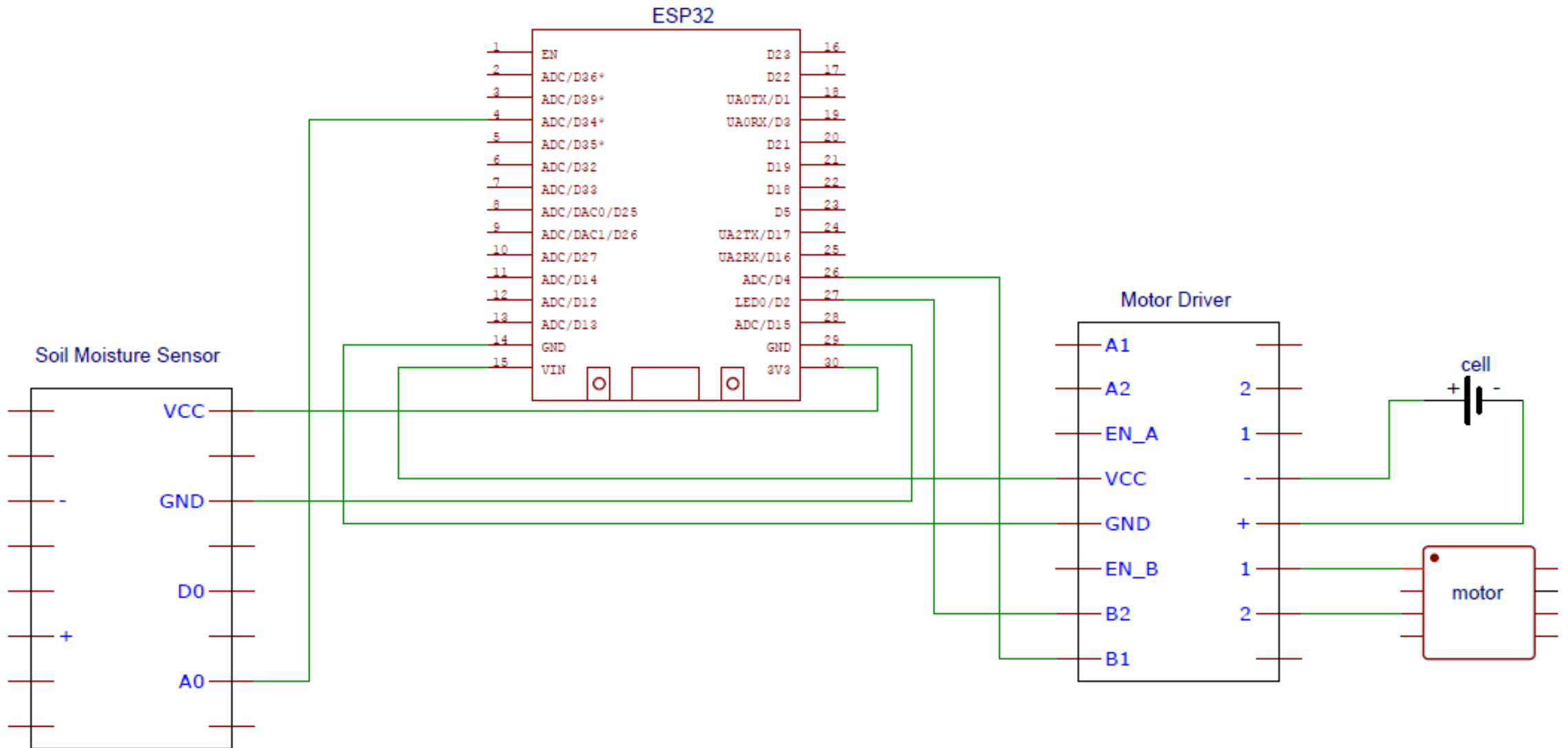
4. Jumper wire



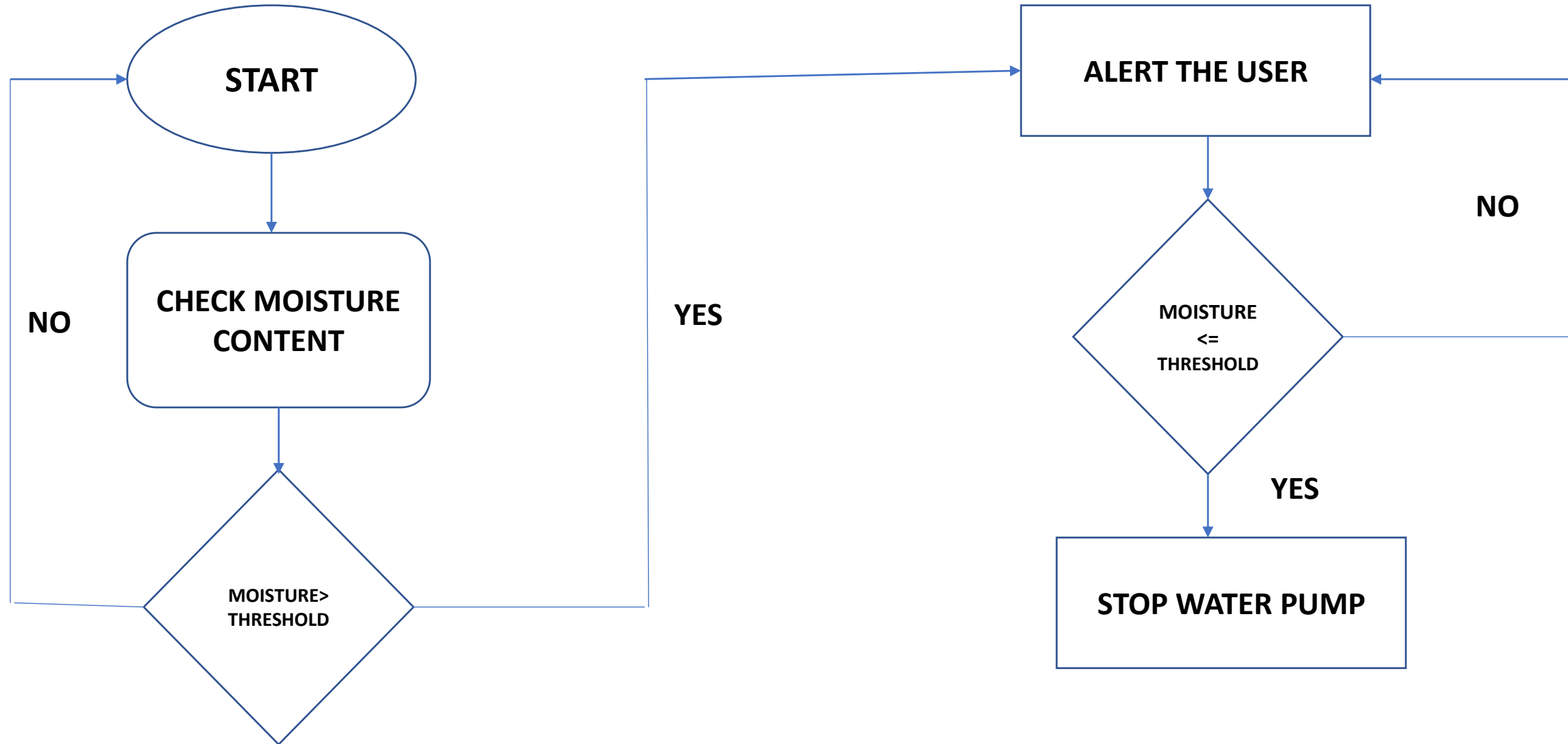
CIRCUIT DIAGRAM







FLOW CHART

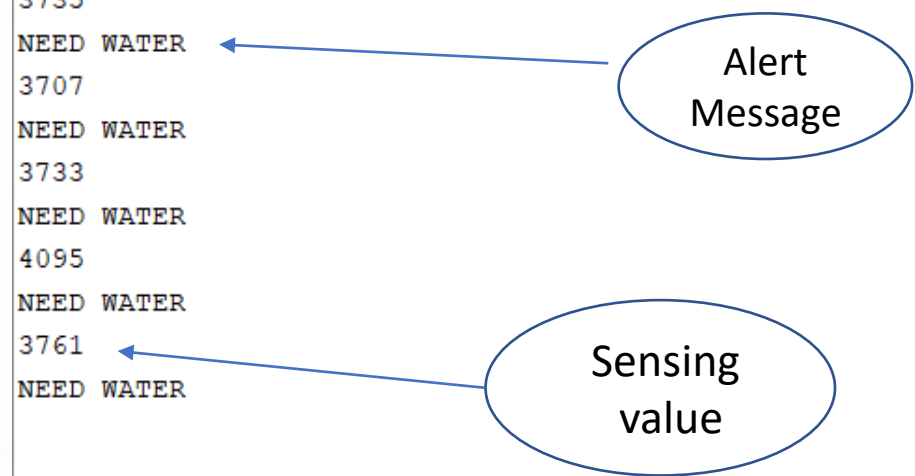


SCREENSHOT

WHEN SOIL IS DRY

```
ets Jun  8 2016 00:22:57

rst:0x1 (POWERON_RESET),boot:0x13 (SPI_FAST_FLASH_BOOT)
configsip: 0, SPIWP:0xee
clk_drv:0x00,q_drv:0x00,d_drv:0x00,cs0_drv:0x00,hd_drv:0x00,wp_drv:0x00
mode:DIO, clock div:1
load:0x3fff0030,len:1344
load:0x40078000,len:13516
load:0x40080400,len:3604
entry 0x400805f0
WIFI CONNECTING...!!
WIFI CONNECTING...!!
192.168.43.92
3735
NEED WATER
3707
NEED WATER
3733
NEED WATER
4095
NEED WATER
3761
NEED WATER
```



WHEN SOIL IS WET

```
NEED WATER
3707
NEED WATER
3733
NEED WATER
4095
NEED WATER
3761
NEED WATER
3771
NEED WATER
3795
NEED WATER
3799
NEED WATER
3819
NEED WATER
3839
NEED WATER
1453
ENOUGH WATER
1546
ENOUGH WATER
1583
ENOUGH WATER
1616
ENOUGH WATER
1639
ENOUGH WATER
```

Alert
Message



Sensing
value

TIMELINE

- Till **12/05/2022**, completed soil moisture sensing.
- Till **1/06/2022** , completed working of motor.
- Till **7/06/2022** , completed working of motor based on the value of sensor.
- Till **14/07/2022**, completed WiFi connection.

- By **20/07/2022** , water plants based on the sensing value.
- By **25/07/2022**, create android application for customizing settings.
- By **30/07/2022**, working of motor based on android app.
- By **8/08/2022**, completion of project.

REFERENCES

- M. Rohith, R. Sainivedhana and N. Sabiyath Fatima, "IoT Enabled Smart Farming and Irrigation System," *2021 5th International Conference on Intelligent Computing and Control Systems (ICICCS)*, 2021, pp. 434-439, doi: 10.1109/ICICCS51141.2021.9432085.
- M. Mayuree, P. Aishwarya and A. Bagubali, "Automatic Plant Watering System," *2019 International Conference on Vision Towards Emerging Trends in Communication and Networking (ViTECoN)*, 2019, pp. 1-3, doi: 10.1109/ViTECoN.2019.8899452.
- J. Karpagam, I. I. Merlin, P. Bavithra and J. Kousalya, "Smart Irrigation System Using IoT," *2020 6th International Conference on Advanced Computing and Communication Systems (ICACCS)*, 2020, pp. 1292-1295, doi: 10.1109/ICACCS48705.2020.9074201.



THANK YOU