Smart Irrigation System

START


OBJECTIVES
the objectives of our projrct

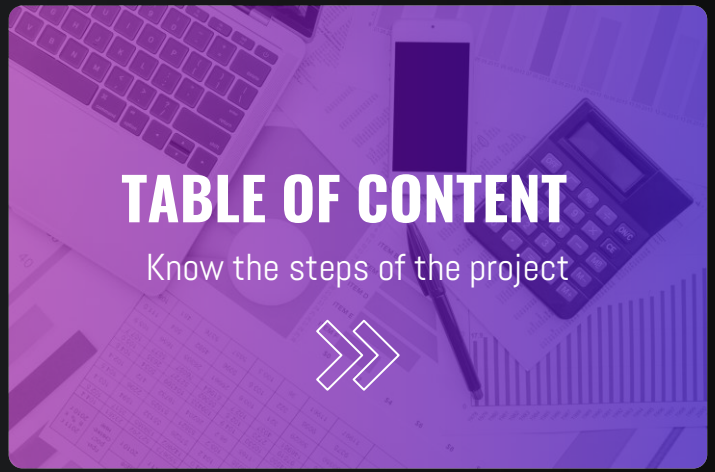


TABLE OF CONTENT
Know the steps of the project

PROJECT OBJECTIVES

Automating

automating the total irrigation system which provide adequate water by using web server

Saving water

by monitoring the moisture of soil and climate condition in order to prevent the wastage of water resource

Saving Time

save farmers time for to and from journey to the field.

CONTENT

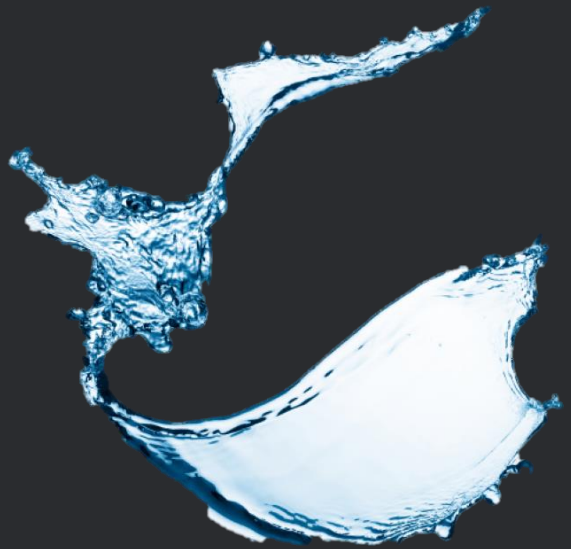
01 INTRODUCTION

START

PROBLEM DEFINITION

The population is increasing and the requirement for water increases each year as the demand for food and water increase. Egypt have challenge about wasted water in the irrigation system. So, the group save the water for future irrigation.

PROBLEM SOLUTION



With advancement in technology, we can establish a system that mechanize the irrigation process such that there is efficient usage of water and create an ease of workload for the farmers. With embedded technology and Internet of Things, in this work we will design IoT based smart irrigation system. Our system can deliver optimal water to the plants based on moisture, light and temperature levels which are obtained through sensors. The farmer will be able to monitor the parameters through the mobile app which is integrated with cloud storage. By analyzing and comparing previous year's data and our current data we can efficiently find a way to save water.

02 PROJECT METHODOLGY

START

PROJECT MATERIALS

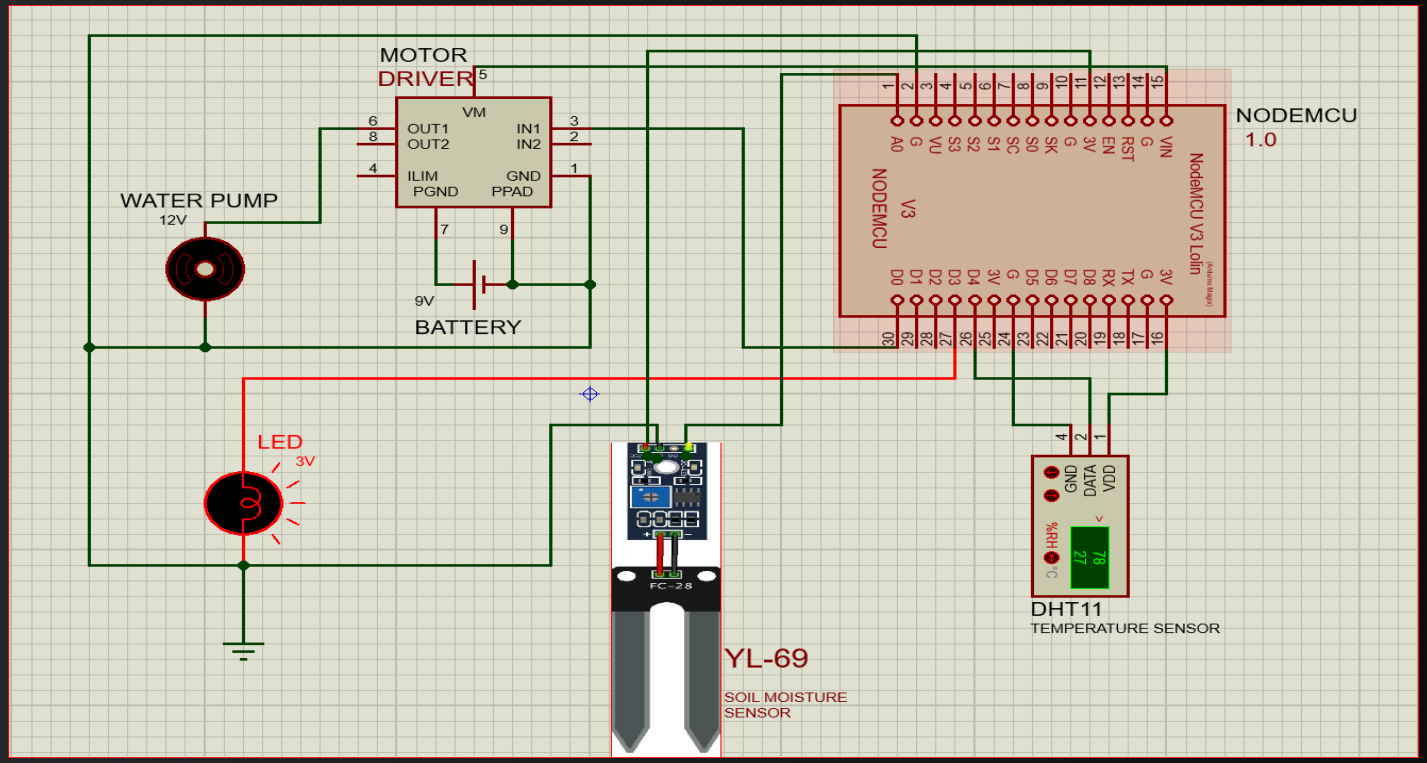
- NodeMCU
- Water Pump
- Relay
- Soil moisture sensor
- Temperature and humiditiy sensor
- Regulator
- Breadboard
- Batteries

PROJECT METHDOLOGY

The system is a combination of hardware and software components. The hardware part consists of embedded system and software is the webpage designed. The webpage is hosted online and consists of a database in which readings from sensors are inserted using the hardware. Information from the sensors is transmitted to the NodeMCU which is responsible for controlling (manually or automatically) the switching on/off of the motor (using the web interface) on which water sprinklers can be attached to irrigate the soil.

we have chosen to use the NodeMCU because it is an open-source development board and firmware based in the widely used ESP8266 -12E Wi-Fi module. It allowed us to program the Wi-Fi module with the simple Arduino IDE to control the sensor and motor. We use a temperature humidity sensor which comes with a dedicated NTC to measure temperature and an 8-bit microcontroller to output the values of temperature and humidity as serial data. The sensor can measure temperature from 0°C to 50°C and humidity from 20% to 90%. Also, we used a moisture sensor consists of two probes that are used to detect the moisture of the soil.

PROJECT SIMULATION



03 PROTOTYPE

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PROTOTYPE IMAGE

PROTOTYPE VIDEO

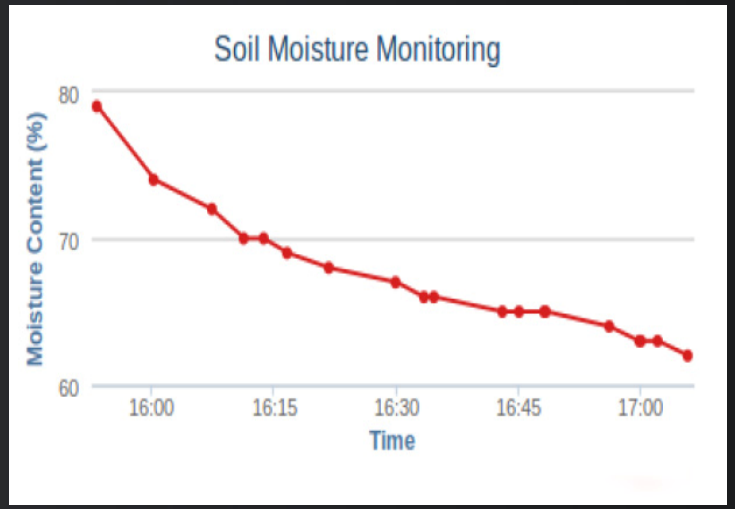
04 RESULTS

START

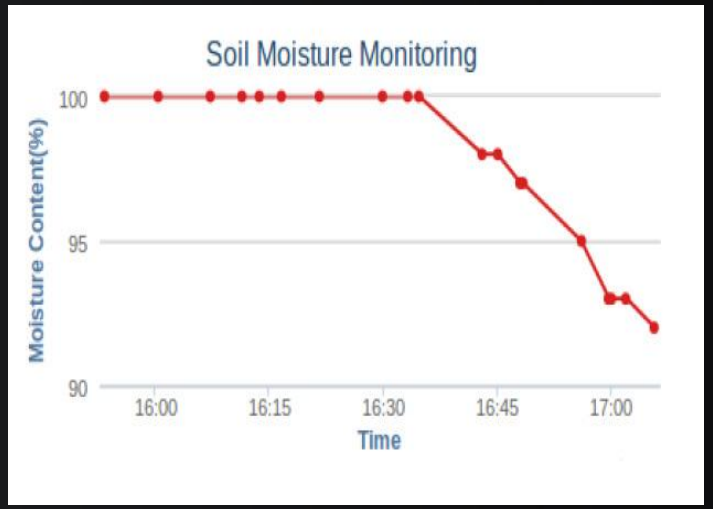
PROJECT RESULTS

Time (IST)	Sensor A(%)	Sensor B(%)
15:53:21	79	100
16:00:22	74	100
16:11:23	70	100
16:16:44	69	100
16:30:05	67	100
16:34:45	66	100
16:43:06	65	98
16:48:07	65	97
16:56:08	64	95
16:59:48	63	93
17:00:08	63	93
17:05:49	62	92

RESULS GRAPHS



Graph of Sensor A : Inserted in initially 79% moist soil



Graph of Sensor B: Inserted in over irrigated soil

05 CONCLUSION

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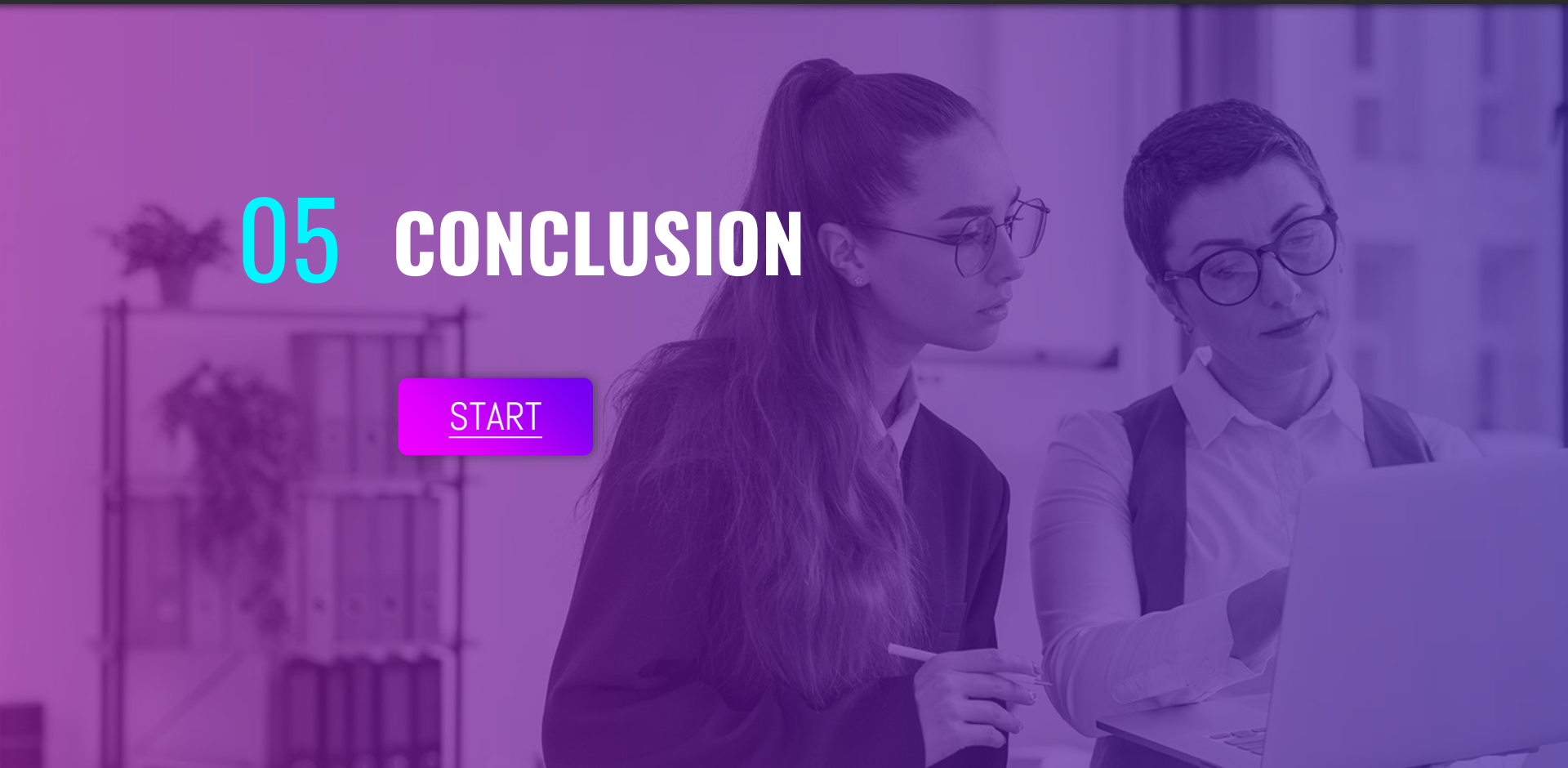


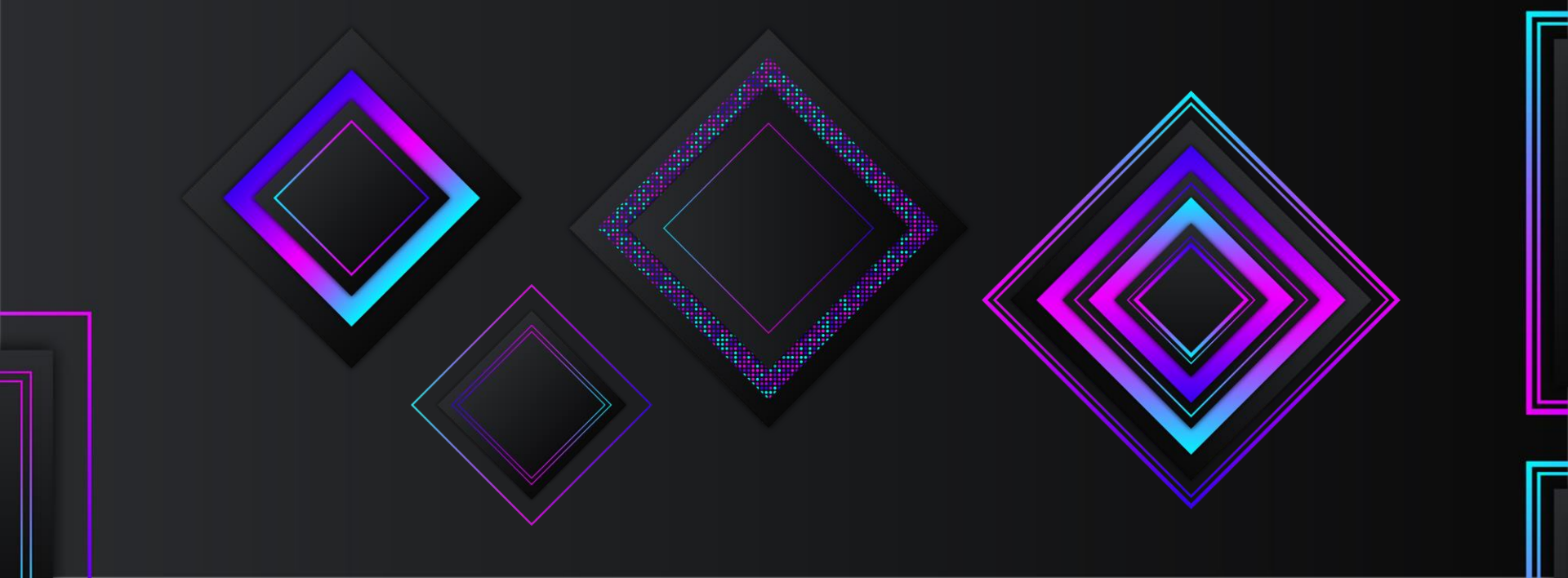
Agriculture is perhaps the most water-devouring exercises. The framework utilizes data from the sensors to irrigate the soil which helps to prevent over irrigation. The farmer can screen the cycle online through a site. The farmer can distantly screen the water system measure on the homestead. Subsequently, the framework contributed to making a smart farm. Hence, the framework is a likely answer for the issues looked in the current manual and lumbering cycle of water system by empowering productive use of water assets.

RECOMMENDATION

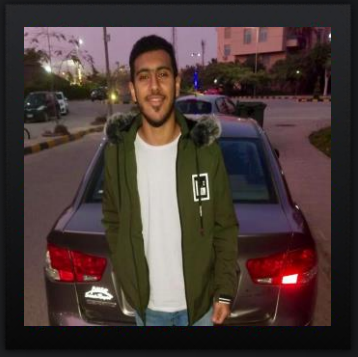
WHERE WE WANT TO BE

Luckily the NodeMCU can control many sensors and motors so by the same web interface. So, we can upgrade the idea to make a fully automated house by some smart automatic systems as Lighting control, climate control and security systems.

THANKS!



WHO WE ARE



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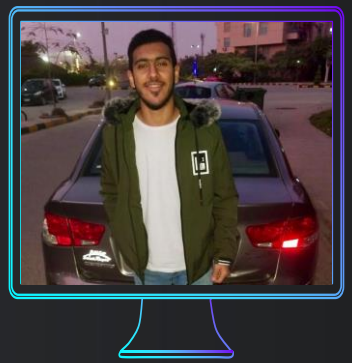

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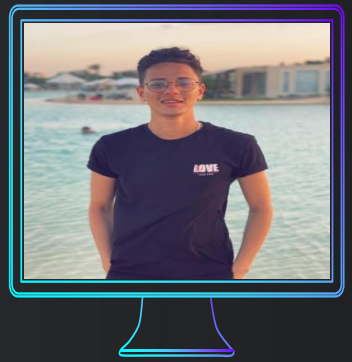

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