Automatic Irrigation Technology for Agricultural field and IOT Based Communication System

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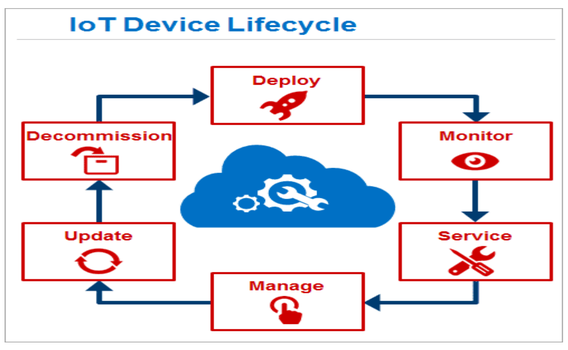
Background of the propsesd system:

Various types of automatic irrigation technologies have evolved rapidly in recent decades. Physical phenomena of irrigation discovered centuries ago have been the starting point for irrigation technology over through the world. In this paper, a digital sensor based moisture rate measurement system is designed and experimented. The proposed system comprises a soil moisture sensor connected with a microprocessor for the measurement of moisture of agricultural field.The soil moisture sensor measure the moisture level which is used to when the water pump irrigate the field.When the moisture level get lower then 30%(we can estimate the level by scientifically),the water pump get start and when sensor get moisture level 80%(we can estimate the level by scientifically) then water pump get turned off.ESP8266 NodeMCU V2 Development Board is used as the microprocessor of this system.This module send massage through the cloud server. Blynk app show the massage of the field condition through the farmers smart phone.By this the farmers can know about their field irrigation condtion without going there.By this technology it is possible to irrigate field in scientific way.12v water pump is powered by adapter.

Project Modules:

- Soil Moisture Sensor
- Water Pump
- Bread Board
- Water Tank
- 12v Adapter
- 1 Channel 5v Relay Module
- ESPNodemcu wifi Module
- Male/Female jumper wire
- Glue Gun
- Water Tube
- LED



IOT Overview

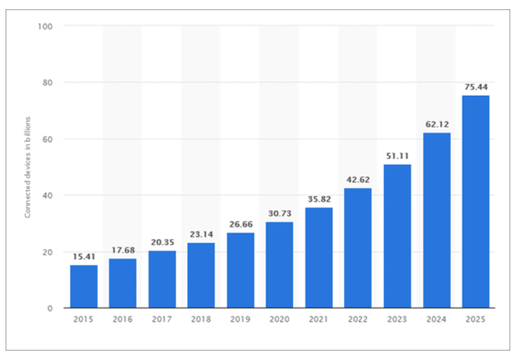
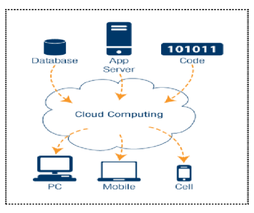


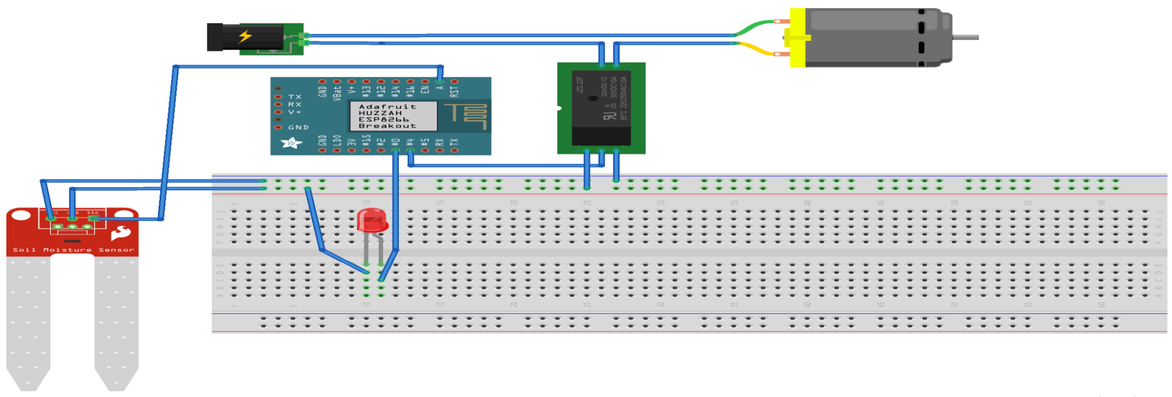
Fig:-Uses of IoT Device Through the decade

ESP8266 Pin	Description
CH_PD	Pull high, connect to Vcc +3.3V
Vcc	Power Supply +3.3V
TXD	Connect to RXD (white) of PL2303HX USB-Serial converter cable
RXD	Connect to TXD (Green) of PL2303HX USB-Serial converter cable
GPIO0	Pull low, connect to GND pin
GND	Power Supply ground

Table:-Pin Description of ESPnodemcu



Circuit Diagram of the Proposed System



Methodology:

Step 1:
Analysis of:
1.Verious thesis work about this thesis.
2.Find out my process of the Automatic Irrigation System by using IOT.

Step 2:
Block Diagram of the System

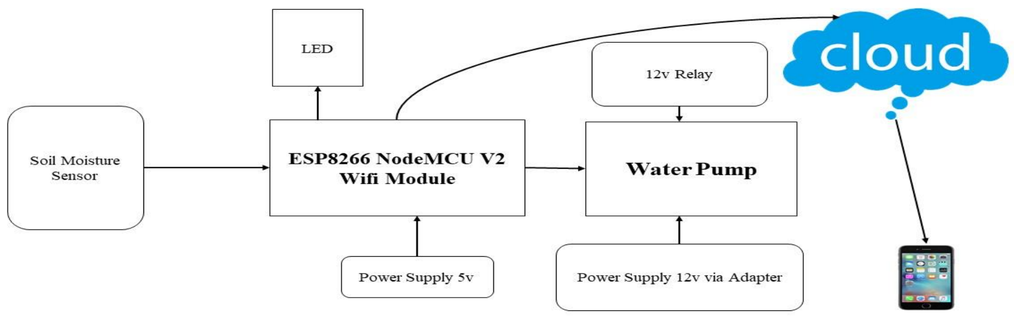


Figure:-Block Diagram of Automatic Irrigation Technology and IOT Based Communication System

Step 3:
Control Flow Diagram

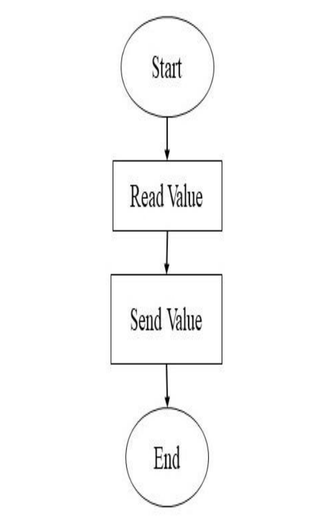


Fig:-Algorithm for Soil Moisture Sensor

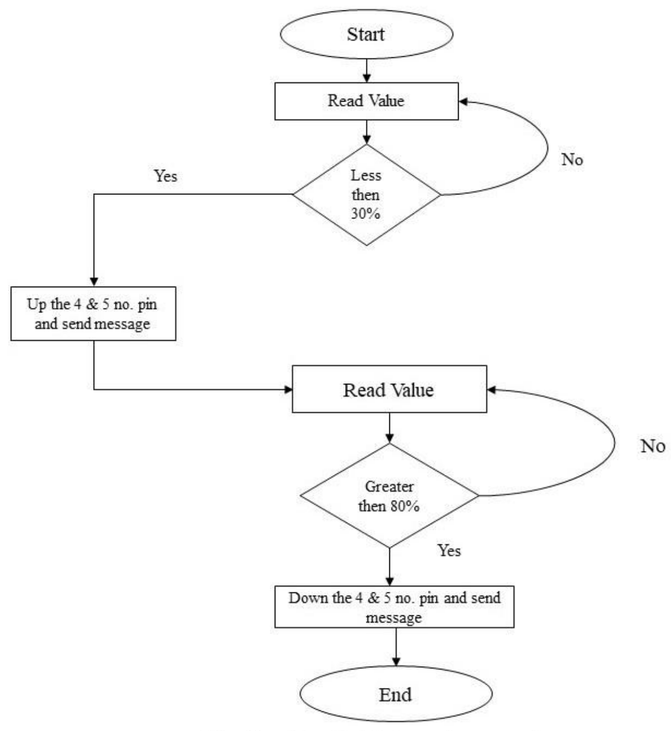


Fig:-Algorithm for Nodemcu (processor)

Water Pump:

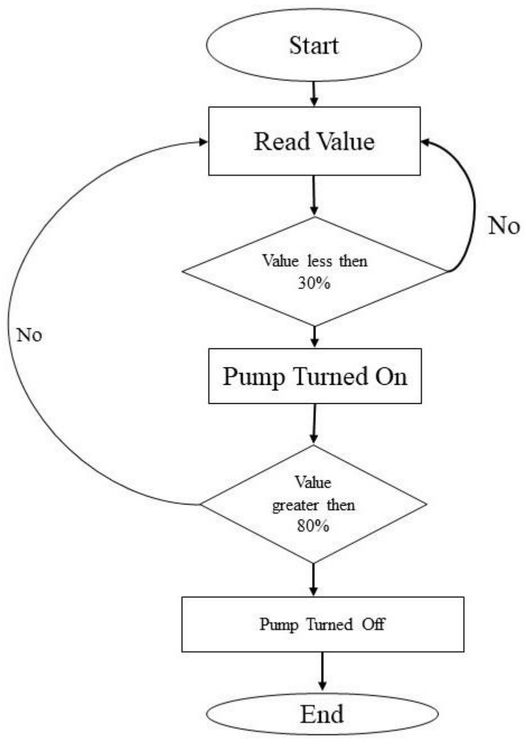


Fig:-Algorithm for Water Pump

LED:-

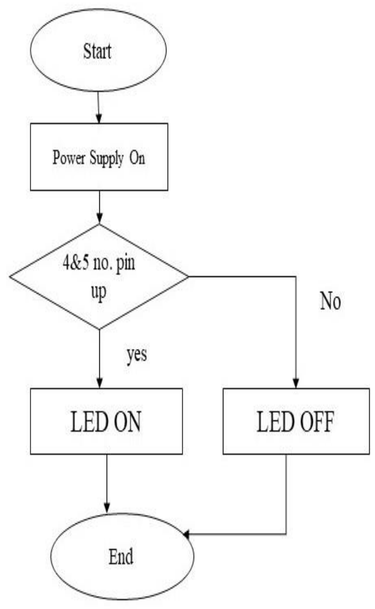


Fig:-Algorithm for LED

Conclusion:

What has been done:
1.An IOT based Automatic Irrigation System.
2.Whole process is done automatically.
3.Farmers are getting information about their garden's moisture.
4.It's possible to watering the plants in a measured way.

What will be done:
1.To including cloud server in this system.
2. Enriching this system for a huge land.
3. Including bigger electric water pump.

Application:
1.Mearment and Analysis of soil moisture data,water level data.
2. An organized way to store and sharing information
3.It's a cost effective system.