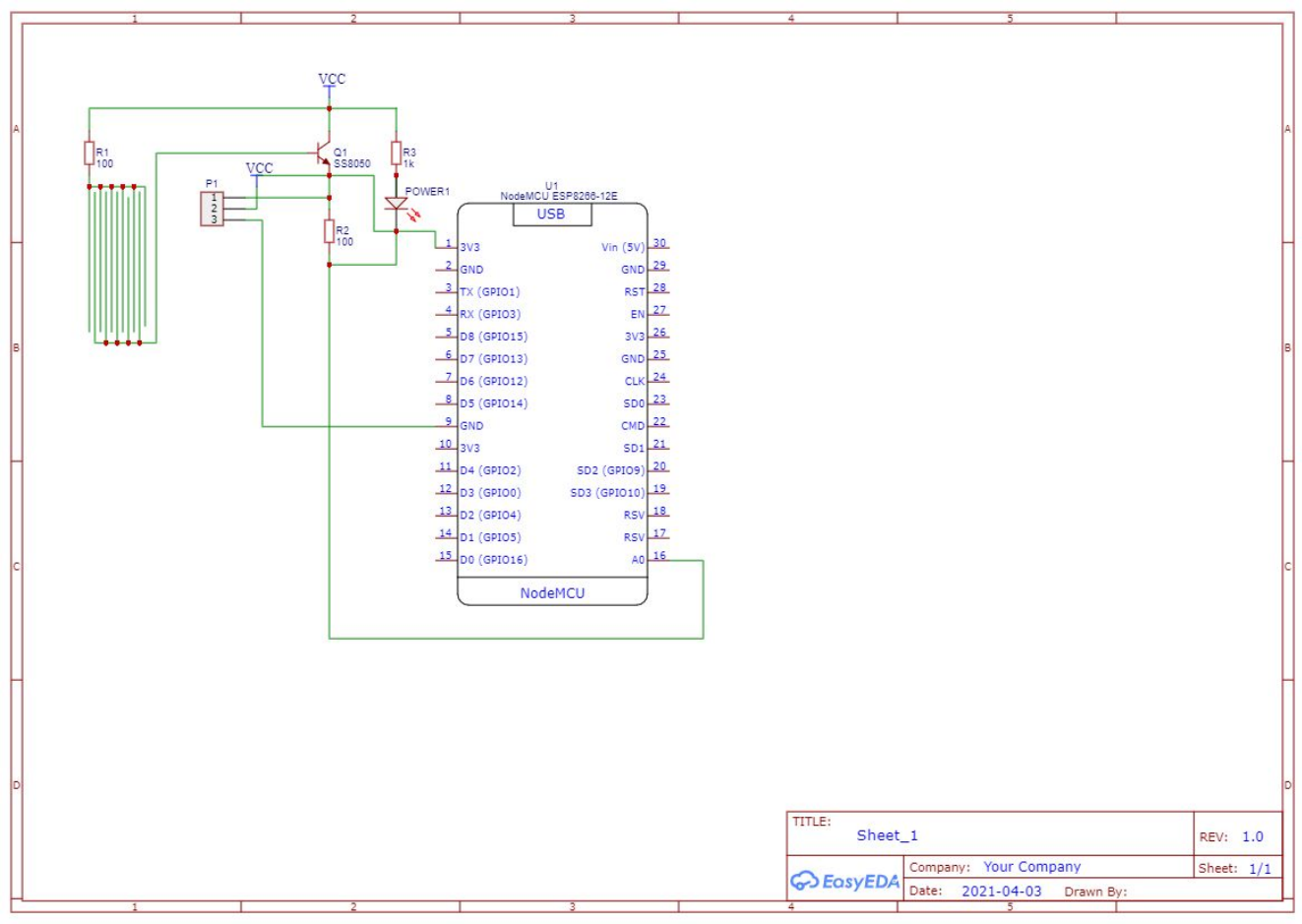
Water Level Detection Interface with NodeMCU and Blynk

Done by : Alakarthika

Block Diagram



Introduction

- This Water level detection interface has been made to interpret the amount of water present on a surface and provide the various levels on an app so that it can be monitored
- It is a simple setup which is easy-to-use and can be used as a gauge of water levels in tanks, rainfall levels etc.
- Due to its connection with an online platform, it is easily usable, and human interaction with the water level becomes negligible.
- This setup can be used for growing plants, i.e, it allows one to make sure that there is no flooding present.

Hardware and Software Used

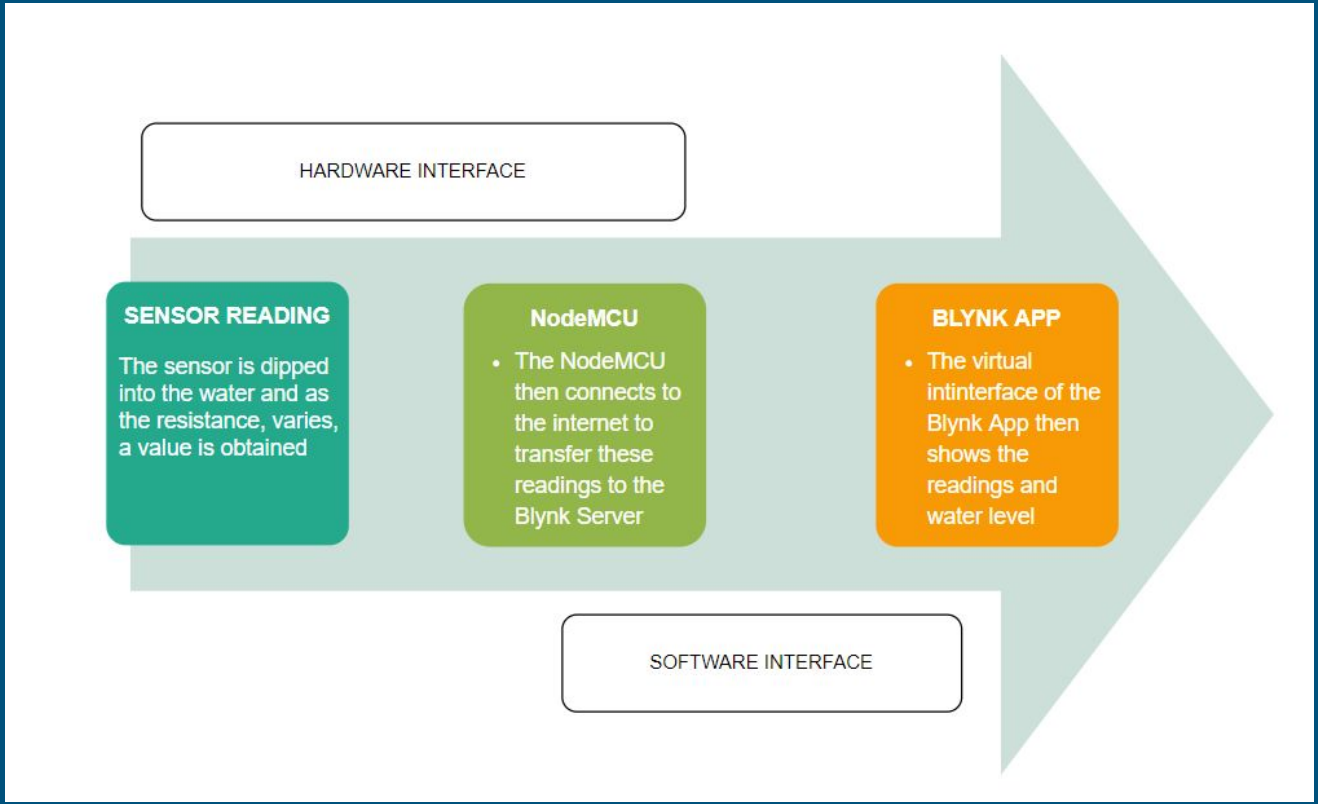
Hardware:

1. NodeMCU ESP8266 Wifi Module: low cost, open-source IoT platform-based microcontroller
2. Water level sensor: series of exposed parallel conductors, whose resistance varies according to the water level

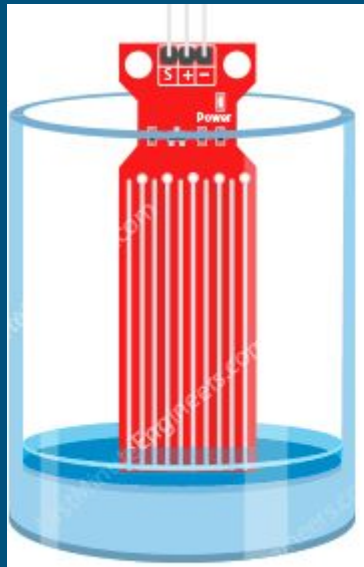
Software Used:

1. Arduino IDE: is a cross-platform application (for Windows, macOS, Linux) that is written in functions from C and C++, used to write and upload programs to Arduino compatible boards
2. Blynk App: designed for IoT, It can control hardware remotely, it can display sensor data, it can store data, visualize it etc.

Program Flowchart

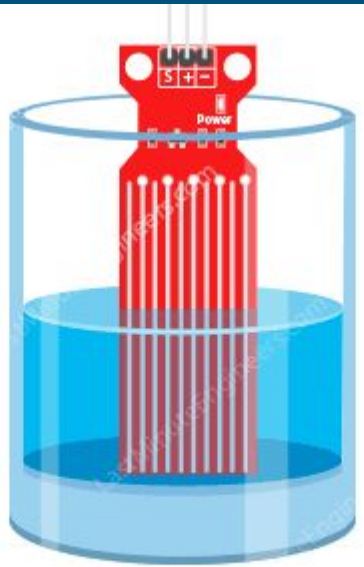


Water level Sensor Calibration



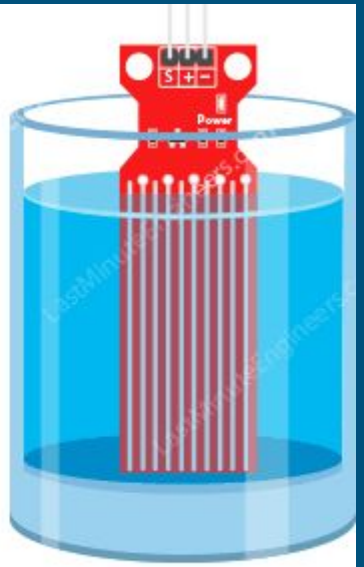
Status: Dry

Test reading :~1



Status: Partially submerged

Test reading :~500

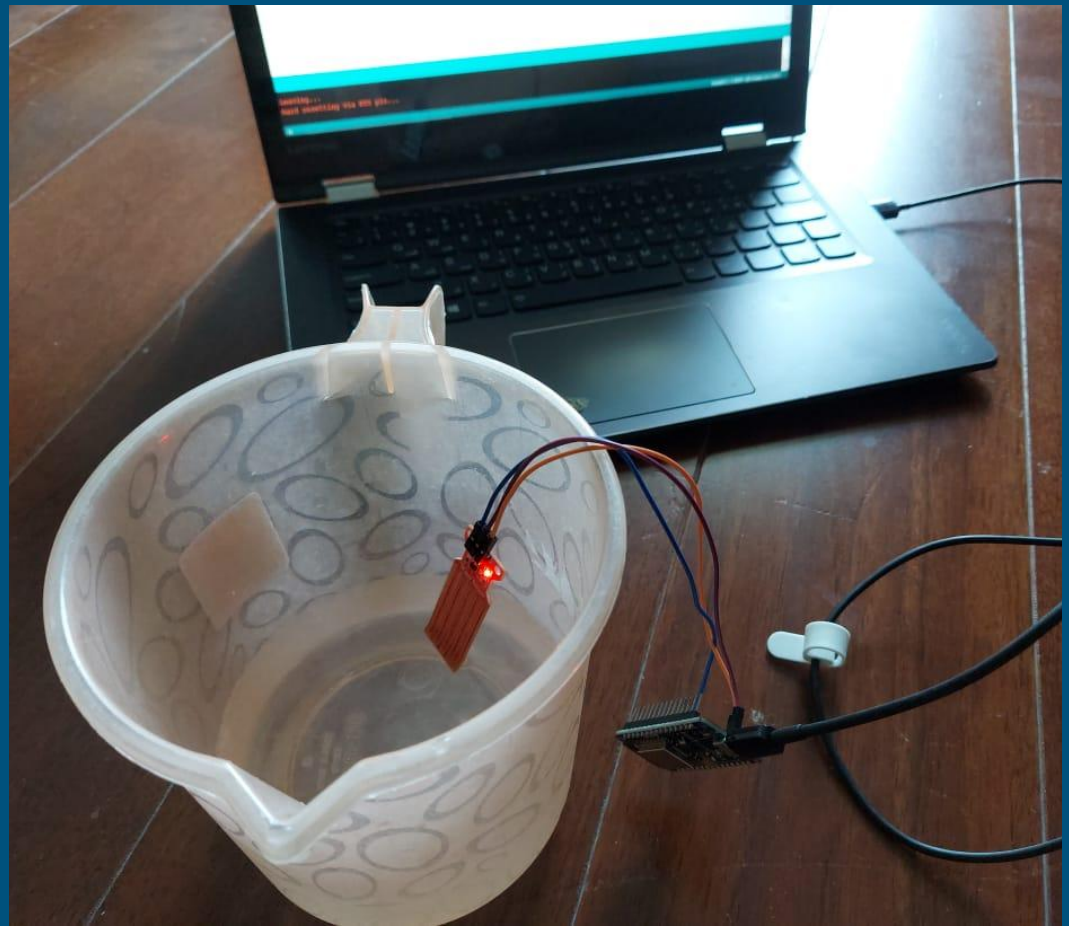


Status: Fully submerged

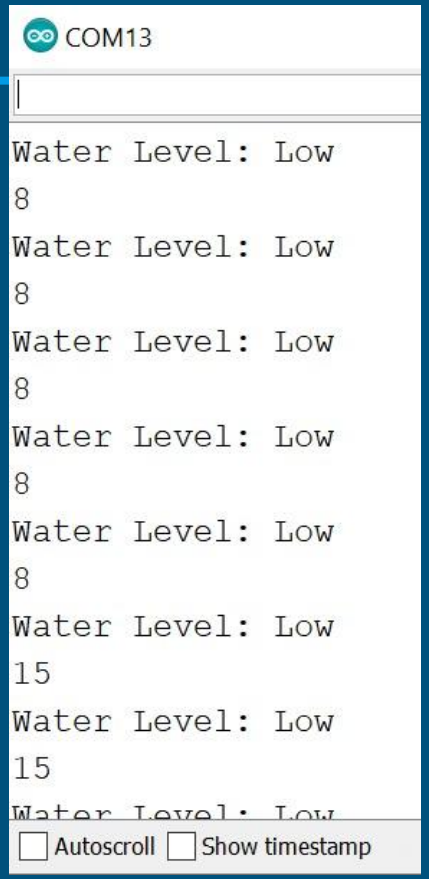
Test reading :~650

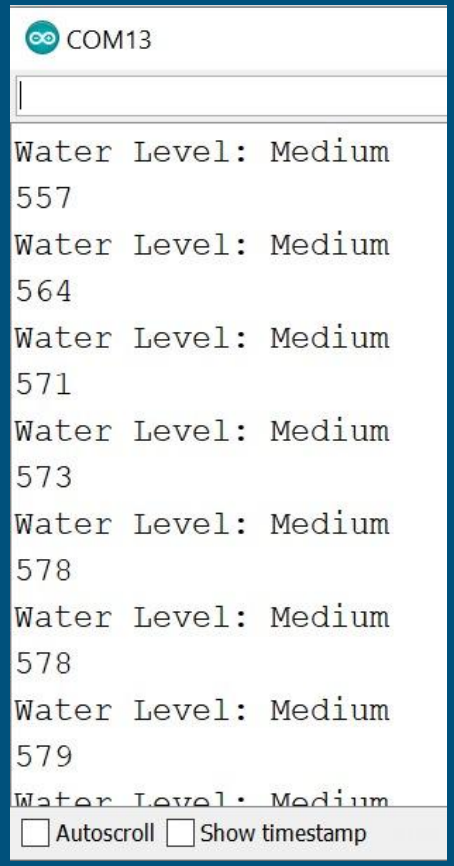
Lower Limit: 300
Upper Limit: 600

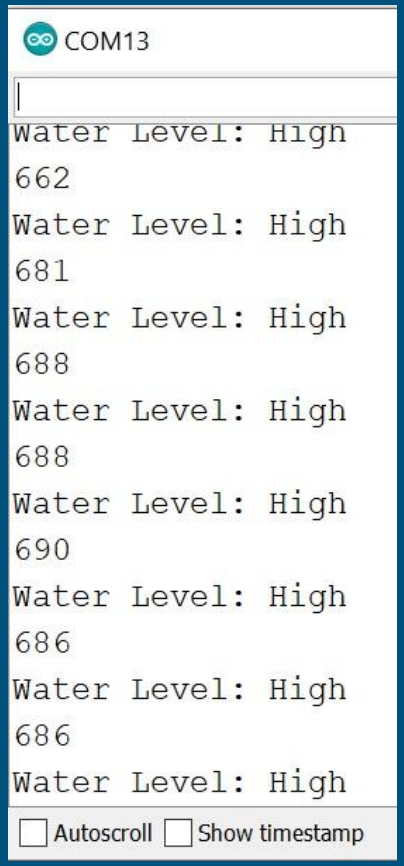
Setup



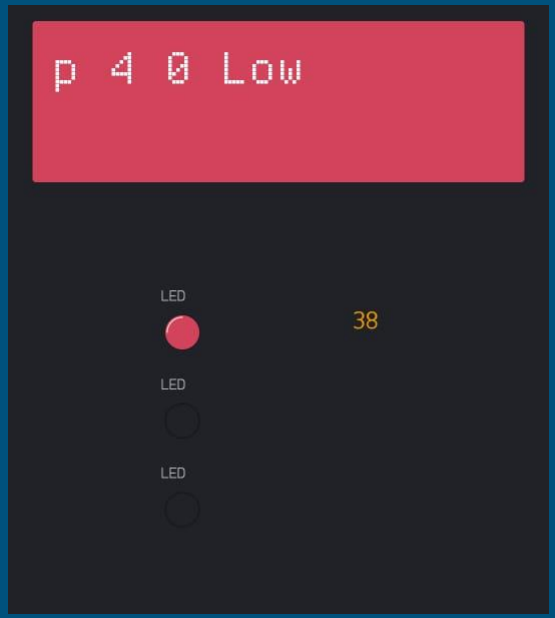
Outputs Obtained(from Arduino IDE)

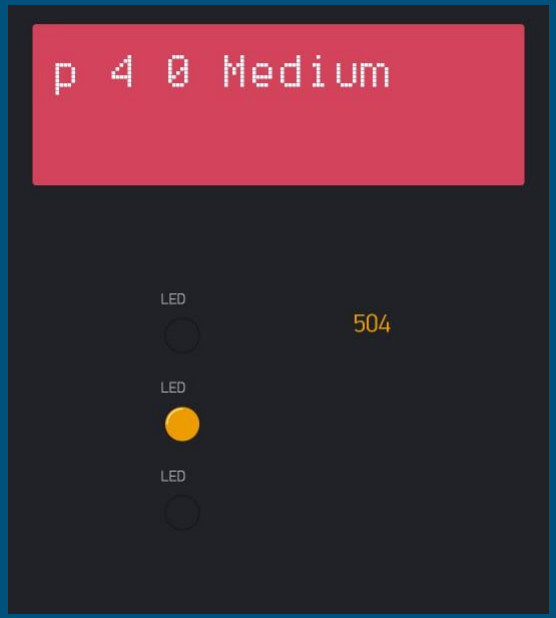


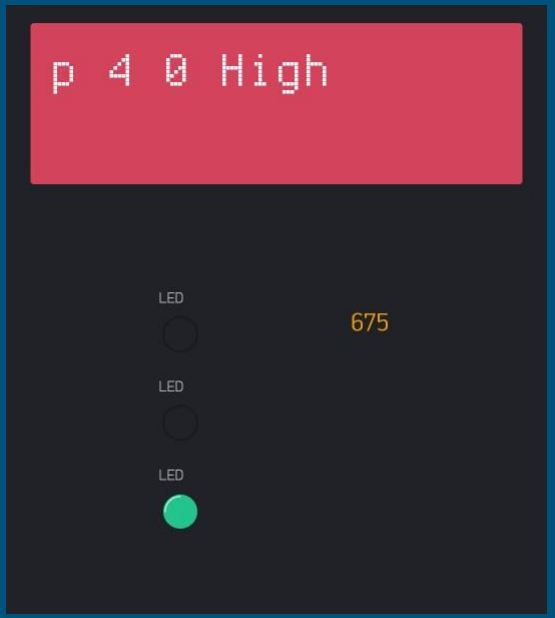




Outputs Obtained(from Blynk App)







Conclusion

- The water level sensor provides an easy method to find out the depth of water present in an area.
- The NodeMCU allows easy connectability to an online platform thus allowing easy establishment of remote access to the said water-filled area
- Using this setup, one can easily monitor the water-level even when they are not present.
- This setup can be easily used by gardeners/farmers to monitor their plants and prevent flooding/water excess in their pots/fields.

References

1. https://lastminuteengineers.com/water-level-sensor-arduino-tutorial/
2. https://community.blynk.cc/t/how-to-turn-on-widget-leds/643
3. https://docs.blynk.cc/

NodeMCU and Water Level Sensor purchased from:

1. https://www.amazon.in/Easy-Electronics-NodeMcu-Development-Board/dp/B06XYRS6KC/ref=sr_1_3?dchild=1&keywords=nodemcu&qid=1617466380&sr=8-3
2. https://www.amazon.in/Robodo-Electronics-SEN18-Detection-Arduino/dp/B0787HGY19/ref=sr_1_1?crid=Z0J5C0PXEFIO&dchild=1&keywords=water+level+sensor+for+arduino&qid=1617466419&sprefix=water+level+se%2Caps%2C314&sr=8-1

THANK YOU