Title: *Water Level Indicator SMS alert*

I. Summary

In this lab students will learn how to build a water Level Controller that monitors the level of the overhead tank by constructing a circuit which will notify the user via SMS if the water supply to an area / home is initiated and indicated how high the water has risen when is reach too high or too low.

II. Objectives

1. Learn the working of a water indicator.
2. Understanding of the components use and working.
3. Performing labs in putting circuits together and troubleshooting.

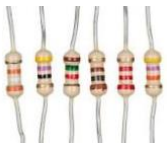
III. Industry-Based Applications

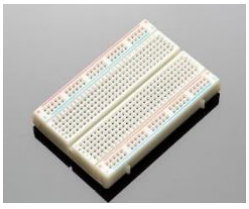
The water level alert system in industries can notify the user with an alarm when the water level reached is too high or too low; systems may be wired or wireless. They are used in factories such as electrical substations and also in other liquid storage systems which have many uses like flood warning, management of water wells, and locating water. Smart Cities on the east coast of the USA deploy flood warning systems that monitor water levels using Industrial IOT sensors.

Project Methodology

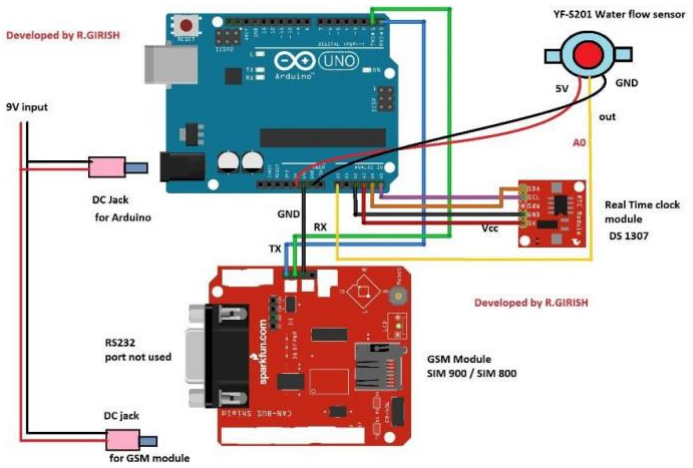
This group project will monitor the water levels, while it's rising it will show the time when the water is beginning to fill the tank and reach maximum volume. The average water flow speed is in liters per minute and the total water to your tank is in liters. The circuit consists of a water flow sensor known as the Hall Effect Water Flow Meter (YF-S201), an Arduino board which is the brains of the project, a Global System for Mobile Communications (GSM module), a SIM 800 or SIM 900 for receiving SMS alerts on water supply, and a real time clock module for tracking the correct time for water supply initiation and termination of water supply. Nine Volts of energy is desirable for powering the Arduino board and the GSM module, it is recommended to provide the power supply from nine volt adapters or well-built homemade transformer based (LM 7809) supply. After a minute powering the circuit ON, you will get an SMS saying that the system is ready. When the water starts flowing through the sensor, the system will notify the user with time. After the water supply is terminated the system will send another alert and summarize the session with time, average water flow and total water delivered to your tank. The time of water arrival the water must free flow, meaning if there is any block or tap which is closed will not notify you

Components:

- Resistors R1,R4-1K, R2-22k, R3-570 Ohms 

- Water flow sensor 
- Global System for Mobile Communications (GSM Module) 
- Real Time Clock module 
- Arduino Uno 
- Connecting wires 
- Breadboard 

Project Procedures:



Step 1. With wires connect Arduino pin TX to RX pin in the GSM module.

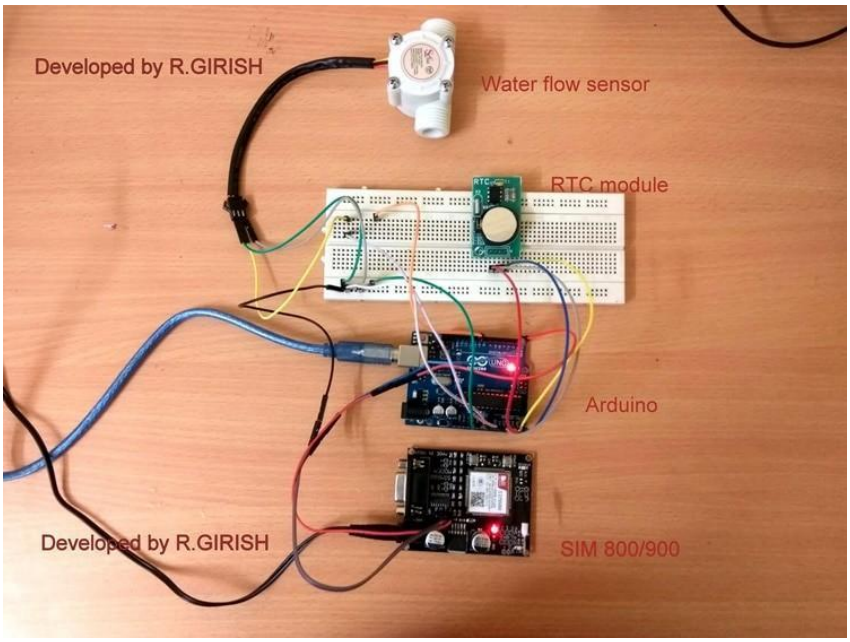
Step 2. Connect the Arduino pin RX to TX pin GSM module

Step 3. Connect the Arduino pin GND to GND pin GSM module

Do not try to power the GSM module from Arduino's 5V output pin to 5V input of GSM module.

Step 4. The RTC or real time clock module will track the time of arrival of water and termination of water supply.

For this project a board will be incorporated for the students to put the components together there be able to see how the wires are connected and the relationship between the Arduino and the circuits.



IV. References

Swagatam. "SMS Based Water Supply Alert System." Homemade Circuit Projects, Swagatam,

11 Sept. 2019, www.homemade-circuits.com/sms-based-water-supply-alert-system/.

References should be stated here.

Code:

Setting time on RTC:

file:///C:/Users/dondy_dorlus_00/Downloads/waterlevel%20RCT%20time.txt

Main Program:

file:///C:/Users/dondy_dorlus_00/Downloads/waterlevelMainprogram.txt

V. Appendix