Last Year's Project Title:- Smart Water Management System

Group Number:- 7

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Branch:- Instrumentation and Control
Class:- LY IC

Project Guide:- Prof. Janki N Chotai

INTRODUCTION

1) *Title :- Smart Water Management System*

2) *Objective :-*

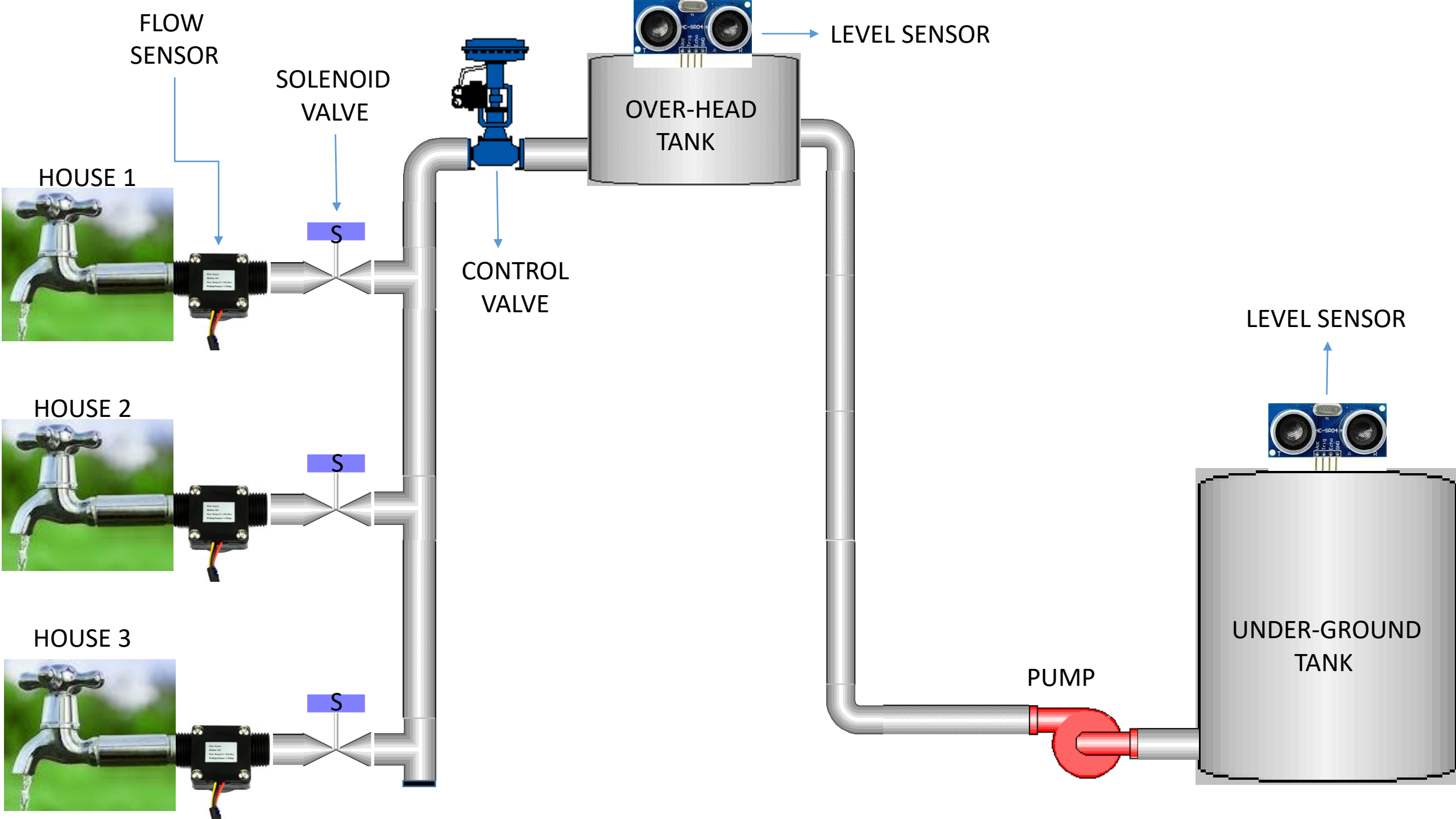
   - To save the water and to provide equal water distribution to each user and also calculate water usage by user. Thus determining the amount that amount to water bill.

   - Prevention of water wastage in open taps using auto-close valve mechanism.

   - To increase the monetary rate of water for a house, if the water usage is exceeded beyond the limits, followed by a message in phone for the same.

   - Display of data on phone using GSM module based technology.

3) Scope :- Everywhere, Residential areas, Industry, etc.


FLOW SENSOR
SOLENOID VALVE
LEVEL SENSOR
OVER-HEAD TANK
HOUSE 1
S
CONTROL VALVE
HOUSE 2
S
HOUSE 3
S
LEVEL SENSOR
PUMP
UNDER-GROUND TANK

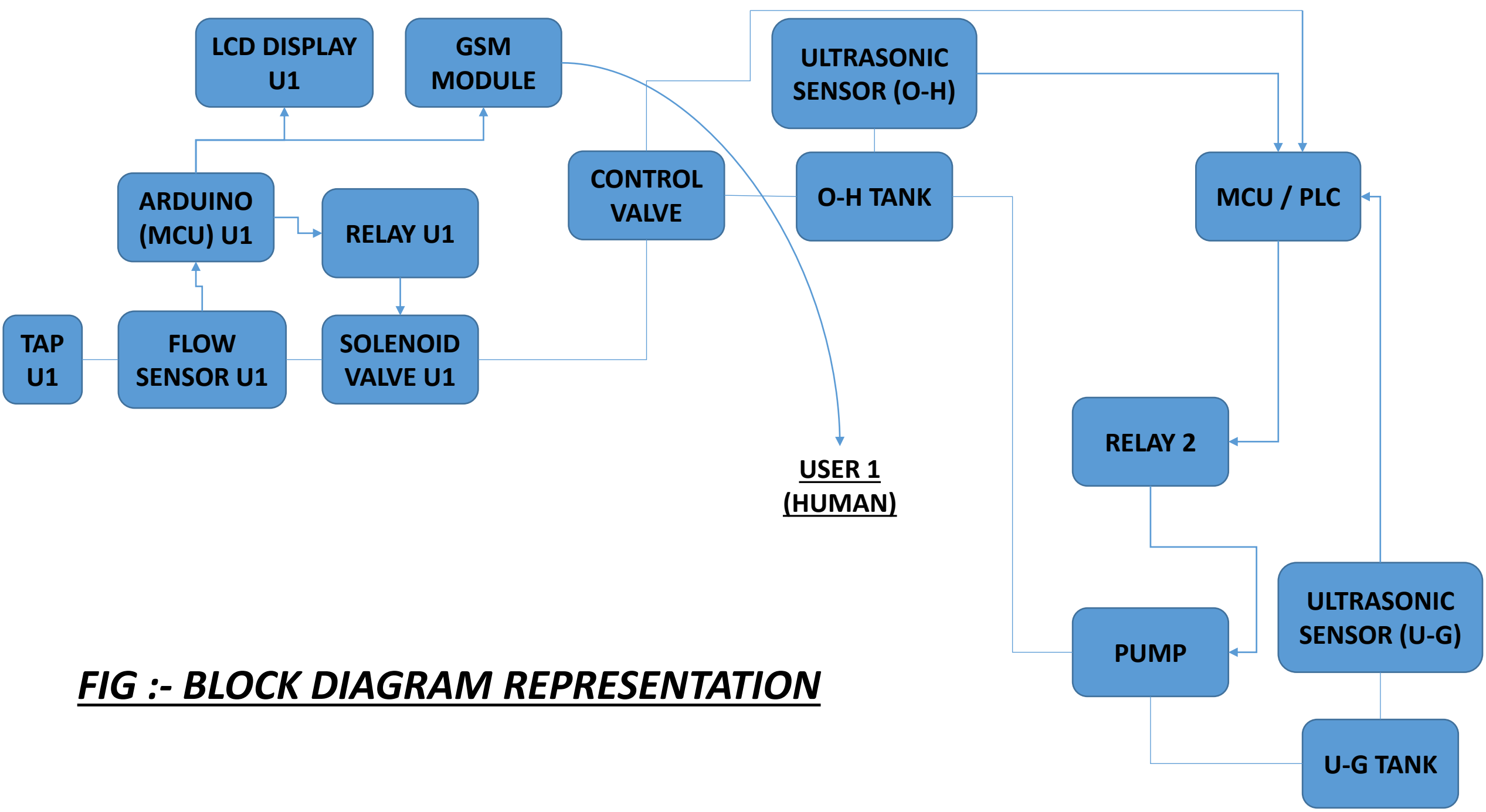


FIG :- BLOCK DIAGRAM REPRESENTATION

HARDWARE OVERVIEW

1) HARDWARE COMPONENTS

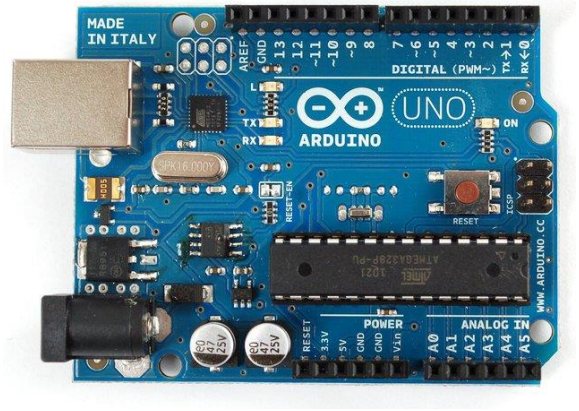
2) POWER SUPPLY

3) Solenoid Valve and Flow Sensor interfacing with Embedded System (Arduino Based)

4) Level Measurement and Embedded System (Arduino Based)

5) Piping Hardware and Embedded System Integration

1) HARDWARE COMPONENTS



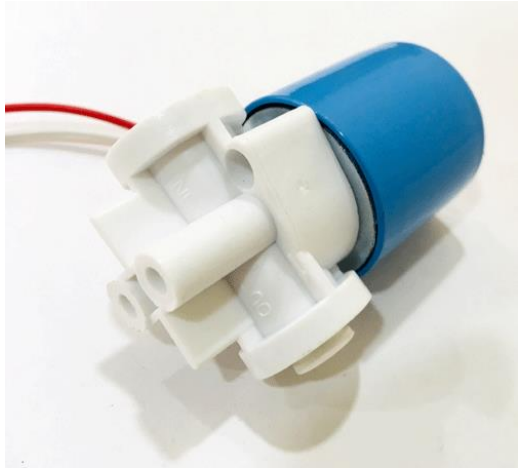
Arduino UNO

YF-S201

9-12V Pump

Ultrasonic Sensor

3-Channel Relay Module

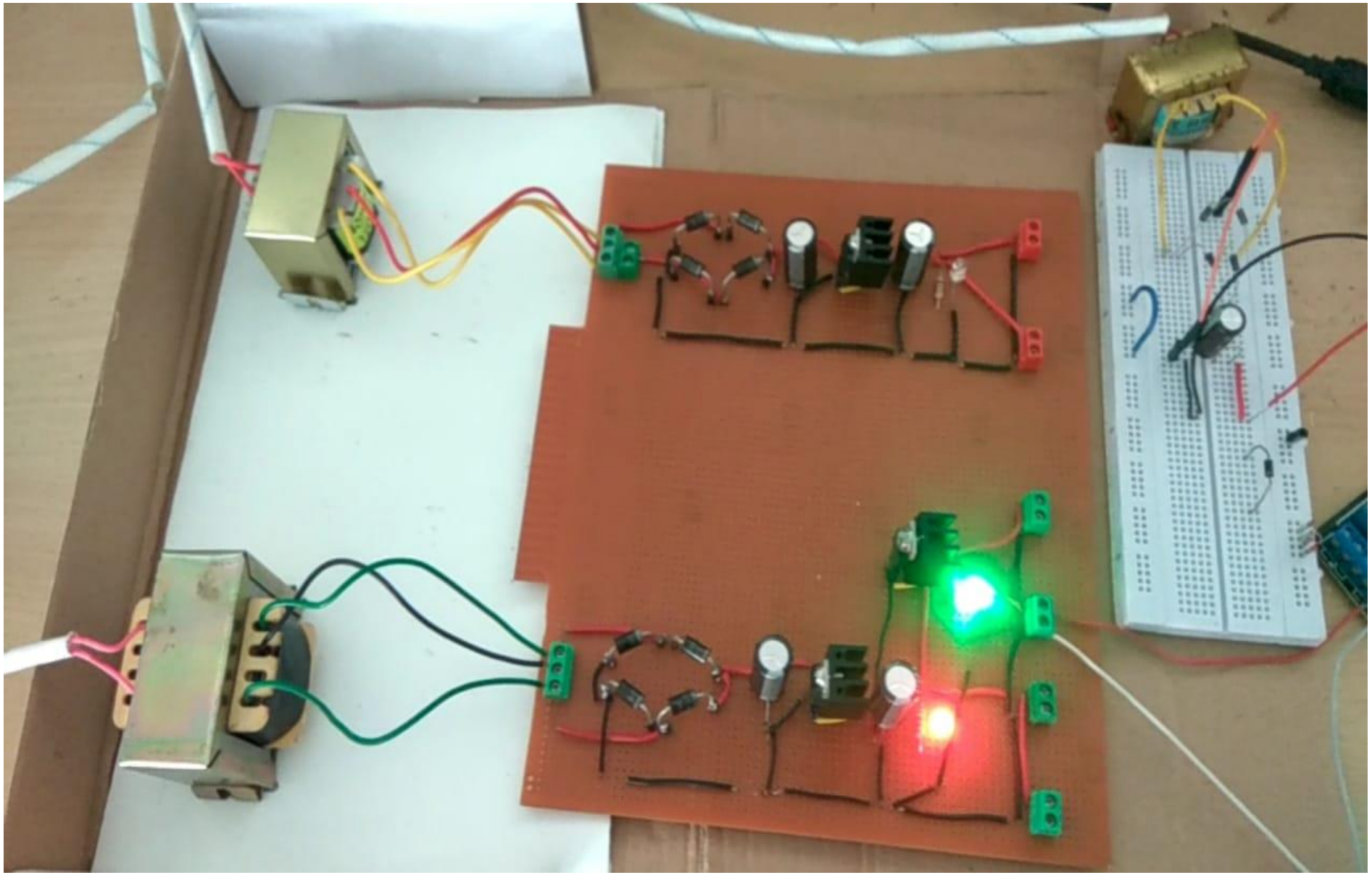


Solenoid Valve

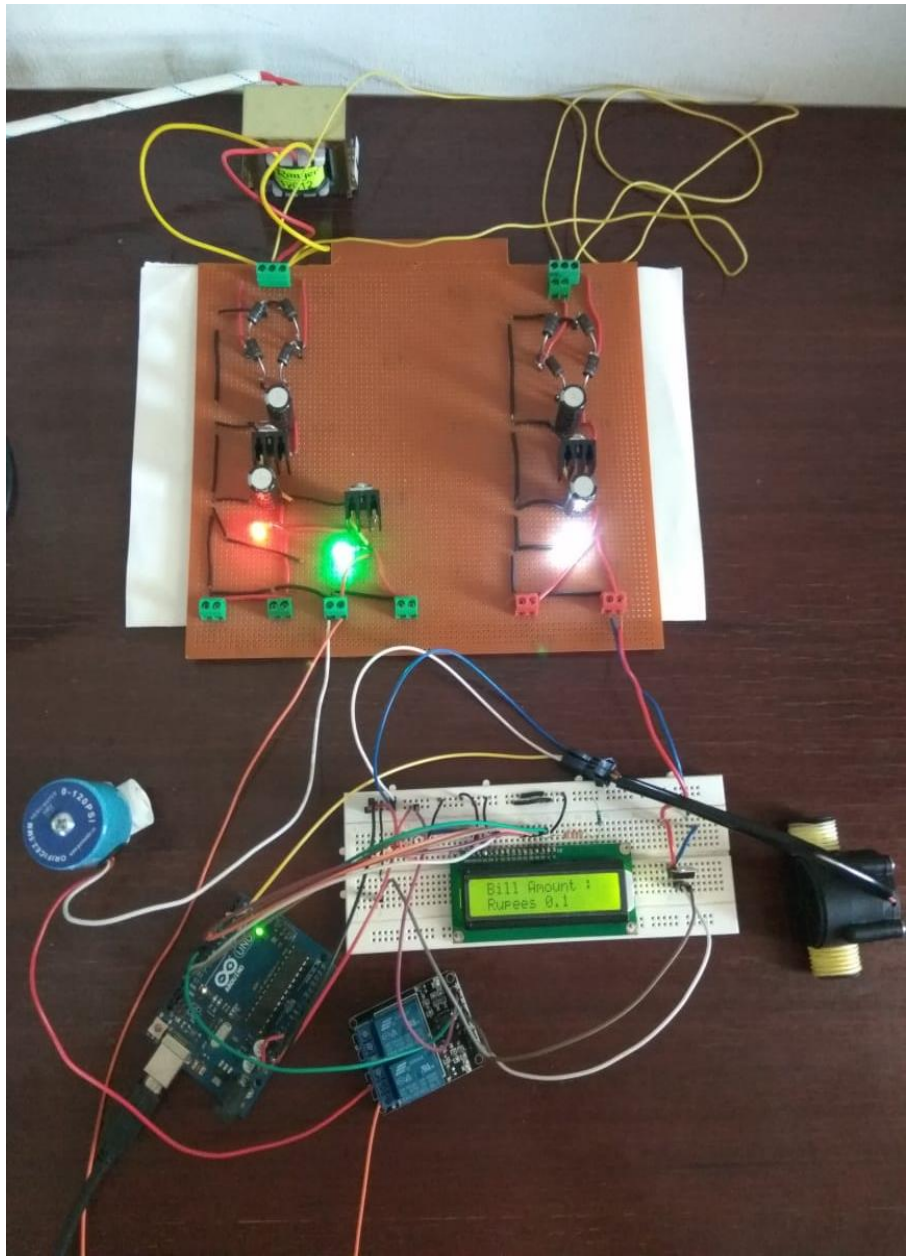
16x2 LCD Display

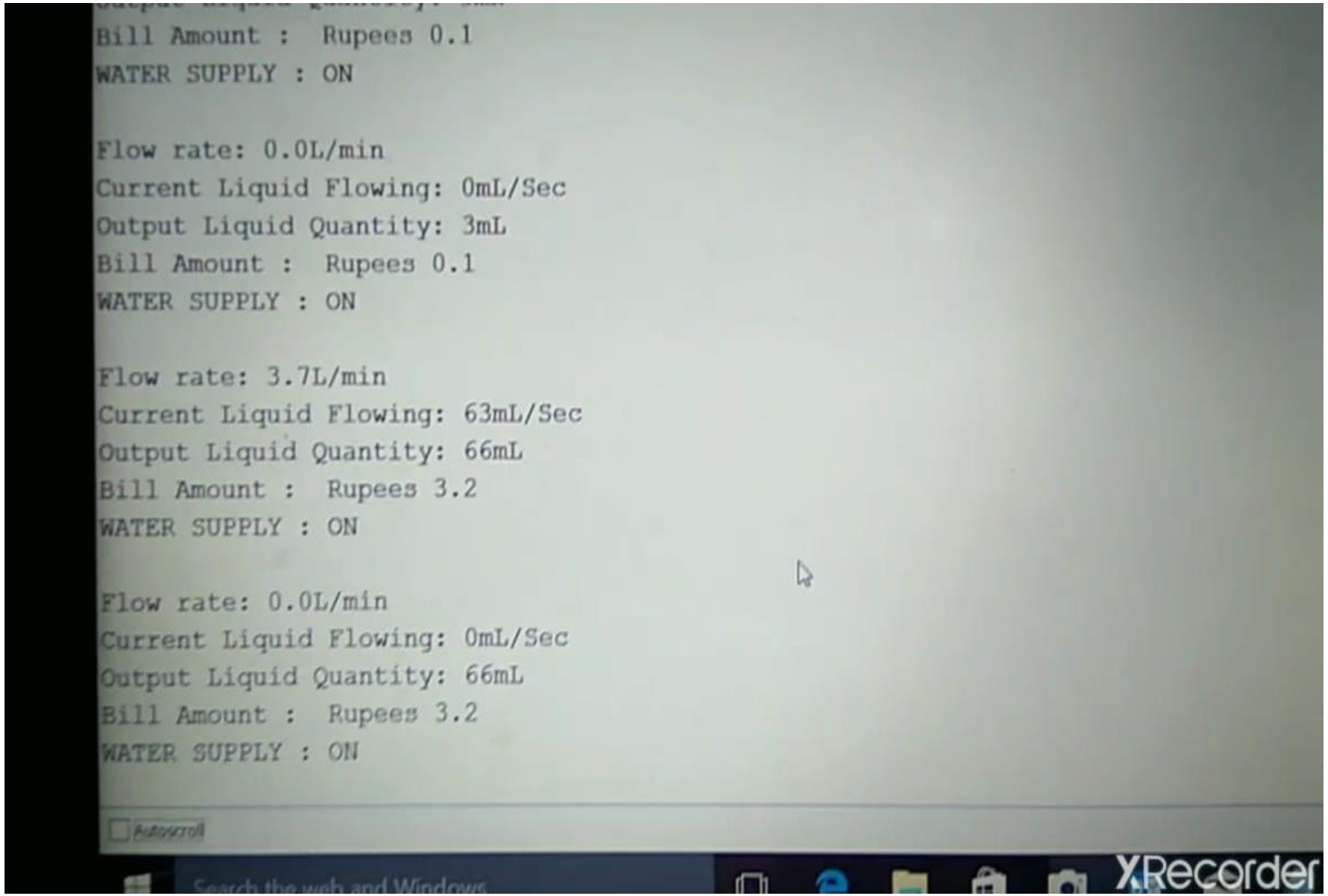
GSM Module

2) POWER SUPPLY

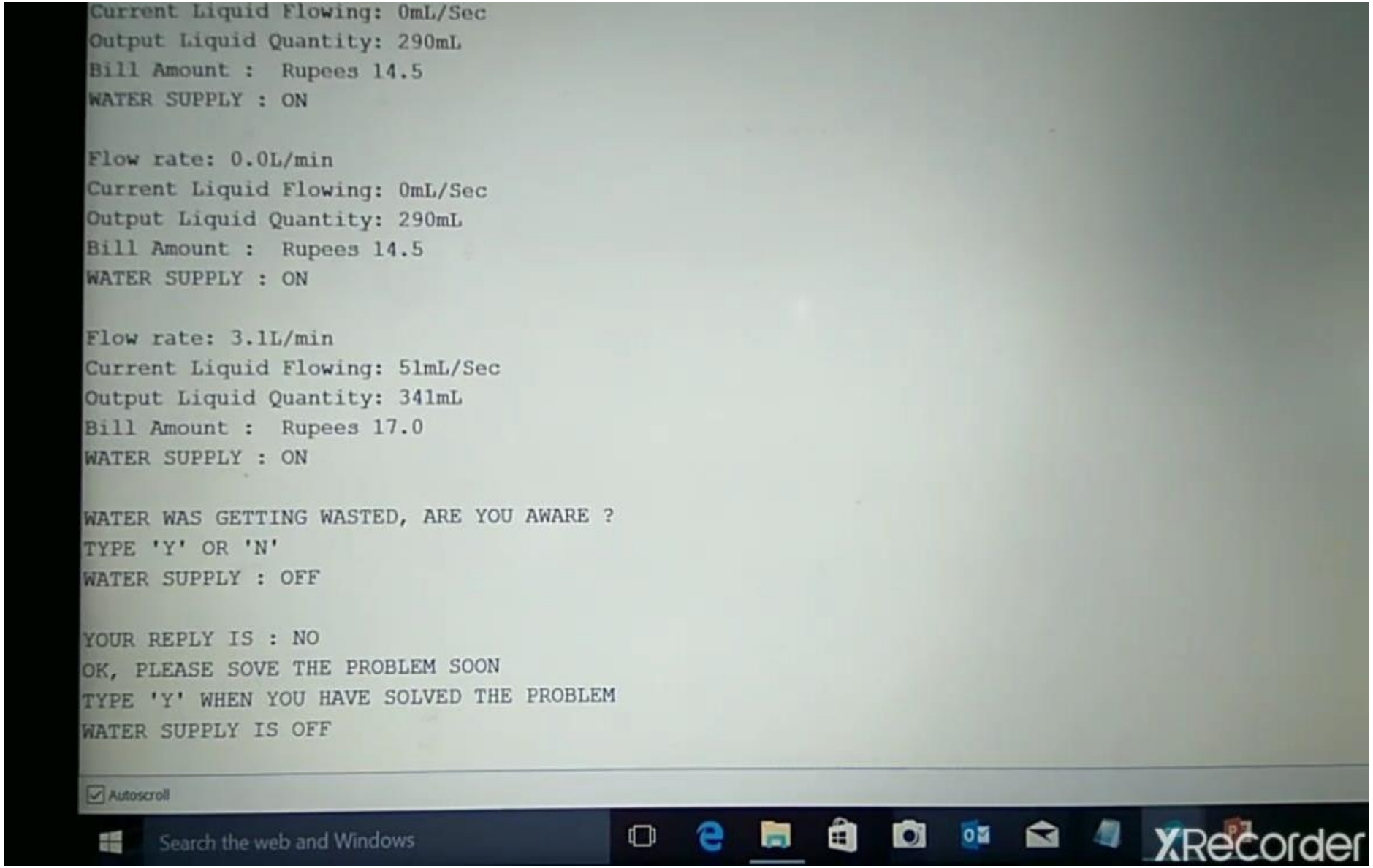


3) Solenoid Valve and Flow Sensor interfacing with Embedded System (Arduino Based)

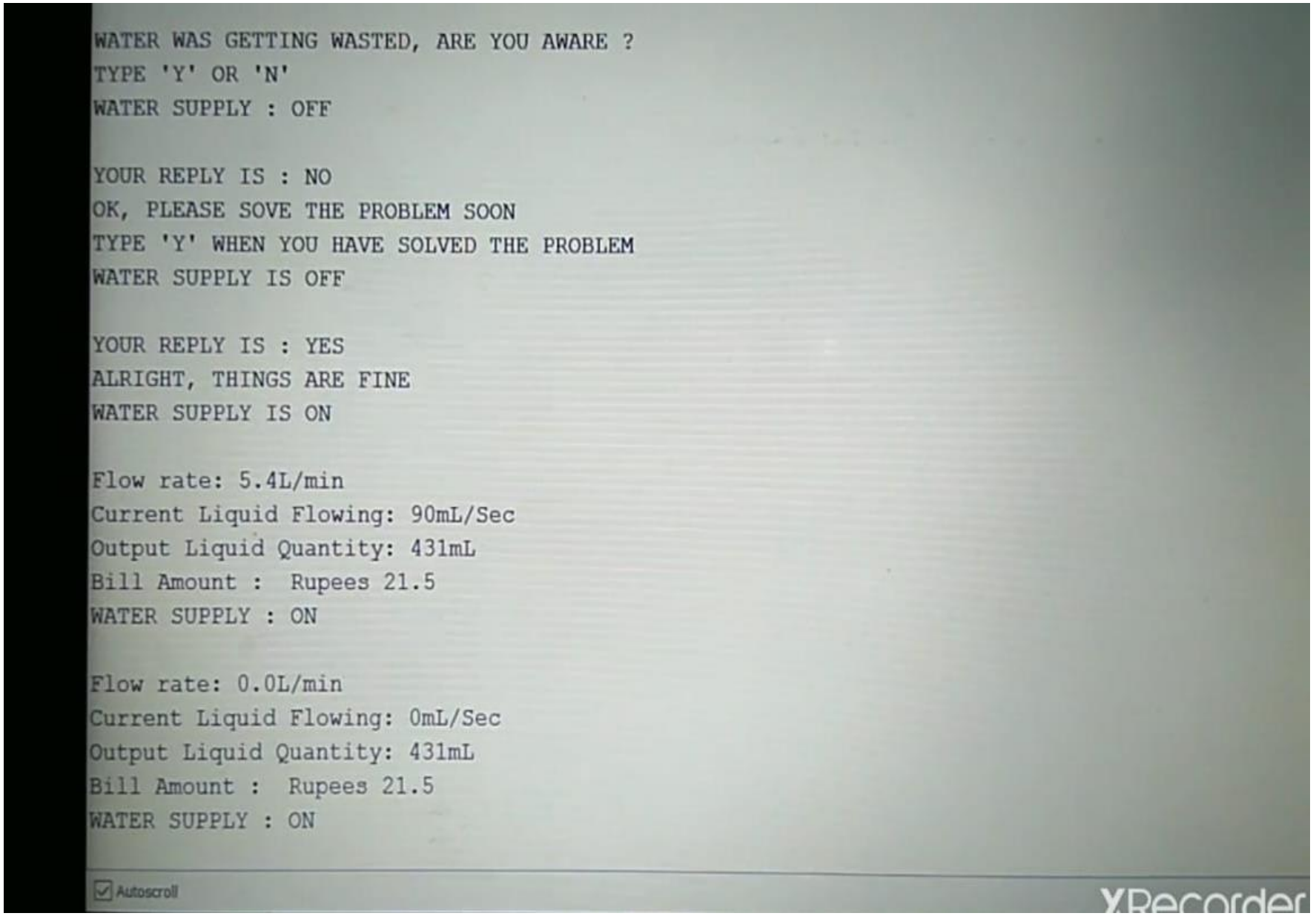




User and System Communication Interface

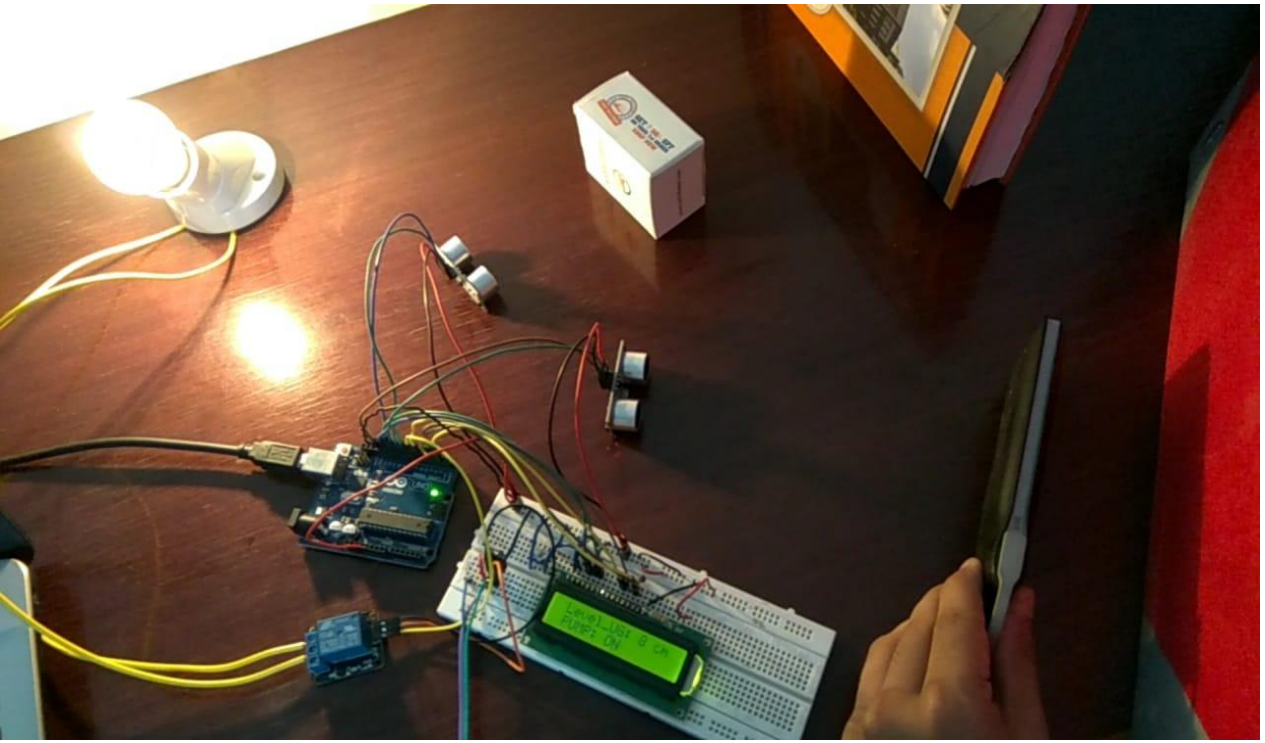


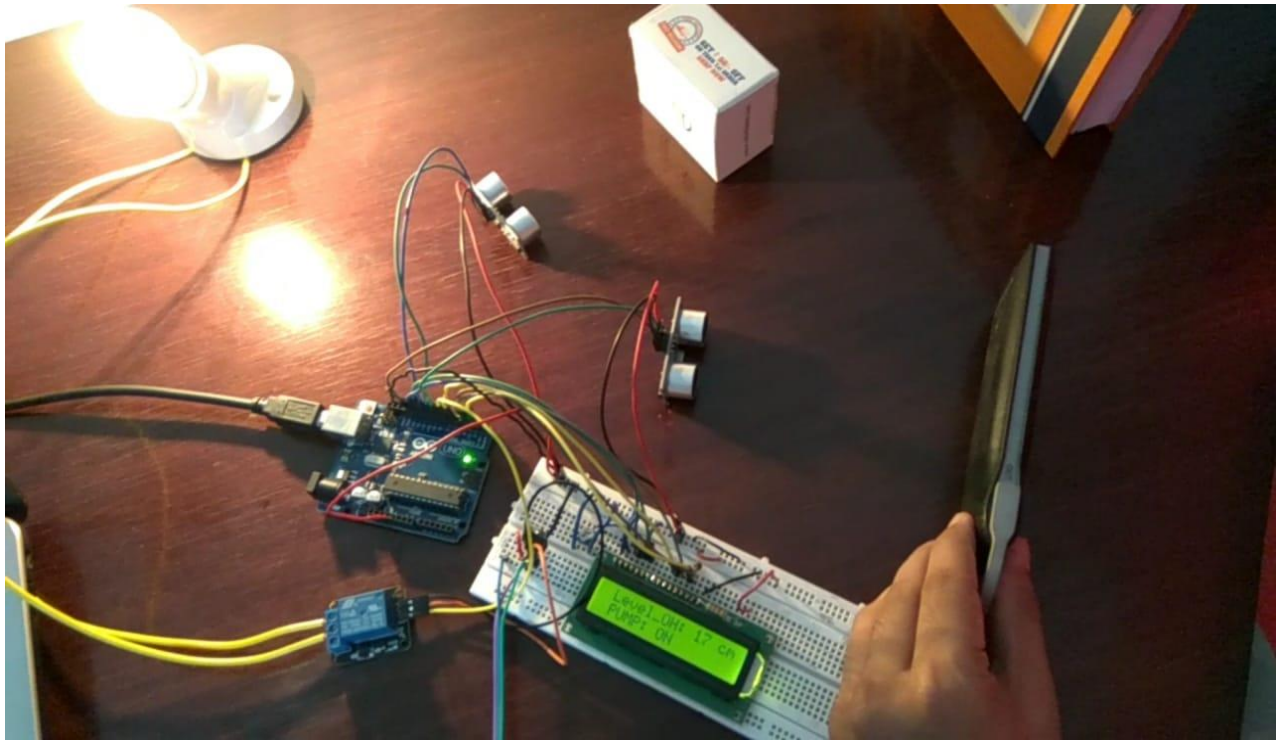
User and System Communication Interface



User and System Communication Interface

4) Level Measurement and Embedded System (Arduino Based)





Note – The Electric Bulb is a substitute for the Electric Pump !

5) Piping Hardware and Embedded System Integration

STATUS OF HARDWARE AND COMPLETION

1. *Status of the Hardwar is 100% in working condition.*

2. *The testing part is also completed, all sub-systems are working as per desire.*

3. *The part that is missing is the GSM based communication of the system with the user's phone, it has not been done due to the Covid-19 lockdown phase.*

** The substitute for the same is ready and in working, that is, instead of the data to be shown on the user's phone, now can be now seen on the serial monitor of Arduino IDE and the controlling portion of it can also be done there. It has been tested and it has worked as per the need.*

CONCLUSION AND FUTURE SCOPE

Conclusion – We have given our best in successfully completing our project. This system will be used to calculate total water consumed by user. We will implement it in the main water line of house.

Through this meter we can collect the data of usage in order to save water and to reduce the wastage of water. This system will be very helpful to governments for calculating the water usage and generate water bills. We can also provide optimum distribution of water to the users.

Future Scope – In future expansion, we think to work at each and every part to make it better. And to implement this technology into real life application for better living. We will also make this technology more cost effective and cheaper so that everyone can use this technology for accurate water usage and give more benefits to the people.

Moreover, this system can be designed/developed using a PLC and can be made to operate by software (LABVIEW). The use of LABVIEW software can be useful in the industry to monitor and control.

VIDEO LINK OF THE WORKING PROJECT

1)

https://drive.google.com/file/d/1j8p6WFNxbbWADe1bazo6hsqflzkawm0I/view?usp=drivesdk

2)

https://drive.google.com/file/d/1k5RXA50WYCAYCfZI_T9t9TcUA3HXvV2d/view?usp=drivesdk

3)

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4)

https://drive.google.com/file/d/11bcZOQLJs69aSBYNs8D3wAMPT0YHTRb7/view?usp=sharing

THANK YOU