



Water Quality Monitoring & Notification System using IoT.

Under the Guidance :- Prof. Mubashir Khan.

Team Members



Junaid Momin Raheen Shaikh Arkam Ansari

14CO35



14DCO65



14CO15

BROAD AREA OF RESEARCH

Water being an important source for life on earth need to undergo several laboratory test.

- Monitoring the quality of water with the help of sensors & IoT becomes easier for the user.
- Here in this system, we need to research on the working of sensors such as pH tester, conductivity sensor, biosensors



INTRODUCTION

- Major issues related to water--> impact the smooth working lifestyle of the people are:-
- the overflow of water, storage of water for long time, leakage of water pipeline, shortage of water supply, and many more.
- This wireless sensor technologies are been developed for data acquisition, building a better environment, to enhance the livelihood, to improve one's better life.
- In this current project, the user not only can detect the flow and level of water but can also be notified about the quality of water based on different parameters.

LITERATURE REVIEW

In 2013, Haesung. Tak, Daegeon. Kwon and Hwan. Gue. Cho; **“Water Tank Monitoring & Visualizing System Using Smart Phones”**.

This paper proposed a water tank monitoring and visualization system using smart-phones known as “Tank boy.”

They just worked on monitoring the level of water.

-> **Advantage :-**

1. This system is a real-time monitoring system using a database to establish a marine communication system.
2. Its implementation on a smart-phone environment is novel.

->**Disadvantage :-**

1. The first is the delay in accessing the Web page.
2. The second is due to the monitoring of the parsing information.



LITERATURE REVIEW

In 2016, Sayali. Wadekar, Vinayak. Vakare, Ramratan Prajapati, Shivam Yadav, Vijaypal Yadav; **"Smart Water Management Using IoT"**.

In this proposed system, water level can be monitored continuously from anywhere using android application.

-> **Advantages :-**

1. It is a robust system & small in size.
2. Motor can be controlled automatically full smart automation is achieved.

-> **Disadvantages :-**

1. This device was implemented at personal level.
2. They could just work on monitoring the level of water present in tank.



LITERATURE REVIEW

In 2017, Priyen. P. Shah, Anjali. A. Patil and Subodh. S. Ingleshwar;

“IoT Based Smart Water Tank With Android Application”

Implemented an efficient automated water level monitoring and controlling system.

Depending on the water levels, the status of motor will be automatically controlled.

-> Advantages :-

1. This project doesn't require special different tank for it, existing water tanks can be used.
2. A portable system which can solve our water wastage problem.

-> Disadvantages :-

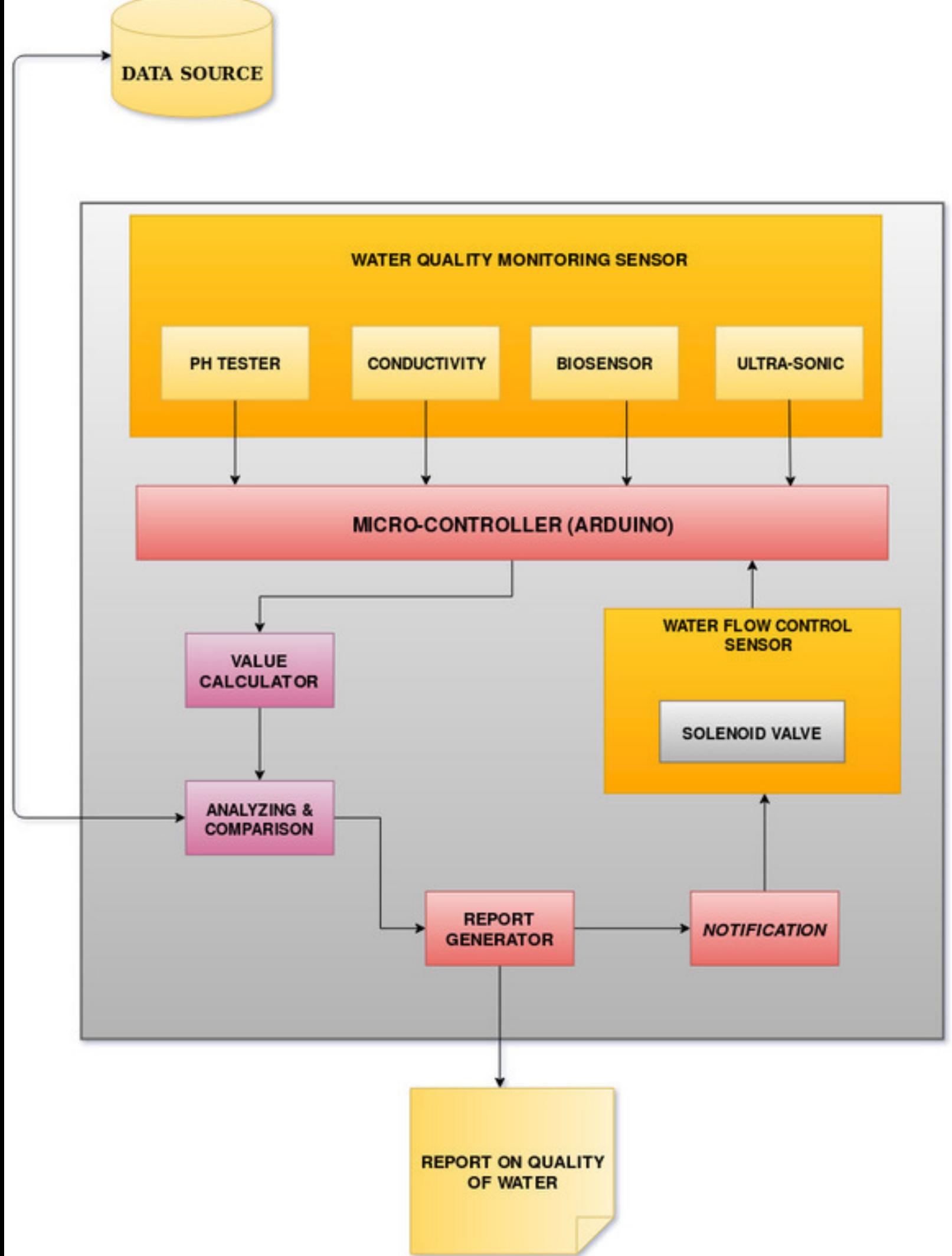
1. They could just work on monitoring the level of water present in tank.



SUMMARY OF LITERATURE REVIEW

Features	“Water Tank Monitoring & Visualizing System Using Smart Phones”.	“Smart Water Management Using <u>IoT</u> ”.	“ <u>IoT</u> Based Smart Water Tank With Android Application”	Proposed System
Water level Indication	YES	YES	YES	YES
Flow control of water	YES	YES	YES	YES
pH value of water	NO	NO	NO	YES
Conductivity of water	NO	NO	NO	YES
Bacteriological test	NO	NO	NO	YES
Notification to the user	NO	YES	YES	YES

SYSTEM
ARCHITECTURE
OF PRPOSED
SYSTEM.



MODULE WISE EXPLANATION OF SYSTEM.



1.WATER PARAMETERS (SENSORS)

- **1. ULTRA SONIC SENSOR :-**
- Measures the distance between the two objects or any material or substances.
- Ultra sonic sensor in water reads the level of water in the tank.
- This results in monitoring of level of water in the tank.
- Since there is no direct contact of the sensor with water it can have long time span.

SOLENOID SENSOR:-



- Control the flow of water.
- The user can control the flow by just controlling the solenoid valve.
- There is no requirement of any other person to operate the motor manually.
- This can reduce the chance of wasting the water.

CONDUCTIVITY SENSOR:-



- Defines the ionic strength present in the solution.
- Linked to the level of salinity present in any solution.
- More the salinity higher are the risk of water getting turbid.
- Test the level of ions present in the water.

PH TESTER:-



- pH tester test the acidic & basic nature of any solution.
- It has the pH value ranging from 0-14, which is further divided into 3 sub-ranges:-
 - a) Below 6 -> Acidic value.
 - b) Above 8 -> Basic value.
 - c) Equal to 7 -> Neutral value.
- Higher the pH value, higher are the chance of solubility of any substances.

BIOSENSOR:-



- Works on biology symptoms.
- Detect microorganisms in water.
- Water borne organisms are not visible to naked eyes and hence, they easily enter into body and causes many harmful diseased to the living being.

2. MICRO- CONTROLLER



ARDUINO UNO



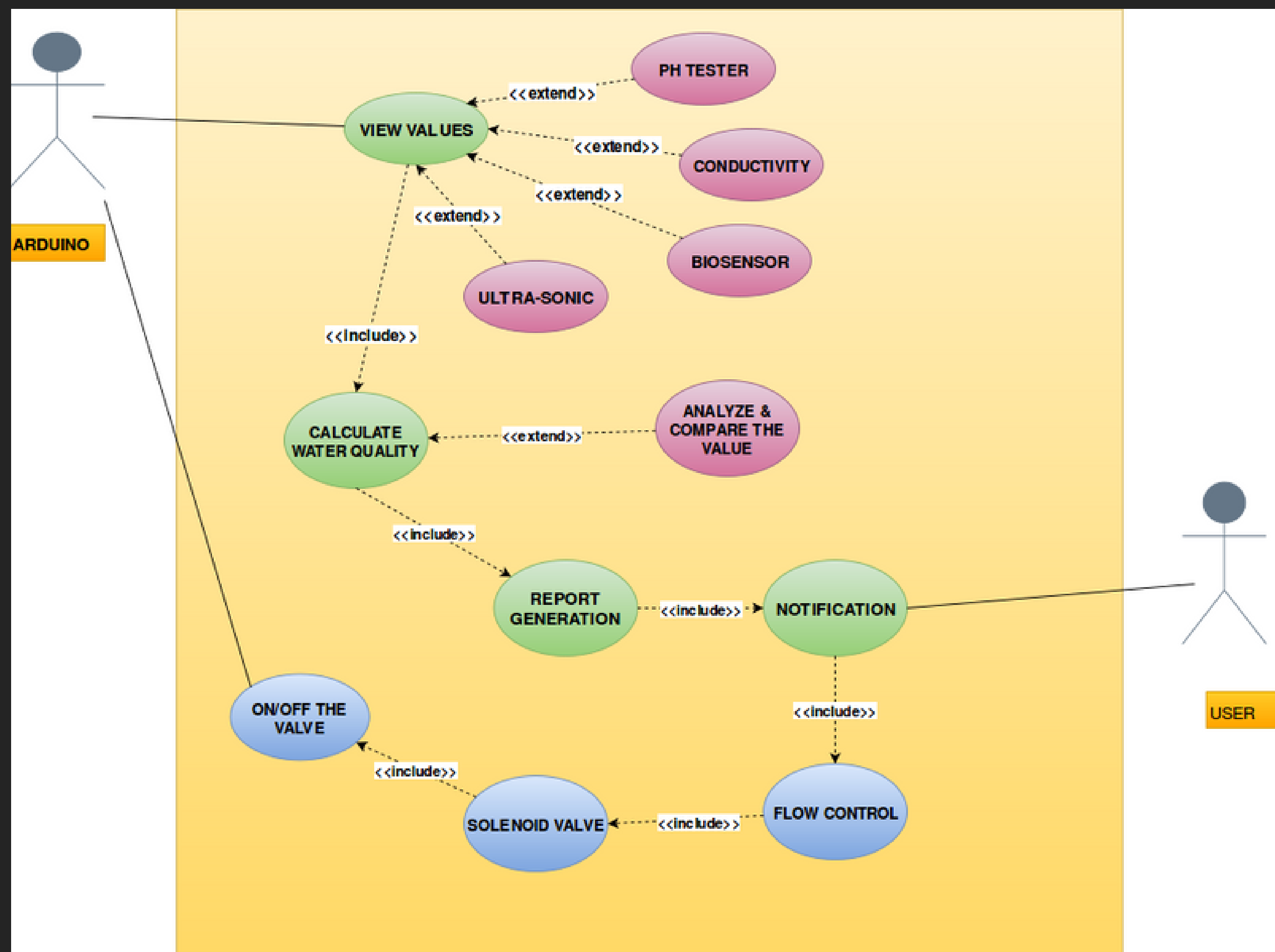
- It is the smartest micro-controller and supports high speed flash memory.
- Arduino- Ultrasonic:-
- Arduino- Solenoid:-
- Arduino- pH Tester:-
- Arduino- conductivity:-
- Arduino- Biosensor:-
- Arduino- Cloud computing:-



3. Action by User:-

- Receives a Notification.
 - Report of Quality.
 - Decides the Flow control.
 - Can switch ON/OFF solenoid valve.
- 
- 

Use Case Diagram



Requirements for Proposed System:-

SOFTWARE REQUIREMENT:-

- Arduino software (IDE).
- Xamarin Development Kit (SDK).
- Software Libraries (for sensors).
- Computer OS version Windows XP or Mac OS X or Linux or Ubuntu.





REQUIREMENTS FOR PROPOSED SYSTEM:-

HARDWARE REQUIREMENT:-

- Arduino UNO board.
- Android phone.
- Sensors.
- Container(to fill and test water).
- Computer or laptop.
- *Smart phones such as Android, iphone or Windows.*



RELEVANCE TO SOCIAL BENEFIT OF PROPOSED SYSTEM:-

- 
- Support provision of safe drinking water by informing water quality.
 - Saves the time and can be proven as life saving.
 - Low cost maintenance and easy to use.
 - User need not have to be well trained or instructed.
- 



MARKET POTENTIAL OF SYSTEM:-

- **The major factor driving this market is the development of government policies.**
- **Initiatives to protect the environment from the adverse effects of pollution.**
- **Laboratory application expected to hold the largest share of the water quality monitoring market.**
- **Increased awareness about water pollution and contamination.**



CONCLUSION

- Low cost maintenance and easy to use.
- Can prevent people from getting infected by various harmful chemicals, metals, pollutants and bacteria.
- User need not have to be well trained or instructed.

FUTURE PLANS:-

- Need to work on platform which can give access to different OS user.
- Wills to work on more quality monitoring of water in aspects of identifying Nutrients.
- Will to work on taking action on quality of water after being getting contaminated (i.e. Actuators).

