

# WATER LEAKAGE DETECTOR USING IOT

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## ABSTRACT

*In recent years, Water Pipeline Monitoring (WPM) has attracted attention worldwide due to the necessity to minimize water production costs as well as to protect public safety. Therefore, a great deal of research work has tried to propose approach to water leak detection. In this paper, we propose a novel solution based on soil moisture sensors and Arduino MEGA as a microcontroller. Varieties of different leak scenarios were performed during the experimental trials and leaks in different places were examined. The results show that the proposed solution is able to work stably to detect and locate the leak.*

**Keyword :** - WPM, Arduino MEGA, Microcontroller.

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## 1.INTRODUCTION

In recent years people around Chennai and other cities have been suffering a due to water scarcity. This can be reduced by conserving the amount of water which is being wasted. A huge percentage of water is being wasted around the world. Our project will be a small milestone to prevent the wastage of water.

### 1.1 Existing System

The existing system consists of different sensors like water flow sensor, pH Sensor, water control valve, and a microcontroller. The distribution of water and management of water flow through the pipe can be controlled in this system by using sensors. Here there is only to measure quality in municipality water pumps. But cannot detect the water leakage.

### 1.2 Proposed System

In this proposed system, we can monitor the water leakage in municipality water distribution pumps. Float sensor is used to detect the water leakage. Once detection process will be complete the location will be uploaded on IoT.

## 2. BLOCK DIAGRAM

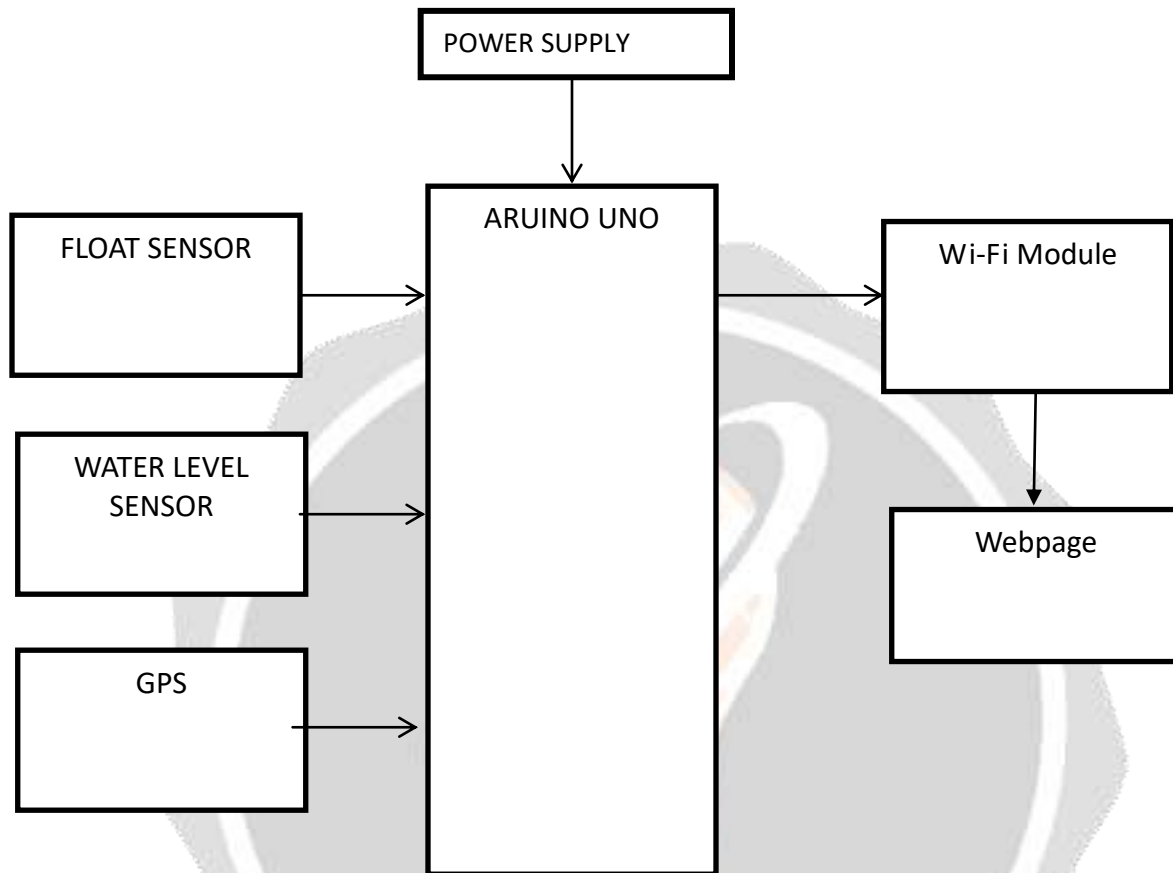


Fig -1: Block Diagram

### 2.1 Hardware Requirements

- Float sensor
- Water level sensor
- Gps
- Node MCU
- Arduino UNO

### 2.2 Software Requirements

- Embedded C
- Arduino IDE

### 3. SOURCE CODE



The image shows a screenshot of the Arduino IDE interface. The title bar indicates the project is named 'project' and is using Arduino 1.8.9. The menu bar includes 'File', 'Edit', 'Sketch', 'Tools', and 'Help'. The toolbar contains icons for opening, saving, and running the sketch. The main text area displays the following C++ code:

```
int waterlevel=A0;
int flot=A1;

#include<SoftwareSerial.h>
SoftwareSerial mySerial(2,3); //(Rx,Tx)
char c;
String y;
String lat,longi;

void setup() {
  mySerial.begin(9600);
  Serial.begin(9600);
  pinMode(waterlevel,INPUT);
  pinMode(flot,INPUT);
}

void loop() {

  if(mySerial.available()>0)
  {
    c = mySerial.read();
    if(c=='s')
    {
      y=mySerial.readStringUntil(',');
      if(y=="GPGGA")
```

```
project | Arduino 1.8.9
File Edit Sketch Tools Help

project

y=mySerial.readStringUntil(',');
if (y=="GPGGA")
{
  Serial.println("+");
  int a=analogRead(waterlevel);
  Serial.print("waterlevel=");
  Serial.println(a);
  delay(1000);

  int b=analogRead(flot);
  Serial.print("Flot level=");
  Serial.println(b);
  delay(1000);
  if(a>300 || b>400)
  {
    mySerial.read();
    mySerial.readStringUntil(',');
    mySerial.read();
    lat=mySerial.readStringUntil(',');
    mySerial.read();
    mySerial.readStringUntil(',');
    mySerial.read();
    longi=mySerial.readStringUntil(',');
    mySerial.print("Latitude:");
    mySerial.print(lat);
    mySerial.print("Longitude: ");
    mySerial.print(longi);
    mySerial.println(" E ");
    Serial.println("water leakage occurred");

    Serial.print("Latitude:");
    Serial.println(lat);
    Serial.print("Longitude: ");
    Serial.println(longi);
    Serial.println("#");
    delay(3000);
  }
}
```

Activate Windows  
Go to Settings to activate Windows.

19 Arduino/Genuino Uno at COM4

### 3.1 Output

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Longitude: 8009.28643

#

\*

waterlevel=743

flot level=0

water leakage occurred

Latitude:257.17914

Longitude: 8009.28645

#

\*

waterlevel=742

flot level=0

water leakage occurred

Latitude:257.17913

Longitude: 8009.28646

#

\*

 COM4

---

flot level=0

\*

waterlevel=0

flot level=613

water leakage occurred

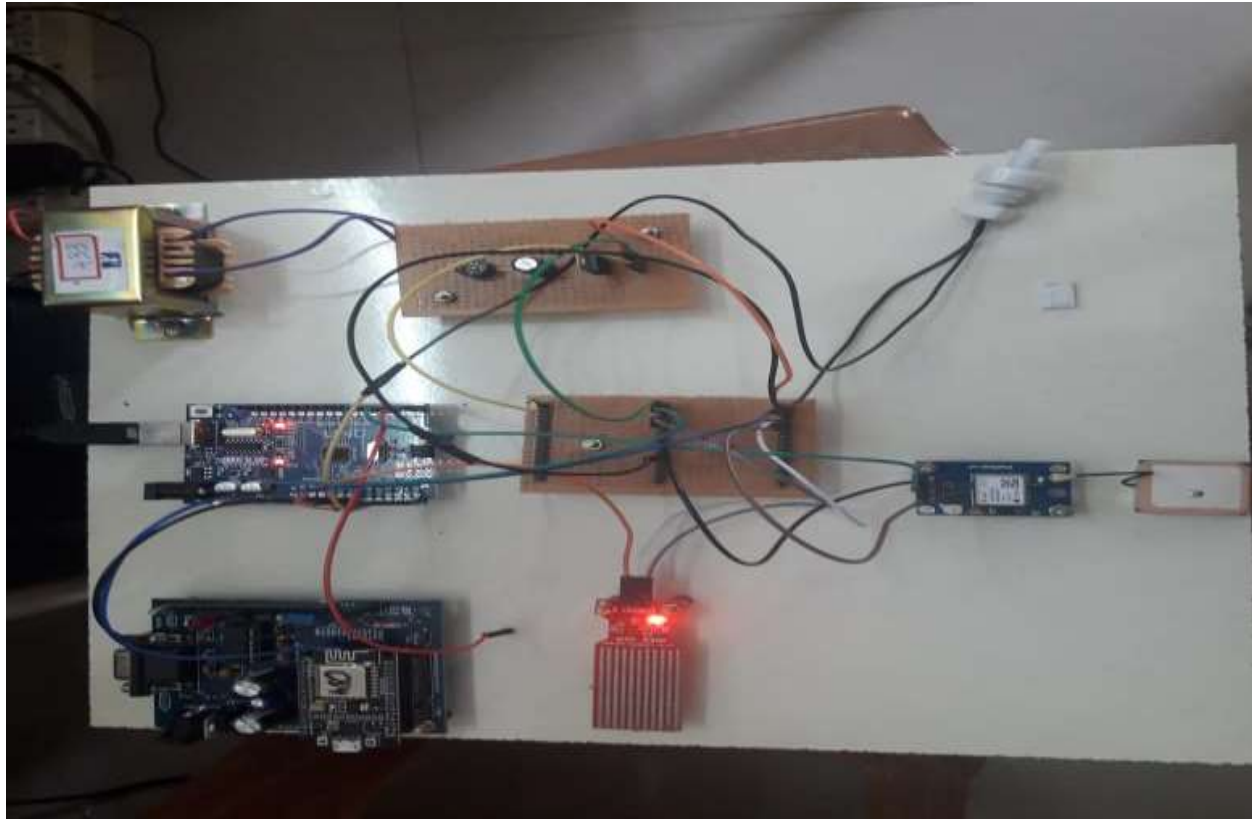
Latitude:257.18030

Longitude: 8009.28877

#

\*

#### 4.OVERVIEW



#### 5. CONCLUSIONS

In our project we use water level sensor and float sensor and GPS by which we would detect the location at which the leakage had occurred. This would be a cost effective scheme because we use arduino which is cheaper. We can estimate the location at where the leakage had occurred more accurately by using GPS.

#### 6. REFERENCES

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