FLOOD MONITORING AND EARLY WARNING

PHASE-3: DEVELOPMENT PART-1

PHASE-3: DEVELOPMENT PART 1

In this part you will begin to build your project.

Start building the IoT-enabled Flood Monitoring and Early Warning System.

PROJECT REQUIREMENTS

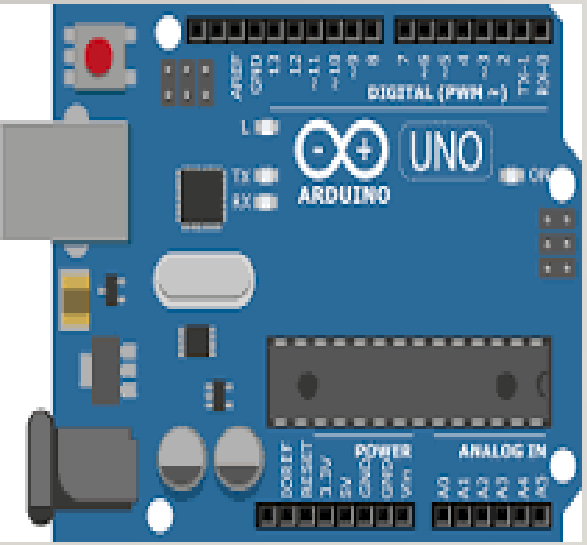
❑ HARDWARE COMPONENTS

- Arduino Uno
- GSM SIM 800 C Module
- Water Level Sensor
- Connecting Cable
- 12V Adapter

❑ SOFTWARE COMPONENTS

- Arduino IDE
- Programming Language – C Language

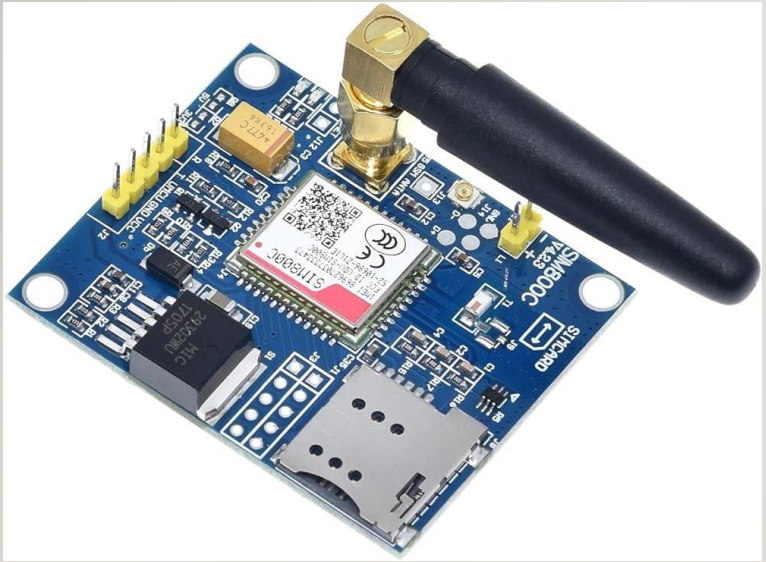
ARDUINO UNO



The Arduino Uno is an opensource microcontroller board based on the Microchip ATmega328P microcontroller (MCU) and developed by Arduino.cc and initially released in 2010.

The word "uno" means "one" in Italian and was chosen to mark a major redesign of the Arduino hardware and software.

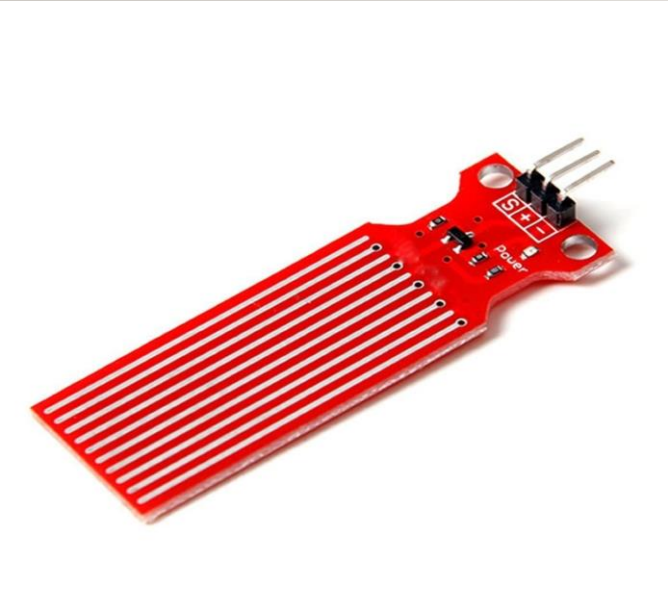
GSM SIM 800 C MODULE



The Global System for Mobile Communications (GSM) is a standard developed by the European Telecommunications Standards Institute (ETSI) to describe the protocols for second-generation (2G) digital cellular networks used by mobile devices such as mobile phones and tablets.

GSM module is a specialized type of device which accepts a SIM card, and operates over a subscription to a mobile operator, just like a cell phone or pager.

WATER LEVEL SENSOR



Water level sensor is an easy-to-use, costeffective high level or drop recognition sensor, which is obtained by having a series of parallel wires exposed traces measured droplets or water volume in order to determine the water level.

Easy to complete water to analog signal conversion and output analog values can be directly read Arduino development board to achieve the level alarm effect.

CONNECTING CABLE & 12V ADAPTER

Any cable or wire, whether provided by the authority or otherwise, used to connect thee charging apparatus to a vehicle and that is not permanently attached to the charging apparatus.

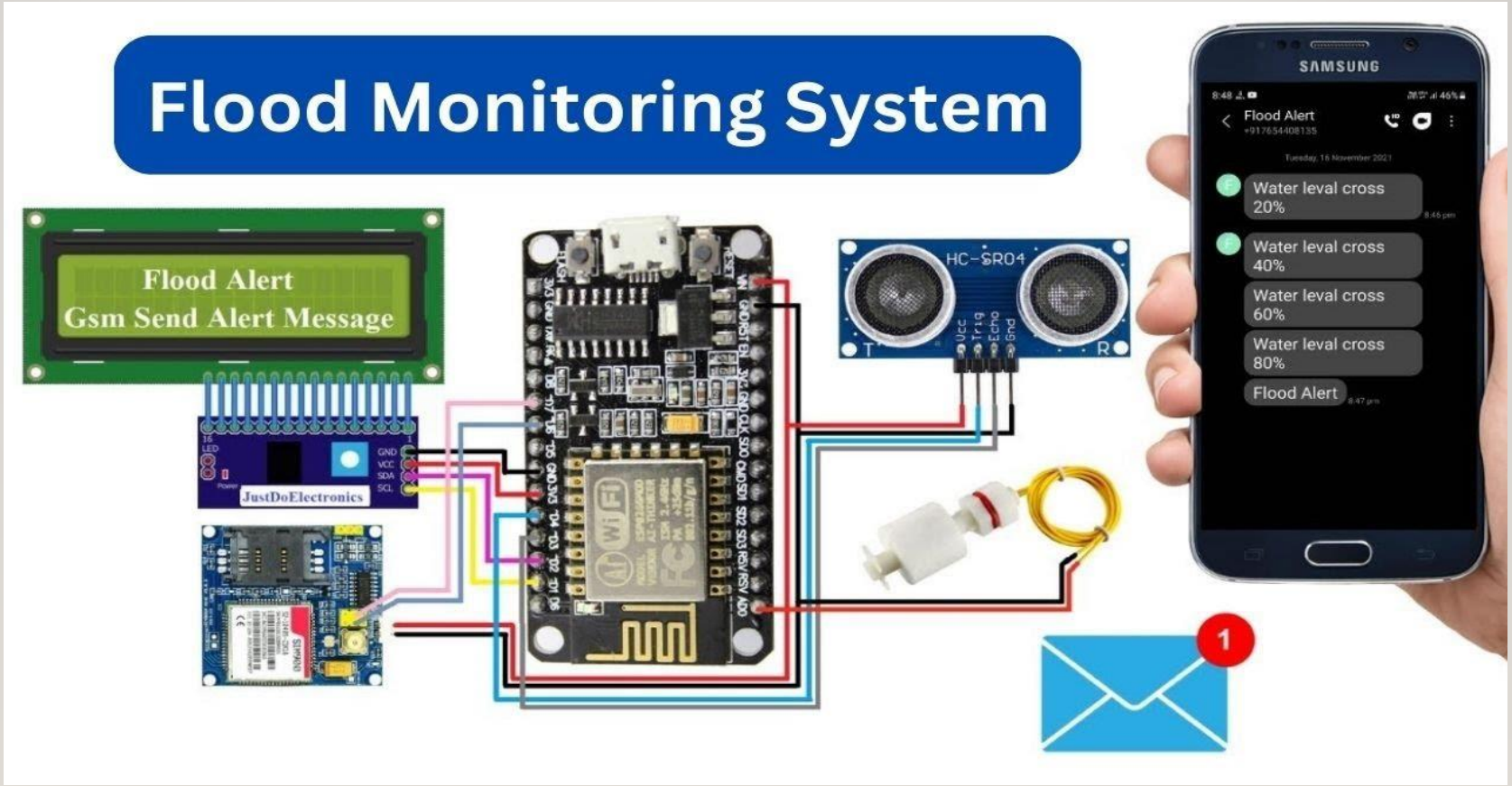
Adapter is a device that converts attributes of one electrical device or system to those of an otherwise incompatible device or system. A 12V DC power supply is an adapter designed to supply precisely 12 Volts of direct current to a device.

ARDUINO IDE

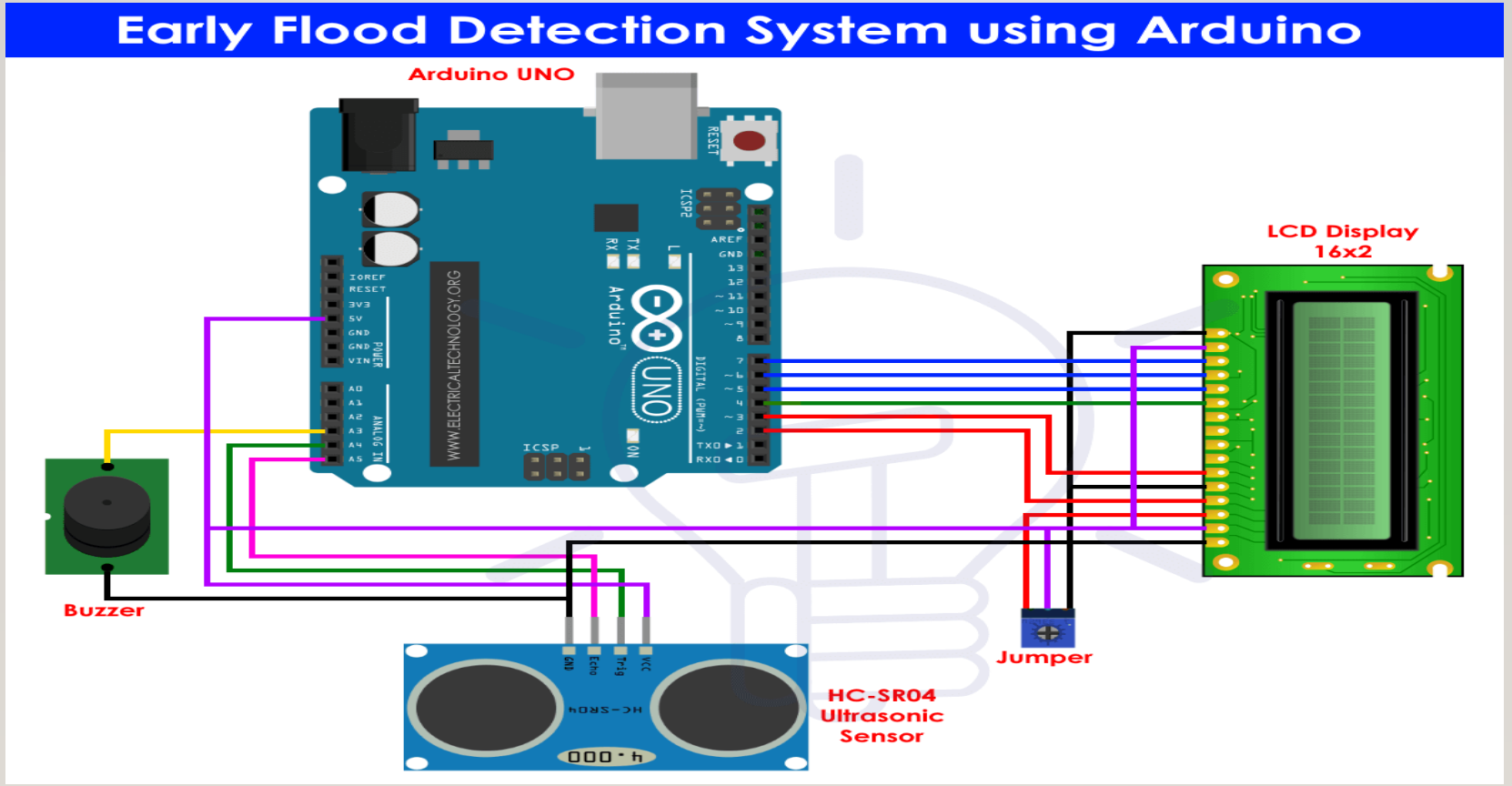
The Arduino Integrated Development Environment (IDE) is an open -source software platform designed to simplify the process of programming and uploading code to Arduino -compatible microcontroller boards.

It provides a user -friendly interface for writing, compiling, and uploading code to a wide range of Arduino -based hardware.

AN OVERVIEW


Flood Monitoring System
Flood Alert
Gsm Send Alert Message
JustDoElectronics
HC-SR04
SAMSUNG
Flood Alert
Water leval cross 20%
Water leval cross 40%
Water leval cross 60%
Water leval cross 80%
Flood Alert
1

THE CONNECTION OVERVIEW



STEPS:

- ✓ Connect the GSM Module to the Arduino UNO board.
- ✓ Connect the water level sensor to the GSM Module.
- ✓ Connect the signal pin to pin A3 in the GSM Module.
- ✓ Connect the positive pin to the 5V and negative pin to the ground.
- ✓ Connect the adapter to the GSM Module.
- ✓ Write the Arduino code and upload it.

PROGRAMMING USING ARDUINO IDE

```
//Flood Alert Call and SMS

#include <SoftwareSerial.h>
#include "Adafruit_FONA.h"
#define FONA_RX          2
#define FONA_TX          3
#define FONA_RST         4

int resval = 0;  // holds the value
int respin = A3; // Water Level Sensor Pin

#define FONA_RI_INTERRUPT  0
SoftwareSerial fonaSS = SoftwareSerial(FONA_TX, FONA_RX);

Adafruit_FONA fona = Adafruit_FONA(FONA_RST);
char PHONE_1[21] = ""; // Enter your Mobile Number
```

```
char tempalert[141]= "Flood Alert"  ;
void setup()
{
//  pinMode(gas_sensor_pin,INPUT);
  Serial.begin(115200);
//  dht.begin();
  Serial.println(F("Initializing....(May take 3 seconds)"));
  delay(5000);
  fonaSS.begin(9600); // if you're using software serial
  if (! fona.begin(fonaSS)) {          // can also try fona.begin(Serial1)
    Serial.println(F("Couldn't find FONA"));
    while (1);
  }

fona.print ("AT+CSMP=17,167,0,0\r");
    Serial.println(F("FONA is OK"));
   //fona.sendSMS(PHONE_1, welcomemessage);
  //    pinMode(gas_sensor_pin, INPUT);
}
```

```
void loop(){
 resval = analogRead(respin);

 Serial.print("Water Level:");
 Serial.println(resval);

 if(resval>200 )
 {
   Serial.println("Flood Alert");
   make_multi_call();
   send_multi_sms();
  }
}

void send_multi_sms()
{
 if(PHONE_1 != ""){
  Serial.print("Phone 1: ");
  fona.sendSMS(PHONE_1,tempalert);
  delay(20000);
 }
}
```

```
void make_multi_call()
{
  if(PHONE_1 != ""){
    Serial.print("Phone 1: ");
    make_call(PHONE_1);
    delay(20000);
  }
}

void make_call(String phone)
{
    Serial.println("calling....");
    fona.println("ATD"+phone+";");
    delay(20000); //20 sec delay
    fona.println("ATH");
    delay(1000); //1 sec delay
}
```

WORKING OVERVIEW

APPLICATION TO ACCESS THE DATA

- Choose a Platform – Either Android/IOS or Web Application
- Develop and Design the App
- Retrieve Data – Use HTTP Request to fetch the data
- Display Data – Create a UI to display the data

THANK YOU!!!