**FLOOD MONTORING AND EARLY WARNING**

Floods and water resource management are major challenges for human in present and the near future, and snowmelt floods which usually break out in arid or semi-arid regions often cause tremendous social and economic losses, and integrated information system (IIS) is valuable to scientific and public decision-making. This paper presents an integrated approach to snowmelt floods early-warning based on geoinformatics (i.e. remote sensing (RS), geographical information systems (GIS) and global positioning systems (GPS)), Internet of Things (IoT) and cloud services. It consists of main components such as infrastructure and devices in IoT, cloud information warehouse, management tools, applications and services, the results from a case study shows that the effectiveness of flood prediction and decision-making can be improved by using the IIS.

**PROGRAM(python):**

#define BLYNK\_TEMPLATE\_ID "TMPL3tobBFjj-"

#define BLYNK\_TEMPLATE\_NAME "IOT FLOOD MONITORING"

#define BLYNK\_AUTH\_TOKEN "gy2bzR-i-RbPW3oWOpAiDgr6sSVzIHVZ"

char auth[] = BLYNK\_AUTH\_TOKEN;

char ssid[] = "Wokwi-GUEST";

char pass[] = "";

#define BLYNK\_PRINT **Serial**

#include <WiFi.h>

#include <WiFiClient.h>

#include <BlynkSimpleEsp32.h>

#include <ESP32Servo.h>

Servo gate;

const int trigPin=2;//d2

const int echoPin=4;//d4

const int servoPin = 18;//d18

long duration;

int distance;

void setup() {

**Serial**.begin(9600);

  Blynk.begin(auth, ssid, pass);

   pinMode(trigPin, OUTPUT);

   pinMode(echoPin, INPUT);

   gate.attach(servoPin, 500, 2400);

}

void loop()

{

 digitalWrite(trigPin, LOW);

 delay(2);

 digitalWrite(trigPin,HIGH);

 delay(10);

 digitalWrite(trigPin, LOW);

 duration=pulseIn(echoPin,HIGH);

 distance=duration\*0.034/2;

**Serial**.println(distance);

 Blynk.virtualWrite(V0,distance);

if(distance<50)

{

  gate.write(90);

 Blynk.virtualWrite(V1,"FLOOD DETECTED GATES OPENED");

}

else

{

  gate.write(0);

Blynk.virtualWrite(V1,"SAFE CONDITIONS GATES CLOSED");

}

}

**Libraries.txt**

**# Wokwi Library List**

**# See https://docs.wokwi.com/guides/libraries**

**Blynk**

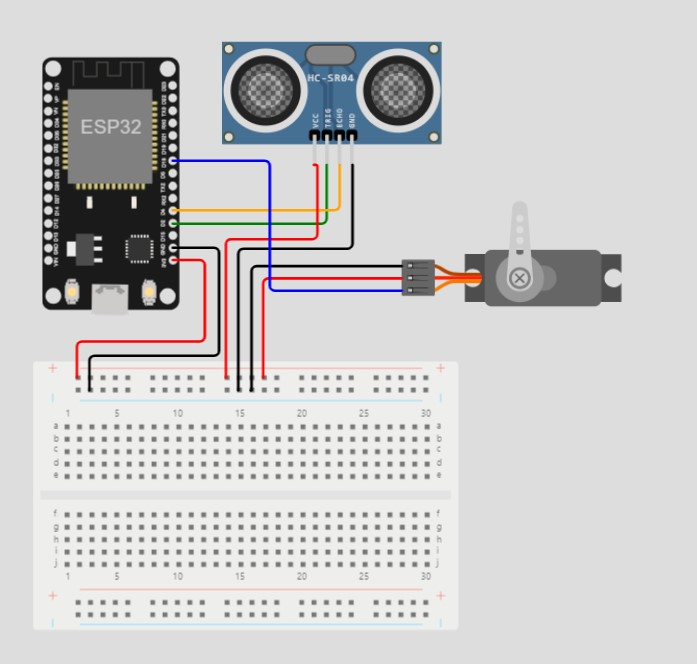
**DHT12 sensor library**

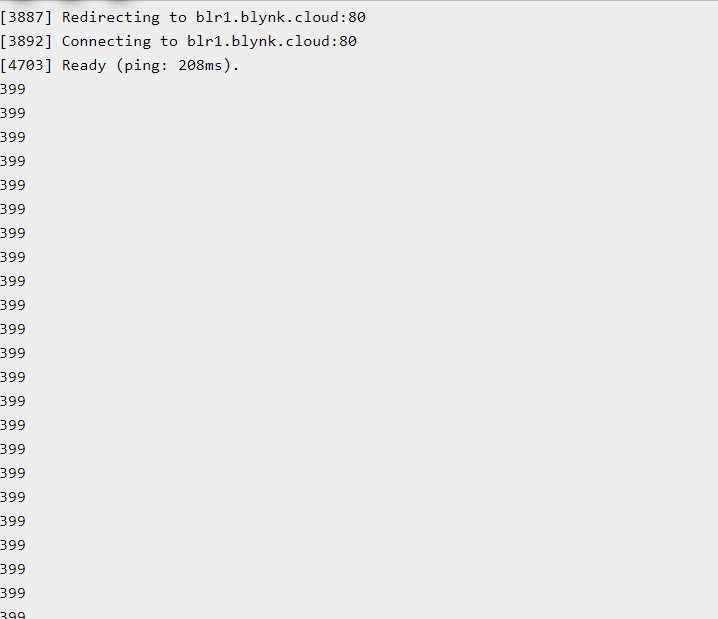
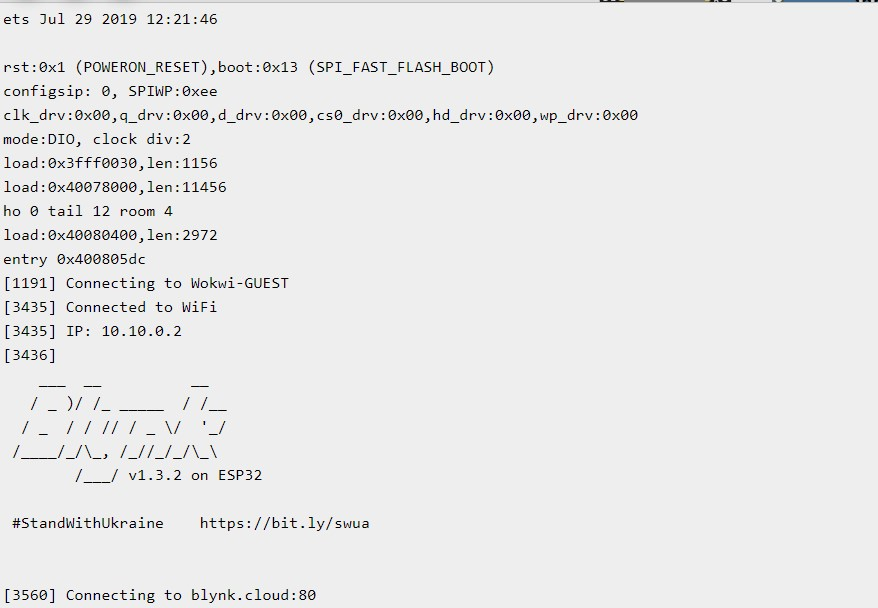
**DHT sensor library**

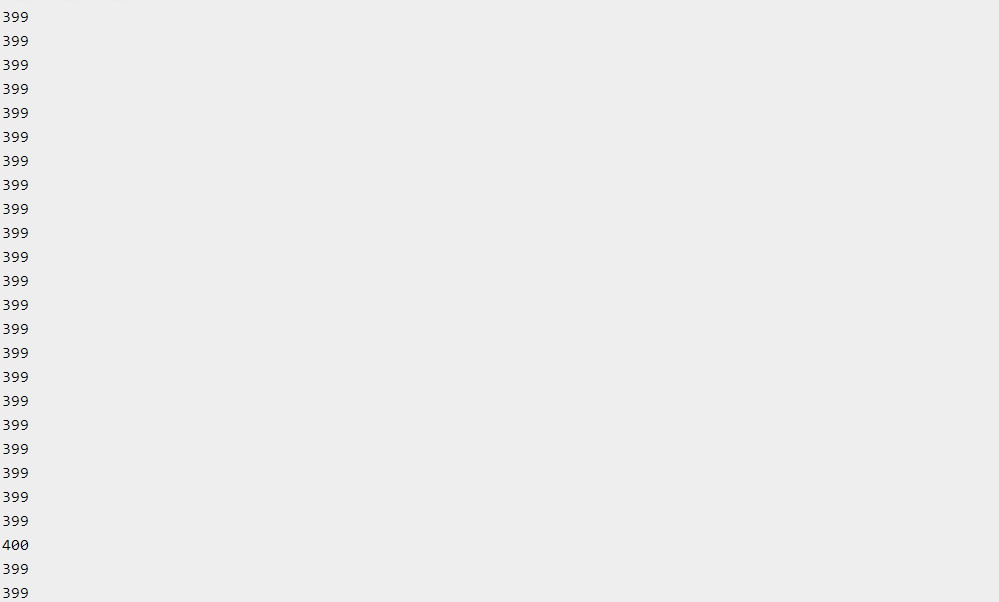
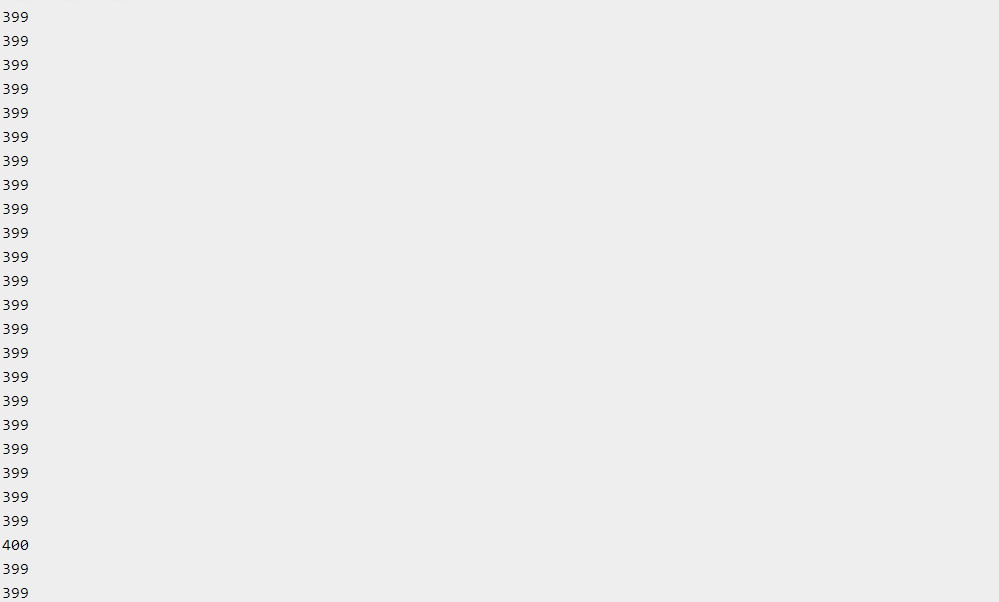
**Servo**

**ESP32Servo**

**OUTPUT:**

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