FLOOD MONITORING AND EARLY WARNING

INTRODUCTION:

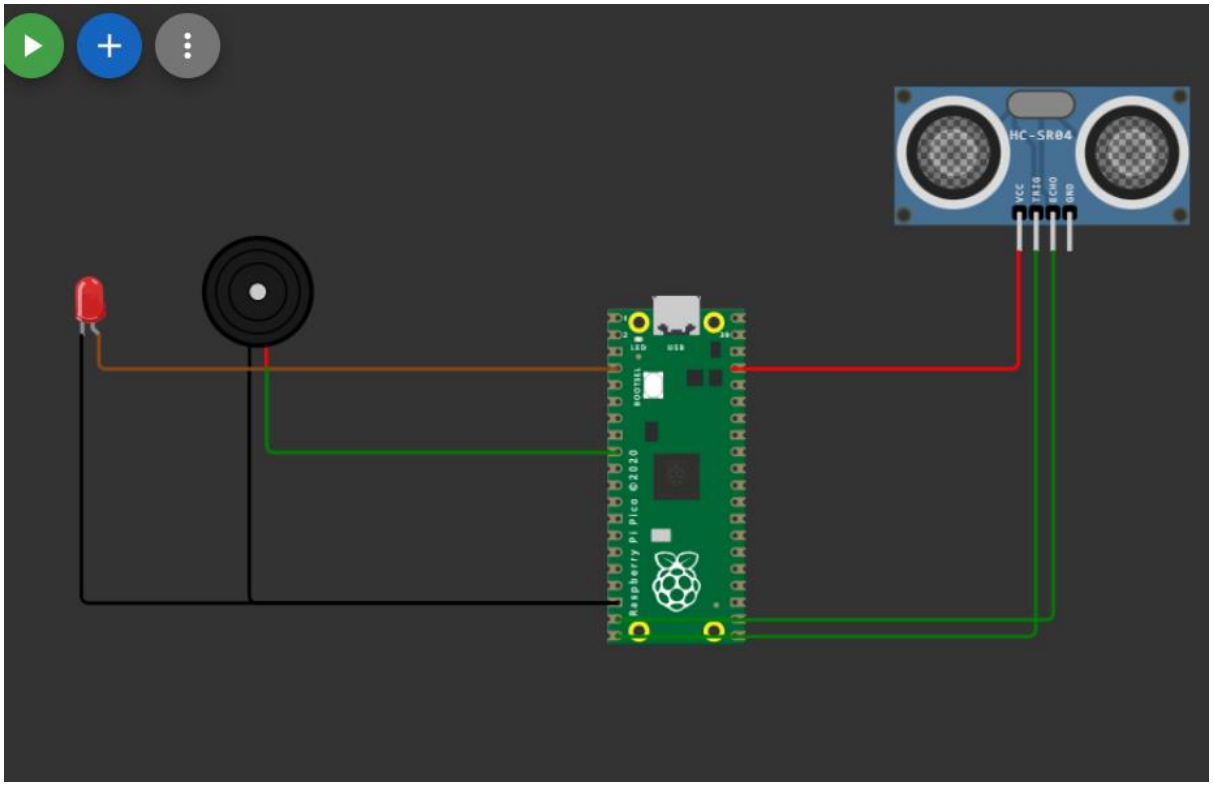
A FLOOD IS AN OVERFLOW OF WATER THAT SUBMERGE THE LAND THAT IS USUALLY DRY.FLOOD ARE CAUSED BY MANY FACTORS SUCH AS HEAVY RAINFALL,TSUNAMI,FAILURE OF DAMS ETC. IT CAUSES SEVERE DAMAGE TO THE INFRASTRUCTURE OF THE SOCIETY AND LOSS OF LIFE.TO AVOID THIS FLOOD MONITORING AND EARLY WARNING WAS INTRODUCED.ITS MAIN PURPOSE TO MONITOR THE WATER LEVELS IN DAMS,IF IT EXCEEDS CERTAIN LIMIT A WARNING MESSAGE WILL BE SENT TO THE PUBLIC MOBILE PHONES, SO THAT THEY AWARE OF IT AND MOVE SAFER ZONES.THIS IS DONE BY DEPLOYING IOT SENSORS NEAR WATER DAMS.

FLOOD MONITORING AND EARLY WARNING WITH RASPBERRY PI PICO WITH PYTHON SCRIPT

WOKWI LINK:

https://wokwi.com/projects/378941271098927105

CIRCUIT DIAGRAM:



CODE:

```
from machine import Pin
import utime
trigger=Pin(15,Pin.OUT)
echo=Pin(14,Pin.IN)
buzz=Pin(6,Pin.OUT)
led=Pin(2,Pin.OUT)

while True:
    trigger.low()
    utime.sleep_us(2)
    trigger.high()
```

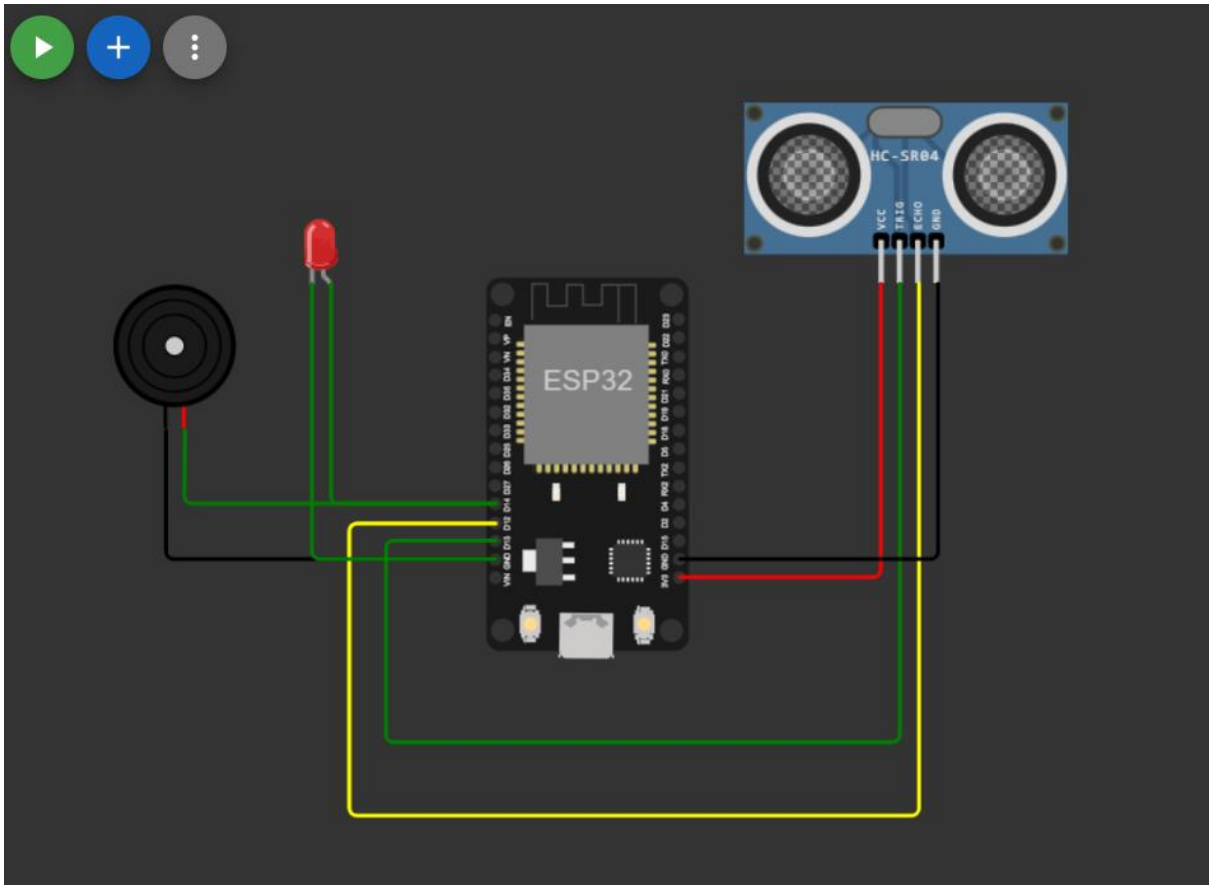
```
utime.sleep_us(5)
trigger.low()
while echo.value()==0:
    signaloff=utime.ticks_us()
while echo.value()==1:
    signalon=utime.ticks_us()
timepassed=signalon-signaloff
distance=(timepassed*0.0343)/2

print("the range is  ",distance)

utime.sleep(1)

if(distance>=200):
    buzz.high()
    led.high()
    print("FLOOD ALERT!!!!!!!!  DAM MAY GET OPENED")
else:
    led.low()
```

FLOOD MONITORING AND EARLY WARNING WITH ESP 32

WOKWI LINK:

https://wokwi.com/projects/378936653815642113

CIRCUIT DIAGRAM:



CODE:

```
#define trigger_wave 13

#define distance_echo 12
```

```
#define buzzer 14
unsigned int condition=0;
void setup()
 {
  Serial.begin(115200);
  pinMode(trigger_wave, OUTPUT);
  pinMode(distance_echo, INPUT);
  pinMode(buzzer,OUTPUT);
}
void loop()
{
  //send the wqave to m,easure the length and teh capacity of water
  digitalWrite(trigger_wave, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigger_wave, LOW);
 // receiving wave to judge teh waterlevel and hit the buzzer
  int duration = pulseIn(distance_echo, HIGH);
  Serial.print("Distance in feet: ");
  Serial.println((duration / 58)*0.3);
//now i have value 400 and average dam will be of 120 feet
//i need to convert my values to 120 so
condition = (duration / 58)*0.3;
if(condition >= 90)
{
  digitalWrite(buzzer,HIGH);
  Serial.print("DAM WILL BE OPENED FLOW WARNING!!!!!!!!! ");
}
else if (condition<90)
{
```

```
  digitalWrite(buzzer,LOW);
}
  delay(1000);
}
```