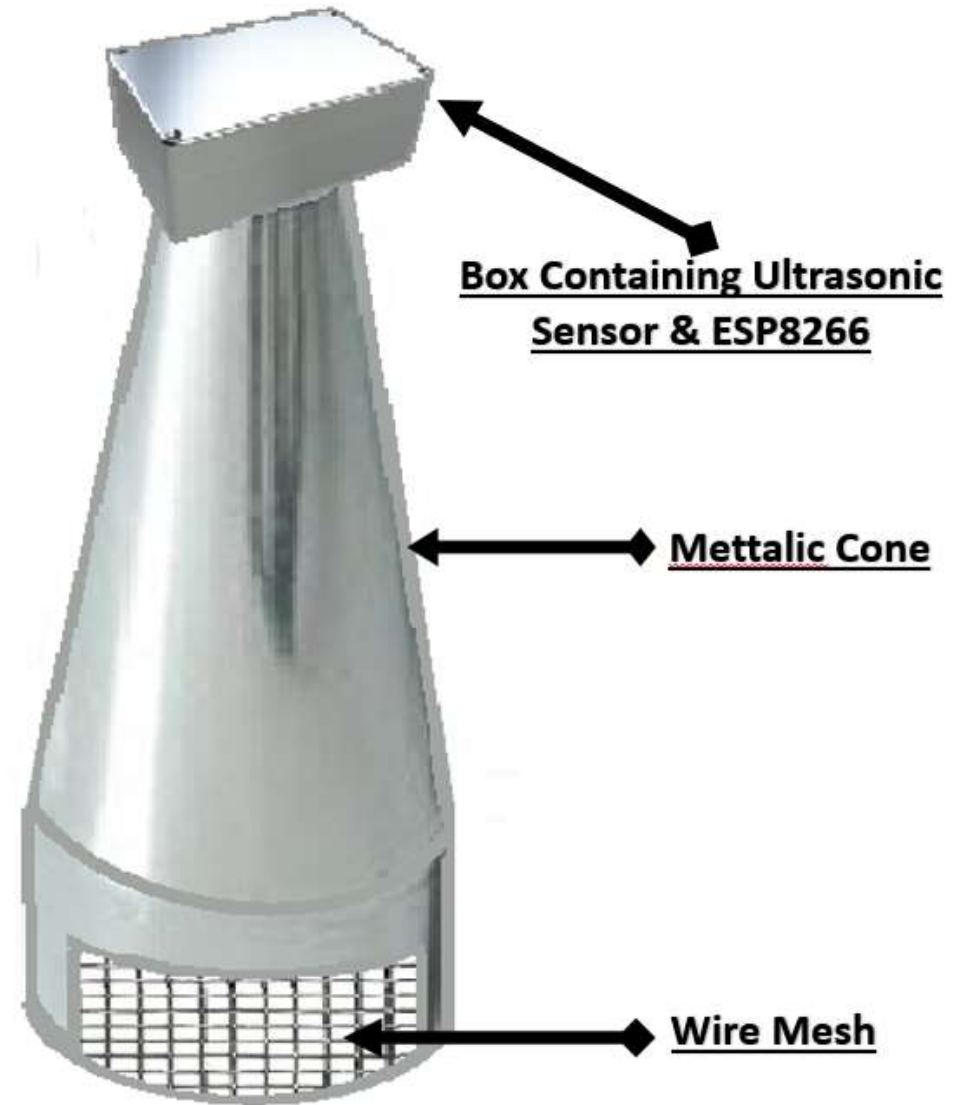




Flood is a major known natural disaster that causes a huge amount of loss to the environment and living beings . In this project , the objective is to sense the water levels by using the method of **FLOOD LEVEL SYSTEM**. Flood stage is the water level or stage at which a body of water's surface has risen to a sufficient level to cause sufficient inundation of areas that are not normally covered by water, causing an inconvenience or a threat to life and property.

# Components Required

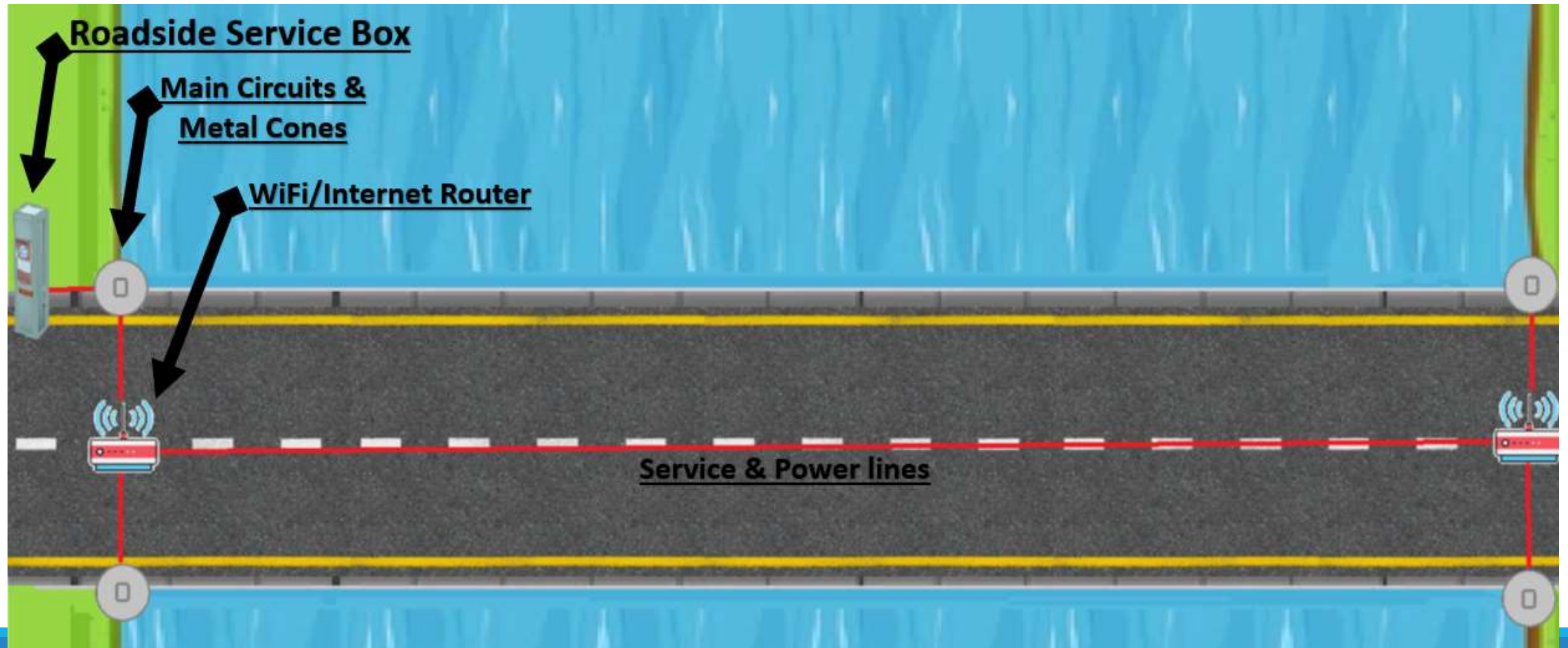
- ESP8266 NodeMCU
- Ultrasonic Sensor
- Power Supply
- LEDs (Green & Red)
- Jumpers
- Breadboard
- Wires & Resistors

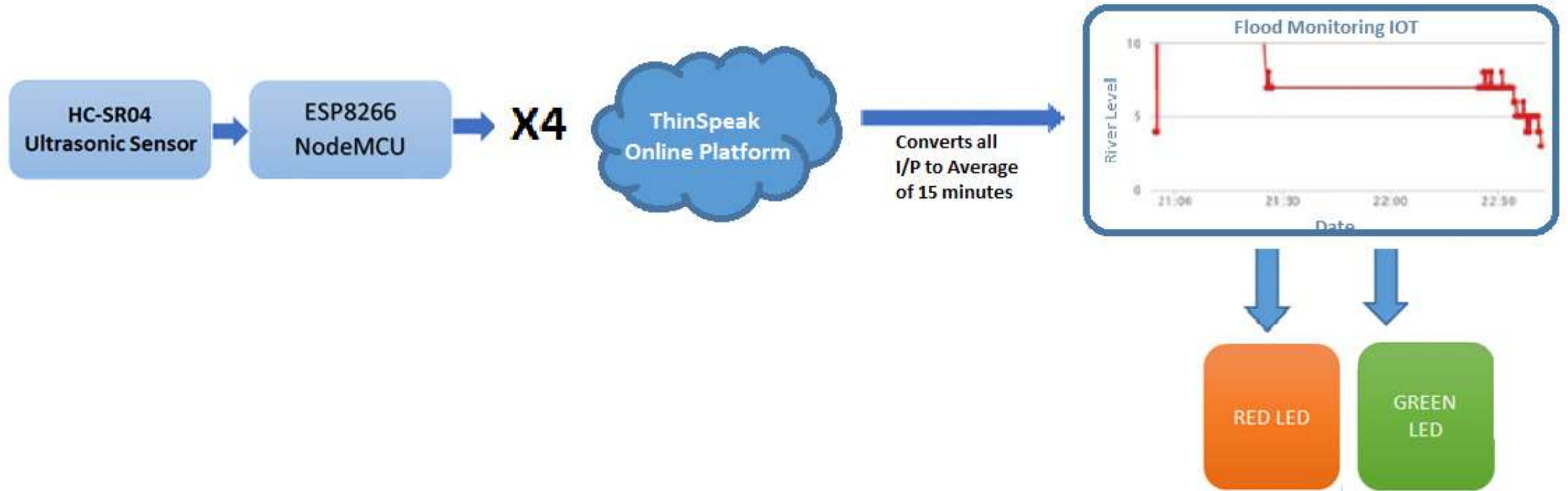




# Where should be the flood monitoring system placed ?

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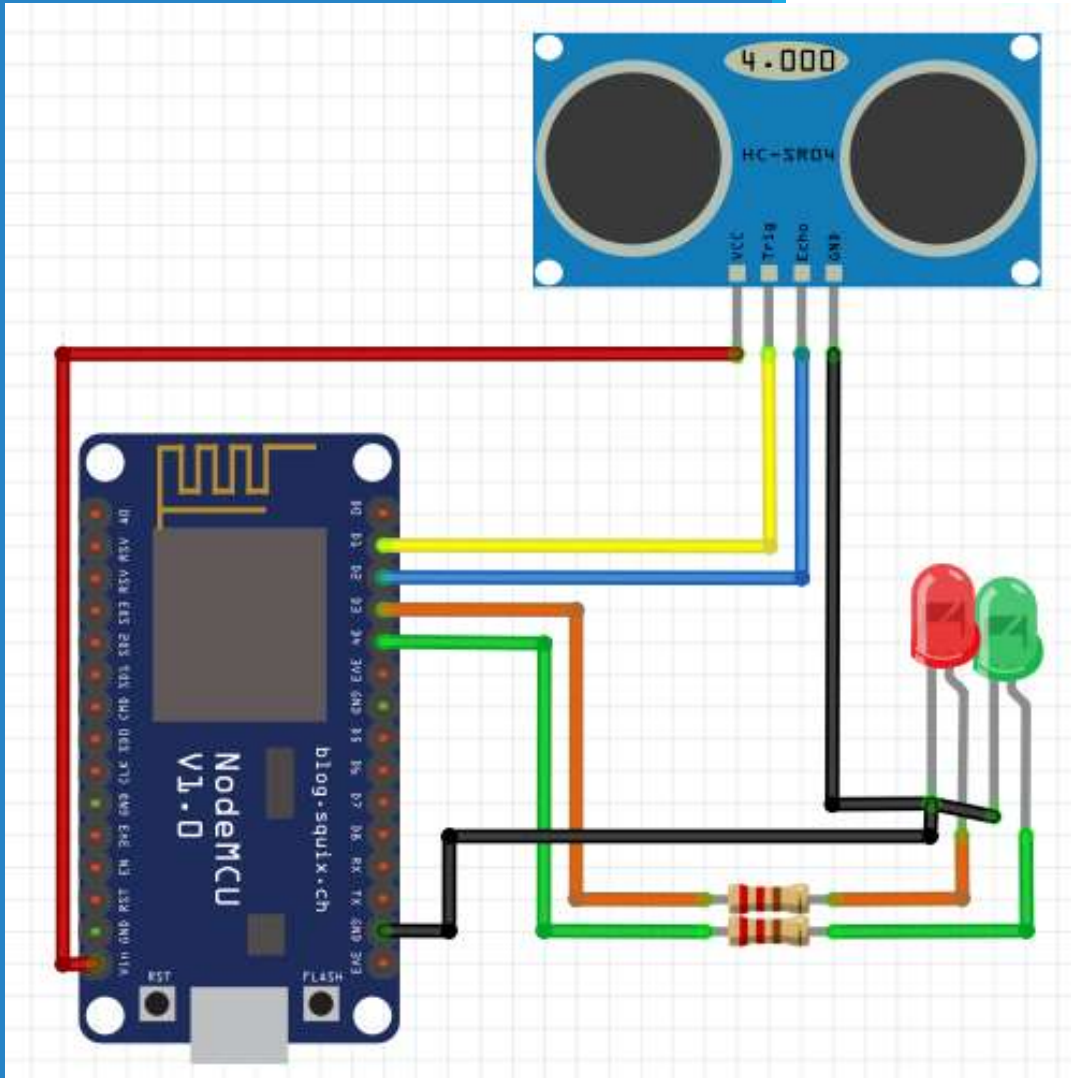
Flowchart explaining The Flood Monitoring System.

# Ultrasonic Sensor

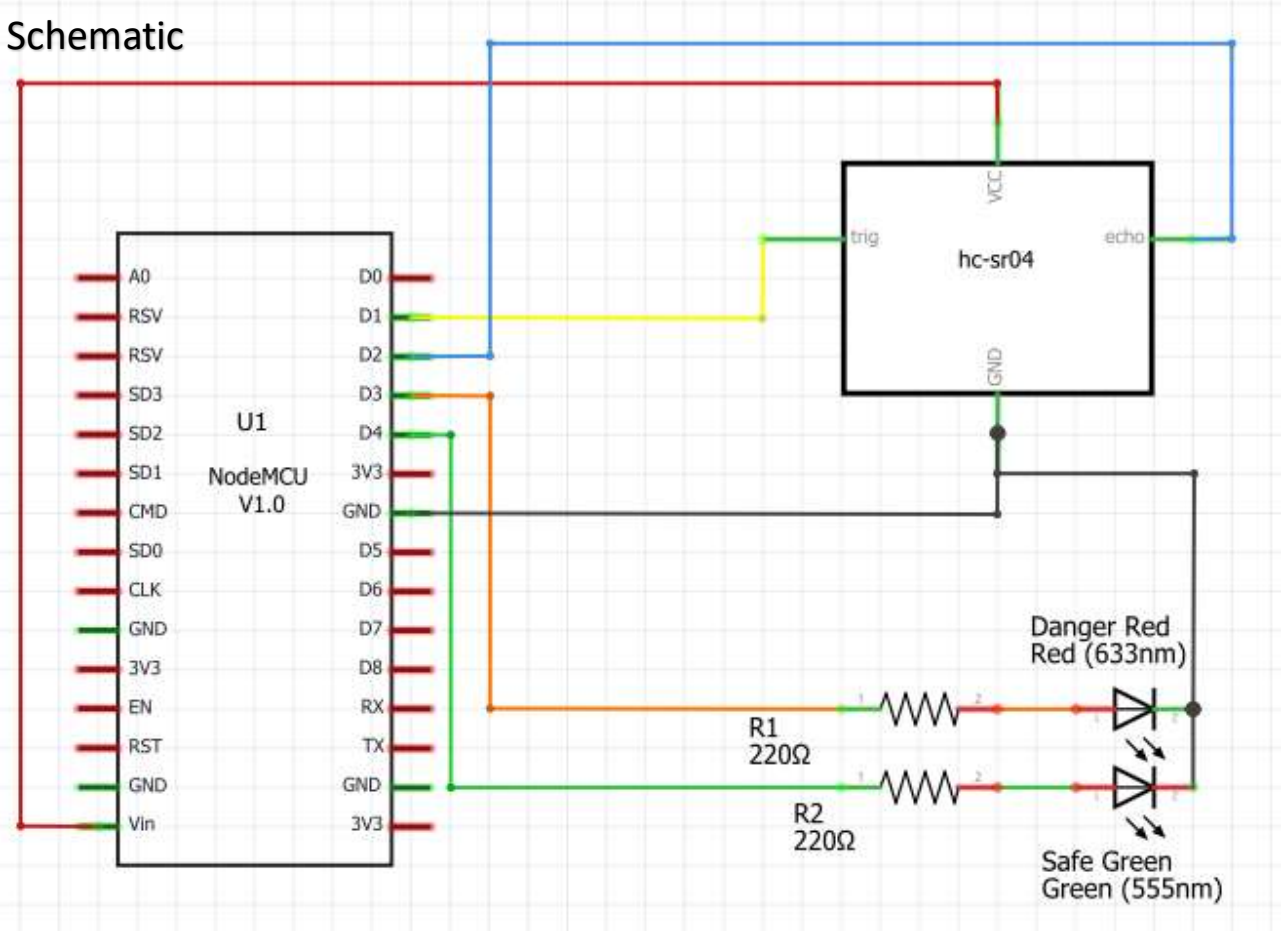


The Ultrasonic sensor works on the principal of ultrasound waves which is used to determine the distance of an object . An ultrasonic sensor generates high – frequency sound waves . When this ultrasound hits the object , it reflects as echo which is sensed y the reciever . By using the time required for the echo to reach the reciever , we can calculate the distance to an object we are targeting .

$$\text{DISTANCE} = (\text{Time} * \text{Speed of sound in air } (340\text{m}\backslash\text{s})) / 2$$

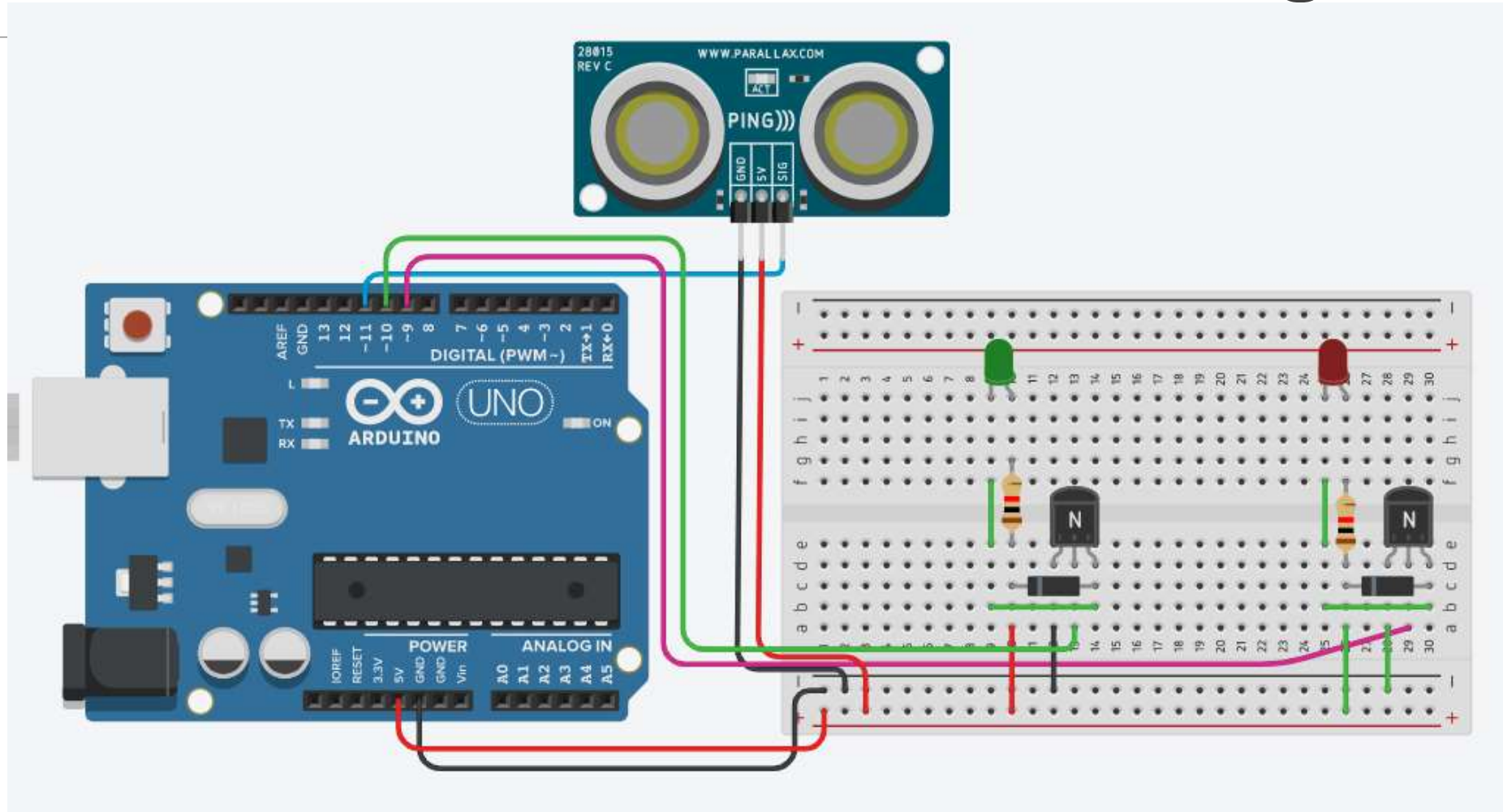


Schematic

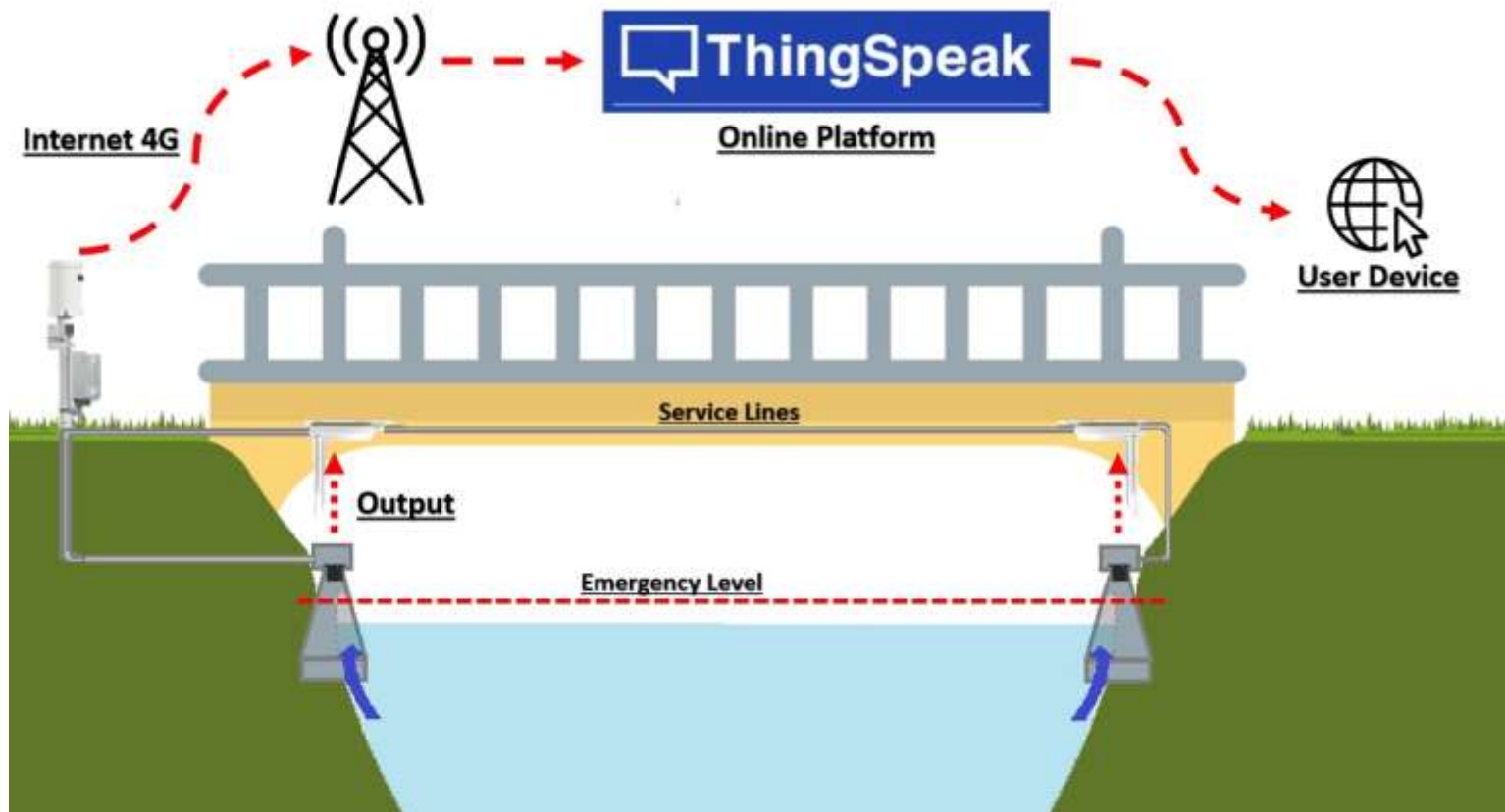




# Alternate Simulation Circuit Diagram







# Benefits & Loses

- ❑ The timely operation of flood control structures ( eg. Gates , temporary flood resistance ) preventing inundation of property and land .
- ❑ The installation pf flood resilience measures ( e.g. Sandbags, property flood barriers )
- ❑ The removal of property to somewhere above the flood level or out of the flood plain.

Overall safeguard of property and lives of people .

- ❑ Some people may not be able to access the warnings
- ❑ Flash Floods may happen too quickly for a warning to be efective.
- ❑ They do not stop land from flooding . They just warn people that a flood is likely to come.

## DRAWBACKS

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It will be easier to install at the time when bridges are being made otherwise it may be inefficient .

## FUTURE IMPROVEMENTS

In Addition with LED alarm system,few buzzers could be added there too . A dependable system can be added too that alerts the officers of the region in the form of an SMS that there might be a flood condition incoming.

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THANK-YOU !

