**NAME: SWASTIK RAJ BEHERA**

**REGISTRATION NO: 20BEC0710**

**PROJECT PROPOSAL**

**IDEA**

A Sonar Detection system using Arduino UNO and Ultrasonic sensor (HC-SR04) and a Micro servo motor SG90.

The sonar system detects the objects that come within its range (angle and distance) and display its appearance on Laptop (Monitor) screen. Sonar uses the echo principle of sound waves through an object.

**TECH STACK USED**

Hardware components used are:

1.Arduino UNO

2.Ultrasonic Sensor (HC-SR04)

3.Micro Servo Motor SG90

4. And basic connection equipment like Jumper Wires and Cable

Software Components used are:

1.Arduino IDE

2.Processing IDE

**IMPLEMENTATION**

The Ultra Sonic HC-SR04 emits ultrasound at 40kHz that travels in the air. If there is an object or obstacle comes in its path, then the sound wave collides with the object and bounces back to the Ultra Sonic module. The object's angle and distance have displayed over the screen (Monitor).

In this project, we use the Processing app to display the sonar range.

We write a program first to use the Ultrasonic sensor and Servo motor in Arduino IDE to measure distance and Rotate the motor.

Then after uploading the program to Arduino IDE and placing the Ultrasonic sensor over the bigger fan of Servo Motor we place it there using tape.

Then we have to write the code in Processing IDE because the Processing IDE displays the angle distance of an object when it comes in the range of Ultrasonic device.

Now, run your processing application and place an object in front of Ultrasonic sensor. When the servo motor rotates and objects come in the range of Ultrasonic device then the appearance of an object appears on display screen. The presence of an object is marked with the red mark and if there is no any object in the range of Ultrasonic device processing application display green marks just like the SONAR used in Ships.

**TIMELINE**

For this project I may need a Week or more than a Week to complete the arrangement and coding in the IDEs.

Because of not getting the required equipment like Bluetooth module HC-05 or ESP8266 WiFi Module due to very late delivery services in Online platform like Amazon I cannot implement any IOT project so went with this simple basic project.