**RADAR Defence System model using Arduino Uno R3**

**Aim -**  To built a model which will detect any object entering inside a certain range and will target towards that object to stop that. In this project, we are going to use four HC-SR04 sensors for object sensing across 180 degrees, a Laser module as gun, a servo motor for positioning the laser module in direction of the object, an Arduino Uno R3 board for controlling the system and some other components.

**Arduino Code -**

#include <Servo.h>

int flag1,flag2,flag3;

int motor =9;

int buzzer =2;

int trigpin1 = 7;

int echopin1 = 4;

int trigpin2 = 6;

int echopin2 = 8;

int trigpin3 = 11;

int echopin3 = 10;

int servopos = 90;

int traveltime;

float dist;

int redled = 3;

int greenled = 5;

int laser = 12;

float range;

Servo myservo1;

void setup() {

Serial.begin(9600);

pinMode(motor,OUTPUT);

pinMode(redled,OUTPUT);

pinMode(buzzer,OUTPUT);

pinMode(greenled,OUTPUT);

pinMode(trigpin1,OUTPUT);

pinMode(echopin1,INPUT);

pinMode(trigpin2,OUTPUT);

pinMode(echopin2,INPUT);

pinMode(trigpin3,OUTPUT);

pinMode(echopin3,INPUT);

myservo1.attach(motor);

}

void loop() {

flag1 =0;

flag2 =0;

flag3 =0;

laser =0;

buzzer =0;

//For 1st sensor

digitalWrite(trigpin1,LOW);

delayMicroseconds(10);

digitalWrite(trigpin1,HIGH);

delayMicroseconds(10);

digitalWrite(trigpin1,LOW);

delayMicroseconds(10);

traveltime = pulseIn(echopin1,HIGH);

dist = 34\*traveltime; //Here,34 is the appr. speed of the sound(34cm/ms)

if(dist<range)

{

flag1 = 1;

}

//For 2nd sensor

digitalWrite(trigpin2,LOW);

delayMicroseconds(10);

digitalWrite(trigpin2,HIGH);

delayMicroseconds(10);

digitalWrite(trigpin2,LOW);

delayMicroseconds(10);

traveltime = pulseIn(echopin2,HIGH);

dist = 34\*traveltime; //Here,34 is the appr. speed of the sound(34cm/ms)

if(dist<range)

{

flag2 = 1;

}

//For 3rd sensor

digitalWrite(trigpin3,LOW);

delayMicroseconds(10);

digitalWrite(trigpin3,HIGH);

delayMicroseconds(10);

digitalWrite(trigpin3,LOW);

delayMicroseconds(10);

traveltime = pulseIn(echopin3,HIGH);

dist = 34\*traveltime; //Here,34 is the appr. speed of the sound(34cm/ms)

if(dist<range)

{

flag3 = 1;

}

if(flag1==1)

{

myservo1.write(30);

laser = 1;

buzzer=1;

greenled =0;

redled =1;

delayMicroseconds(2000);

}

else if(flag2==1)

{

myservo1.write(90);

laser = 1;

buzzer=1;

greenled =0;

redled =1;

delayMicroseconds(2000);

}

else if(flag3==1)

{

myservo1.write(150);

laser = 1;

buzzer=1;

greenled =0;

redled =1;

delayMicroseconds(2000);

}

else

{

greenled =1;

redled =0;

buzzer =0;

laser =0;

delayMicroseconds(2000);

}

}