# **CODE:**

//Libraries

#include <LiquidCrystal\_I2C.h>

#include <Wire.h>

#include <Ultrasonic.h>

#include <Servo.h>

//Variables

int distanceIn,distanceOut;

int Total = 5;

int Space;

// pin positions for trigger and echo of ultrasonic sensors

int trigIn = A0;

int echoIn = A1;

int trigOut = A2;

int echoOut = A3;

//creating objects of required things used

LiquidCrystal\_I2C lcd(0x27, 16, 2);

Ultrasonic carIn(trigIn,echoIn);

Ultrasonic carOut(trigOut,echoOut);

Servo myservo;

void setup() {

// start and setup lcd

lcd.init();

lcd.setCursor (0,0);

lcd.print(" Car Parking ");

lcd.setCursor (0,1);

lcd.print(" System ");

delay (2000);

lcd.clear();

// servo motor pin

myservo.attach(3);

myservo.write(100);

Serial.begin(9600);

Space = Total;

}

void loop()

{

// code to check distance of object from the sensor and siaply in the serial monitor

distanceIn = carIn.read(CM);

distanceOut = carOut.read(CM);

//Print distance...

Serial.print("Object entering at: ");

Serial.print(distanceIn);

Serial.println("cm");

Serial.print("Object leaving at: ");

Serial.print(distanceOut);

Serial.println("cm");

//a check to ensure if the car is in the proximity

if(distanceIn<=20){

// if space is availaible let the car in and reduce space

if(Space > 0){

lcd.clear();

lcd.setCursor(0,0);

if(digitalRead(trigIn) == LOW){

// turn the motor on

myservo.write(0);

lcd.print("Car Entering!");

Space--;

delay(3000);

}

}

// if space is full then do not allow a car to enter

else if(Space <= 0){

lcd.clear();

lcd.print("Space full");

delay(2000);

}

}else if (distanceOut<=20){

// if there is a car inside and sensor detects it let it go and increase space count

if(Space<5){

lcd.clear();

lcd.setCursor(0,0);

if(digitalRead(trigOut) == LOW){

myservo.write(0);

lcd.print("Car Leaving!");

Space++;

delay(3000);

}

}

}

else{

// turn off the motor

myservo.write(100);

}

// display screen

lcd.setCursor(0,0);

lcd.print("Parking Assist");

lcd.setCursor(0,1);

lcd.print("Total Space: ");

lcd.print(Space);

}