CODE FOR IMPLEMENTATION.

PYTHON CODE:

```
#include <ESP32Servo.h>
#include <Adafruit_MQTT.h>
#include <Adafruit_MQTT_Client.h>
#include <LiquidCrystal_I2C.h>
#include <WiFi.h>

#define TRIGGER_PIN    5
#define ECHO_PIN       18
#define SERVO_PIN_1    2
#define SERVO_PIN_2    4
#define IR_SMALL_1_PIN 34
#define IR_SMALL_2_PIN 35
#define IR_BIG_1_PIN   32
#define IR_BIG_2_PIN   33
#define SERVO_START    10
#define SERVO_START1   180
#define SERVO_END      100
#define SERVO_DELAY    15
#define WAIT_TIME      10000

Servo servo1;
Servo servo2;

int irSmall1Pin = IR_SMALL_1_PIN;
int irSmall2Pin = IR_SMALL_2_PIN;
int irBig1Pin = IR_BIG_1_PIN;
int irBig2Pin = IR_BIG_2_PIN;

#define AIO_SERVER      "io.adafruit.com"
```

```
#define AIO_SERVERPORT  1883
#define AIO_USERNAME    "carparking0001"
#define AIO_KEY       "aio_Yxir24ouCQCSG95nmJiJyUbN7864"

WiFiClient client;
Adafruit_MQTT_Client mqtt(&client, AIO_SERVER, AIO_SERVERPORT, AIO_USERNAME, AIO_KEY);

Adafruit_MQTT_Publish slot1Pub = Adafruit_MQTT_Publish(&mqtt, AIO_USERNAME "/feeds/slot1");
Adafruit_MQTT_Publish slot2Pub = Adafruit_MQTT_Publish(&mqtt, AIO_USERNAME "/feeds/slot2");
Adafruit_MQTT_Publish slot3Pub = Adafruit_MQTT_Publish(&mqtt, AIO_USERNAME "/feeds/slot3");
Adafruit_MQTT_Publish slot4Pub = Adafruit_MQTT_Publish(&mqtt, AIO_USERNAME "/feeds/slot4");

LiquidCrystal_I2C lcd(0x27, 16, 2); // Set the LCD I2C address and dimensions

void setup() {
  Serial.begin(9600);
  WiFi.begin("iotproject1","iotproject1");
  pinMode(TRIGGER_PIN, OUTPUT);
  pinMode(ECHO_PIN, INPUT);
  pinMode(irSmall1Pin, INPUT);
  pinMode(irSmall2Pin, INPUT);
  pinMode(irBig1Pin, INPUT);
  pinMode(irBig2Pin, INPUT);

  // LCD setup
  lcd.init();                  // Initialize the LCD
  lcd.backlight();             // Turn on backlight

  servo1.attach(SERVO_PIN_1);
  servo2.attach(SERVO_PIN_2);
  servo1.write(180);
```

```
  servo2.write(10);

  // Connect to Adafruit MQTT
  connectAdafruitMQTT();
}

void loop() {
  long duration, distance;

  // Measure distance
  digitalWrite(TRIGGER_PIN, LOW);
  delayMicroseconds(2);
  digitalWrite(TRIGGER_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIGGER_PIN, LOW);
  duration = pulseIn(ECHO_PIN, HIGH);
  distance = duration * 0.034 / 2;

  Serial.print("Distance: ");
  Serial.print(distance);
  Serial.println(" cm");
servo1.write(SERVO_START1);
  servo2.write(SERVO_START);
}

int detectCar(int irPin) {
  return digitalRead(irPin) == LOW ? 1 : 0;
}

void connectAdafruitMQTT() {
  int8_t ret;
```

```
  while ((ret = mqtt.connect()) != 0) {
    Serial.println(mqtt.connectErrorString(ret));
    Serial.println("Retrying Adafruit MQTT connection...");
    delay(5000);
  }

  Serial.println("Adafruit MQTT Connected!");
}
```