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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| #include <WiFi.h> | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | |
| #include <PubSubClient.h> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| void callback(char\* subscribetopic, byte\* payload, unsigned int | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| payloadLength); | | | | | | | | | | | | | | | | | | | | | | | |
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| //-------credentials of IBM Accounts------ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| #define ORG "kotoq5"//IBM ORGANITION ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| #define DEVICE\_TYPE "ESP32"//Device type mentioned in ibm watson IOT Platform | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| #define DEVICE\_ID "12345"//Device ID mentioned in ibm watson IOT Platform | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| #define TOKEN "12345678" //Token | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| String data3; | | | | | | | | | | | |
|  | | | | | | | | | | | |
| char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| char publishTopic[] = "iot-2/evt/Data/fmt/json"; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| char subscribetopic[] = "iot-2/cmd/test/fmt/String"; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| char authMethod[] = "use-token-auth"; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| char token[] = TOKEN; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| char clientId[] = "d:" ORG ":" DEVICE\_TYPE ":" DEVICE\_ID; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| WiFiClient wifiClient; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| PubSubClient client(server, 1883, callback ,wifiClient); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| const int trigPin = 5; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| const int echoPin = 18; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| #define SOUND\_SPEED 0.034 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| long duration; | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | |
| float distance; | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |
| void setup() { | | | | | | | | | | | | |
|  | | | | | | | | | | | | |
| Serial.begin(115200); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| pinMode(trigPin, OUTPUT); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pinMode(echoPin, INPUT); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| wificonnect(); | | | | | | | | | | | | | |
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| mqttconnect(); | | | | | | | | | | | | | | | | | | | |
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|  |
| void loop() | | | | | | | |
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|  |
| digitalWrite(trigPin, LOW); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| delayMicroseconds(2); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| digitalWrite(trigPin, HIGH); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| delayMicroseconds(10); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| digitalWrite(trigPin, LOW); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| duration = pulseIn(echoPin, HIGH); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| distance = duration \* SOUND\_SPEED/2; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.print("Distance (cm): "); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Serial.println(distance); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| if(distance<100) | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | |
| { |
|  |
| Serial.println("ALERT!!"); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| delay(1000); | | | | | | | | | | |
|  | | | | | | | | | | |
| PublishData(distance); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| delay(1000); | | | | | | | | | | |
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| if (!client.loop()) { | | | | | | | | | | | | | | | | | | | | | | | | | |
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| mqttconnect(); | | | | | | | | | | | | | | | | | | | |
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| } |
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| delay(1000); | | | | | | | | | | |
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| void PublishData(float dist) { | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| mqttconnect(); | | | | | | | | | | | | | | | | | | | |
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| String payload = "{\"Distance\":"; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| payload += dist; | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | |
| payload += ",\"ALERT!!\":""\"Distance less than 100cms\""; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| payload += "}"; | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | |
| Serial.print("Sending payload: "); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.println(payload); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| if (client.publish(publishTopic, (char\*) payload.c\_str())) { | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.println("Publish ok"); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| } else { | | |
|  | | |
| Serial.println("Publish failed"); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| void mqttconnect() { | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| if (!client.connected()) { | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.print("Reconnecting client to "); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.println(server); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| while (!!!client.connect(clientId, authMethod, token)) { | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.print("."); | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | |
| delay(500); | | | | | | | | |
|  | | | | | | | | |
| } |
|  |
| initManagedDevice(); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.println(); | | | | | | | | | | | | | | | | | | |
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| void wificonnect() | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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|  |
| Serial.println(); Serial.print("Connecting to "); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| WiFi.begin("Wokwi-GUEST", "", 6); while (WiFi.status() != | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| WL\_CONNECTED) { delay(500); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.print("."); | | | | | | | | | | | | | | | | | | | | |
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| Serial.println(""); Serial.println("WiFi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| connected"); Serial.println("IP address: "); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.println(WiFi.localIP()); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| if (client.subscribe(subscribetopic)) { | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.println((subscribetopic)); Serial.println("subscribe to | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| cmd OK"); | | | | | |
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| } else { | | |
|  | | |
| Serial.println("subscribe to cmd FAILED"); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| void callback(char\* subscribetopic, byte\* payload, unsigned int payloadLength) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.print("callback invoked for topic: "); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.println(subscribetopic); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| for (int i = 0; i < payloadLength; i++) { | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| //Serial.print((char)payload[i]); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| data3 += (char)payload[i]; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Serial.println("data: "+ data3); | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Diagram.json: | | | | | | | | | | | | | | |
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| "version": 1, | | | | | | | | | |
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| "author": "sweetysharon", | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| "editor": "wokwi", | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| "parts": [ | | | |
|  | | | |
| { "type": "wokwi-esp32-devkit-v1", "id": "esp", "top": -4.67, "left": -114.67, "attrs": {} }, | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| { "type": "wokwi-hc-sr04", "id": "ultrasonic1", "top": 15.96, "left": 89.17, "attrs": {} } | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| [ "esp:TX0", "$serialMonitor:RX", "", [] ], | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| [ "esp:RX0", "$serialMonitor:TX", "", [] ], | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| "red", | |
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| [ "h-37.16", "v-178.79", "h200", "v173.33", "h100.67" ] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| [ "esp:GND.1", "ultrasonic1:GND", "black", [ "h39.87", "v44.04", "h170" ] ], | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| [ "esp:D5", "ultrasonic1:TRIG", "green", [ "h54.54", "v85.07", "h130.67" ] ], | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| [ "esp:D18", "ultrasonic1:ECHO", "green", [ "h77.87", "v80.01", "h110" ] ] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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