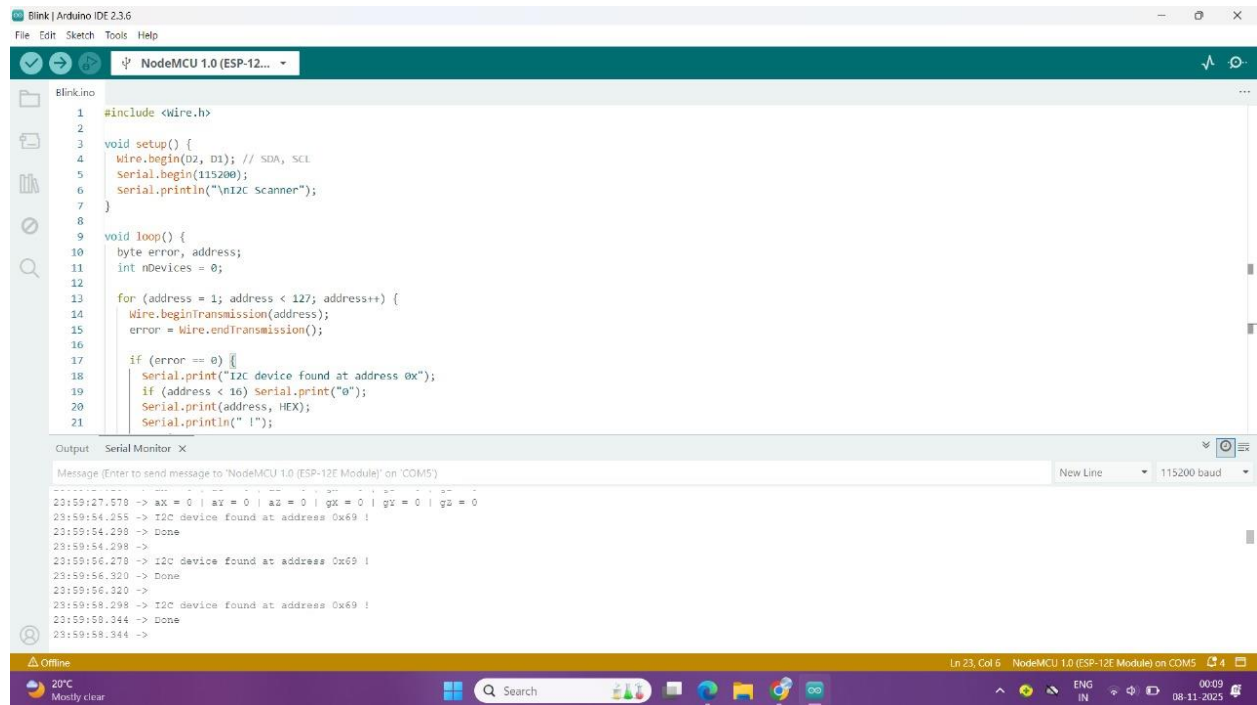


I2C Scan



The screenshot shows the Arduino IDE interface with a sketch named "Blinkino" for a NodeMCU 1.0 (ESP-12E) module. The sketch includes the `Wire` library and implements an I2C scan function in the `loop()`. The `setup()` function initializes the serial port at 115200 baud and prints "I2C Scanner". The `loop()` function iterates through addresses from 1 to 127, sending a transmission and checking for an error. If no error occurs, it prints the address in hexadecimal. The Serial Monitor shows the output of the sketch, indicating that I2C devices were found at addresses 0x69 and 0x68.

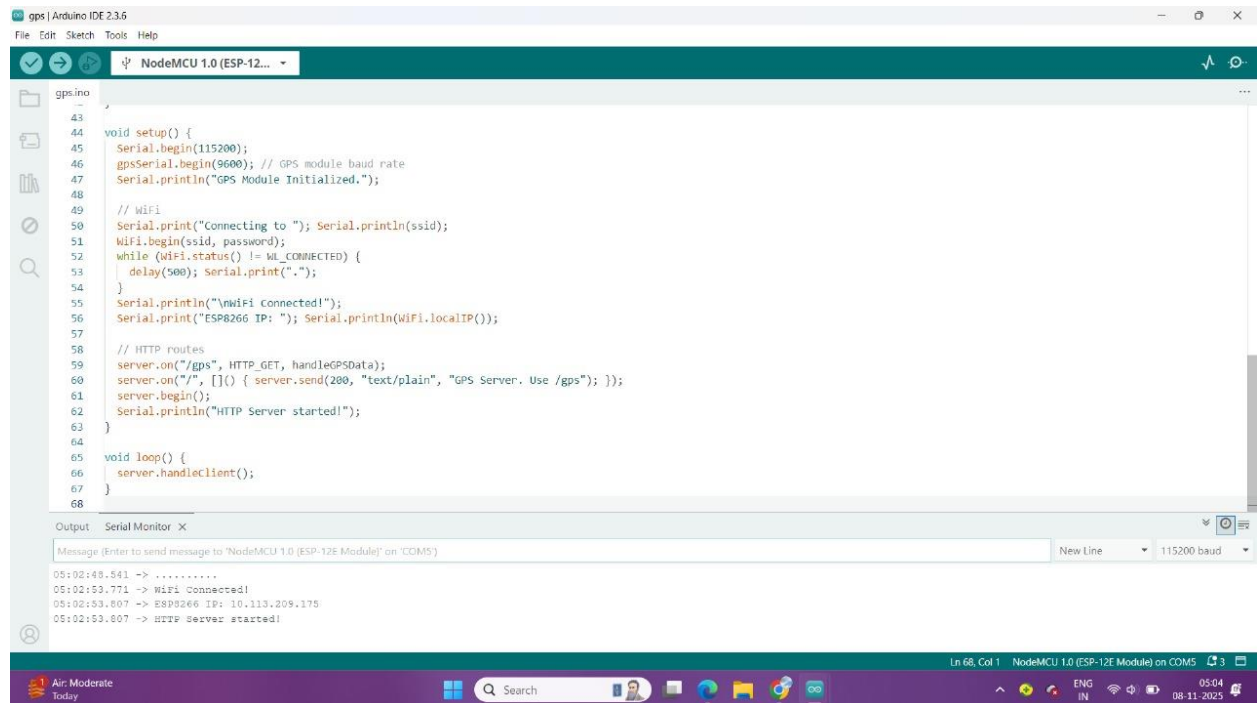
```
1 #include <Wire.h>
2
3 void setup() {
4   Wire.begin(02, 01); // SDA, SCL
5   Serial.begin(115200);
6   Serial.println("I2C Scanner");
7 }
8
9 void loop() {
10  byte error, address;
11  int nDevices = 0;
12
13  for (address = 1; address < 127; address++) {
14    Wire.beginTransmission(address);
15    error = Wire.endTransmission();
16
17    if (error == 0) {
18      Serial.print("I2C device found at address 0x");
19      if (address < 16) Serial.print("0");
20      Serial.print(address, HEX);
21      Serial.println(" !");
22    }
23  }
24 }
```

Output: Serial Monitor X

Message (Enter to send message to "NodeMCU 1.0 (ESP-12E Module)" on "COM5")

23:59:27.570 -> ax = 0 | ay = 0 | az = 0 | gx = 0 | gy = 0 | gz = 0
23:59:54.255 -> I2C device found at address 0x69 !
23:59:54.299 -> Done
23:59:54.299 ->
23:59:56.270 -> I2C device found at address 0x68 !
23:59:56.320 -> Done
23:59:56.320 ->
23:59:58.298 -> I2C device found at address 0x69 !
23:59:59.344 -> Done
23:59:59.344 ->

Wi-Fi Connection



The screenshot shows the Arduino IDE interface with a sketch named "gps.ino" for a NodeMCU 1.0 (ESP-12E) module. The sketch initializes the serial port at 115200 baud and the GPS module at 9600 baud. It then attempts to connect to a Wi-Fi network. Once connected, it prints the local IP address and starts an HTTP server on port 80. The Serial Monitor shows the output of the sketch, indicating that the Wi-Fi connection was successful and the HTTP server started.

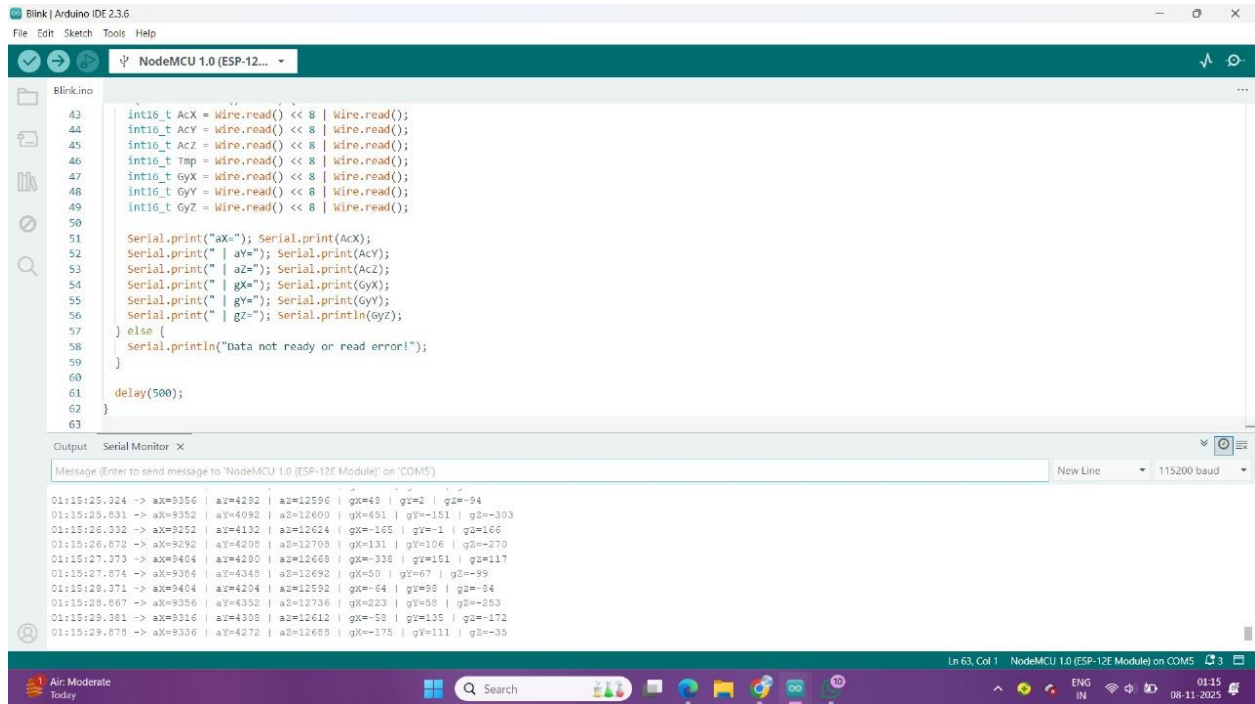
```
43
44 void setup() {
45   Serial.begin(115200);
46   gpsSerial.begin(9600); // GPS module baud rate
47   Serial.println("GPS Module Initialized.");
48
49   // WiFi
50   Serial.print("Connecting to "); Serial.println(ssid);
51   WiFi.begin(ssid, password);
52   while (WiFi.status() != WL_CONNECTED) {
53     delay(500); Serial.print(".");
54   }
55   Serial.println("\nWiFi connected!");
56   Serial.print("ESP8266 IP: "); Serial.println(WiFi.localIP());
57
58   // HTTP routes
59   server.on("/gps", HTTP_GET, handleGPSData);
60   server.on("/", []() { server.send(200, "text/plain", "GPS Server. Use /gps"); });
61   server.begin();
62   Serial.println("HTTP Server started!");
63 }
64
65 void loop() {
66   server.handleClient();
67 }
68
```

Output: Serial Monitor X

Message (Enter to send message to "NodeMCU 1.0 (ESP-12E Module)" on "COM5")

05:02:49.541 ->
05:02:53.771 -> WiFi connected!
05:02:53.807 -> ESP8266 IP: 10.113.209.175
05:02:53.807 -> HTTP Server started!

Sensor Data



```
43 int16_t AcX = Wire.read() << 8 | Wire.read();
44 int16_t AcY = Wire.read() << 8 | Wire.read();
45 int16_t AcZ = Wire.read() << 8 | Wire.read();
46 int16_t temp = Wire.read() << 8 | Wire.read();
47 int16_t gyX = Wire.read() << 8 | Wire.read();
48 int16_t gyY = Wire.read() << 8 | Wire.read();
49 int16_t gyZ = Wire.read() << 8 | Wire.read();
50
51 Serial.print("ax="); Serial.print(AcX);
52 Serial.print(" | ay="); Serial.print(AcY);
53 Serial.print(" | az="); Serial.print(AcZ);
54 Serial.print(" | gx="); Serial.print(gyX);
55 Serial.print(" | gy="); Serial.print(gyY);
56 Serial.print(" | gz="); Serial.println(gyZ);
57 } else {
58   Serial.println("Data not ready or read error!");
59 }
60
61 delay(500);
62 }
63 }
```

Output Serial Monitor X

Message (Enter to send message to 'NodeMCU 1.0 (ESP-12E Module)' on 'COM5')

New Line 115200 baud

```
01:15:25.324 -> ax=9356 | ay=4292 | az=12596 | gx=40 | gy=2 | gz=-94
01:15:25.831 -> ax=9352 | ay=4092 | az=12600 | gx=451 | gy=-151 | gz=-393
01:15:26.332 -> ax=9252 | ay=4132 | az=12624 | gx=-165 | gy=-1 | gz=166
01:15:26.872 -> ax=9292 | ay=4208 | az=12708 | gx=131 | gy=106 | gz=-279
01:15:27.373 -> ax=9404 | ay=4200 | az=12668 | gx=-338 | gy=151 | gz=117
01:15:27.874 -> ax=9384 | ay=4348 | az=12692 | gx=50 | gy=67 | gz=-99
01:15:28.371 -> ax=9404 | ay=4204 | az=12592 | gx=-64 | gy=98 | gz=-64
01:15:28.867 -> ax=9356 | ay=4352 | az=12736 | gx=223 | gy=58 | gz=-253
01:15:29.361 -> ax=9316 | ay=4308 | az=12612 | gx=-58 | gy=136 | gz=-172
01:15:29.878 -> ax=9336 | ay=4272 | az=12688 | gx=-175 | gy=111 | gz=-35
```

API Output

```
{"timestamp":141681,"accel_x":-1,"accel_y":-1,"accel_z":-1,"gyro_x":-1,"gyro_y":-1,"gyro_z":-1,"speed":0}
```

Location Coordinates

Get Your Location

Latitude: 12.9564672
Longitude: 77.594624

Get Location

Final Hardware Output

The image displays two screenshots of the Arduino IDE (Blink) running on a NodeMCU 1.0 (ESP-12E) module. The code in the sketch prints the following data points:

```
Serial.print(" | VelocityX="); Serial.print(velocityX, 2);
Serial.print(" | VelocityY="); Serial.print(velocityY, 2);
Serial.print(" | VelocityZ="); Serial.print(velocityZ, 2);

Serial.print(" | TotalDeceleration="); Serial.print(totalDeceleration, 2);
Serial.print(" | LeanAngle="); Serial.print(leanAngle, 1);
Serial.print(" | AccMag="); Serial.print(accMag, 2);
Serial.print(" | VehicleType="); Serial.println(vehicleType);

Serial.println("-----");
} else {
  Serial.println("Data not ready or read error!");
}
```

The output shows a sequence of data points for an airplane and a motorcycle, with the status changing to 'Offline' in the second screenshot.

First Screenshot Output:

```
09:06:49.651 -> -----
09:06:49.222 -> aX=-1.04 | aY=0.00 | aZ=-0.25 | VelocityX=-20.21 | VelocityY=124.33 | VelocityZ=-39.05 | TotalDeceleration=2.20 | LeanAngle=15.8 | AccMag=1.07 | VehicleType=Aeroplane
09:06:49.268 -> aX=-0.97 | aY=0.07 | aZ=-0.03 | VelocityX=-22.19 | VelocityY=124.47 | VelocityZ=-39.15 | TotalDeceleration=1.99 | LeanAngle=8.0 | AccMag=0.97 | VehicleType=Aeroplane
09:06:49.426 -> aX=-0.99 | aY=0.18 | aZ=0.01 | VelocityX=-24.21 | VelocityY=124.84 | VelocityZ=-39.12 | TotalDeceleration=2.05 | LeanAngle=9.7 | AccMag=1.00 | VehicleType=Aeroplane
09:06:49.675 -> aX=-1.02 | aY=0.37 | aZ=-0.17 | VelocityX=-26.29 | VelocityY=125.59 | VelocityZ=-39.47 | TotalDeceleration=2.25 | LeanAngle=16.0 | AccMag=1.10 | VehicleType=Aeroplane
09:06:49.893 -> aX=-0.44 | aY=0.75 | aZ=-0.41 | VelocityX=-27.19 | VelocityY=127.12 | VelocityZ=-40.30 | TotalDeceleration=1.95 | LeanAngle=22.7 | AccMag=0.96 | VehicleType=Motorcycle
09:06:50.066 -> aX=-0.35 | aY=0.53 | aZ=-0.50 | VelocityX=-27.91 | VelocityY=128.21 | VelocityZ=-41.32 | TotalDeceleration=1.66 | LeanAngle=44.5 | AccMag=0.81 | VehicleType=Motorcycle
09:06:50.298 -> aX=0.52 | aY=0.70 | aZ=-0.62 | VelocityX=-26.04 | VelocityY=129.65 | VelocityZ=-42.60 | TotalDeceleration=2.20 | LeanAngle=61.0 | AccMag=1.07 | VehicleType=Motorcycle
09:06:50.517 -> aX=0.04 | aY=0.07 | aZ=-0.53 | VelocityX=-25.13 | VelocityY=131.49 | VelocityZ=-43.68 | TotalDeceleration=2.69 | LeanAngle=90.4 | AccMag=1.32 | VehicleType=Motorcycle
09:06:50.734 -> aX=0.60 | aY=0.63 | aZ=-0.55 | VelocityX=-23.91 | VelocityY=132.72 | VelocityZ=-44.80 | TotalDeceleration=2.10 | LeanAngle=81.3 | AccMag=1.03 | VehicleType=Motorcycle
09:06:50.922 -> -----
```

Second Screenshot Output:

```
09:08:30.453 -> -----
09:08:30.613 -> aX=-0.79 | aY=-0.52 | aZ=-0.44 | VelocityX=-61.96 | VelocityY=-363.19 | VelocityZ=-123.47 | TotalDeceleration=2.13 | LeanAngle=83.6 | AccMag=1.04 | VehicleType=Aeroplane
09:08:30.655 -> aX=-0.67 | aY=-0.62 | aZ=-0.42 | VelocityX=-63.34 | VelocityY=-364.47 | VelocityZ=-124.32 | TotalDeceleration=2.07 | LeanAngle=81.4 | AccMag=1.01 | VehicleType=Aeroplane
09:08:30.672 -> aX=-0.62 | aY=-0.50 | aZ=-0.43 | VelocityX=-64.60 | VelocityY=-365.49 | VelocityZ=-125.21 | TotalDeceleration=1.85 | LeanAngle=83.1 | AccMag=0.90 | VehicleType=Aeroplane
09:08:31.076 -> aX=-1.02 | aY=-0.24 | aZ=-0.31 | VelocityX=-66.69 | VelocityY=-365.98 | VelocityZ=-125.84 | TotalDeceleration=2.23 | LeanAngle=82.2 | AccMag=1.09 | VehicleType=Aeroplane
09:08:31.278 -> aX=0.88 | aY=-0.32 | aZ=-0.37 | VelocityX=-66.50 | VelocityY=-366.63 | VelocityZ=-126.61 | TotalDeceleration=2.07 | LeanAngle=78.5 | AccMag=1.01 | VehicleType=Aeroplane
09:08:31.497 -> aX=0.89 | aY=-0.34 | aZ=-0.39 | VelocityX=-70.33 | VelocityY=-367.33 | VelocityZ=-127.40 | TotalDeceleration=2.12 | LeanAngle=75.1 | AccMag=1.03 | VehicleType=Aeroplane
09:08:31.658 -> aX=0.59 | aY=-0.10 | aZ=-0.33 | VelocityX=-71.54 | VelocityY=-367.54 | VelocityZ=-128.09 | TotalDeceleration=1.40 | LeanAngle=64.6 | AccMag=0.66 | VehicleType=Scooter
09:08:31.903 -> aX=0.83 | aY=-0.45 | aZ=-0.39 | VelocityX=-73.24 | VelocityY=-368.45 | VelocityZ=-128.89 | TotalDeceleration=2.09 | LeanAngle=68.8 | AccMag=1.02 | VehicleType=Aeroplane
09:08:32.092 -> aX=0.86 | aY=-0.44 | aZ=-0.40 | VelocityX=-74.99 | VelocityY=-369.36 | VelocityZ=-129.71 | TotalDeceleration=2.14 | LeanAngle=53.7 | AccMag=1.04 | VehicleType=Aeroplane
09:08:32.323 -> -----
```

The status bar at the bottom of the IDE indicates the module is 'Offline'.