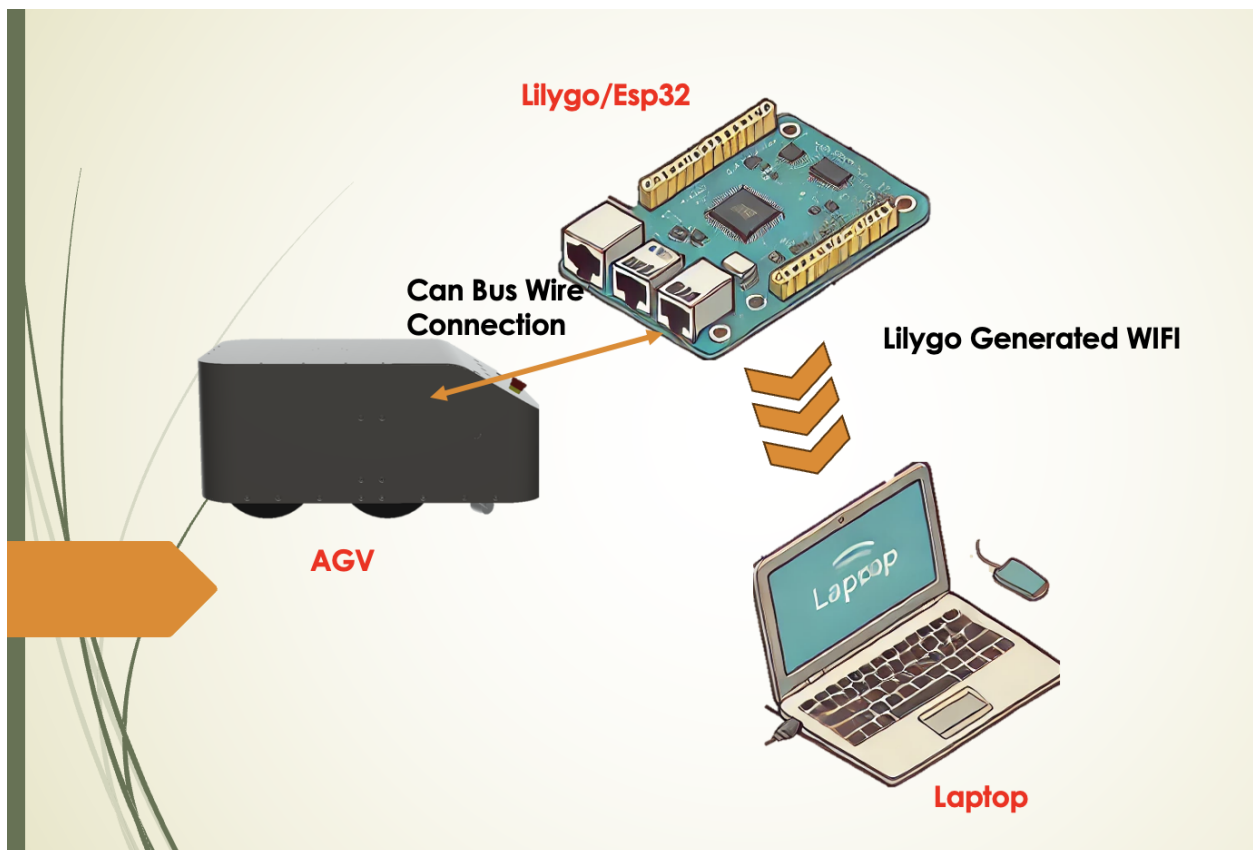


# AGV Control Instruction

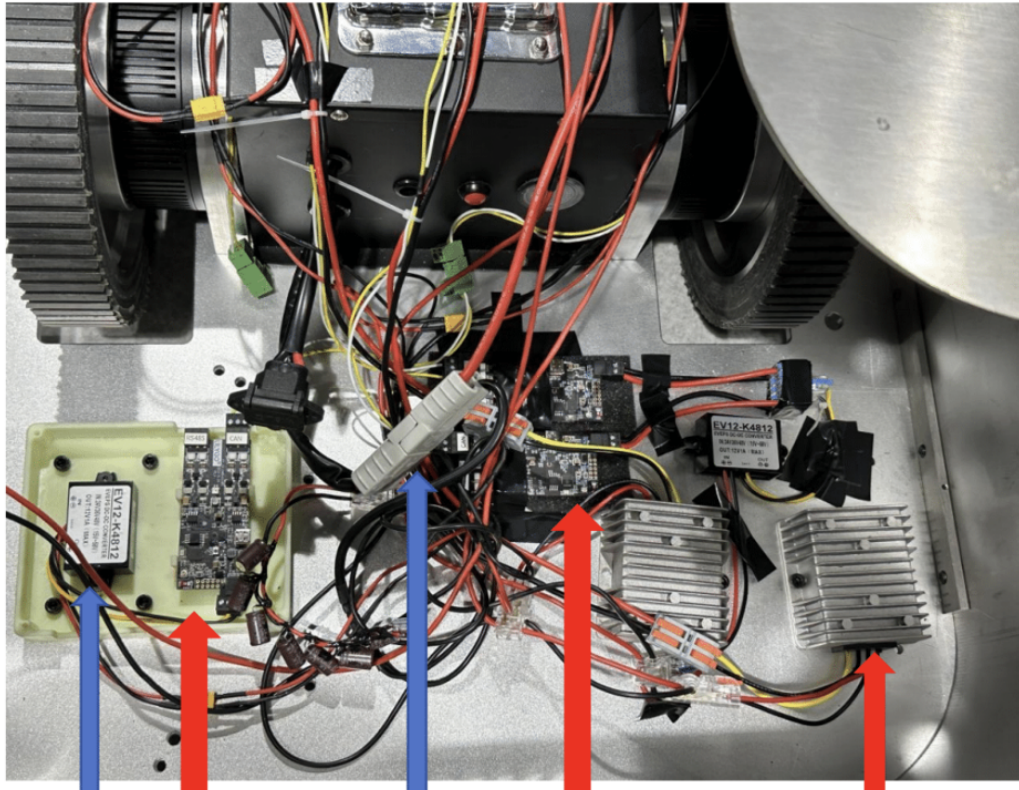
There is 4 steps in control our AGV through Code

## 1: System Overview

To control the AGV, we have developed a method using a LilyGo WiFi module for computer-based control. Simply put, the LilyGo module creates a local area network (LAN) to which the AGV connects. By accessing the static IP address of the LilyGo module, we can control the AGV directly from the computer. The setup is illustrated in the diagram below.



## 2: LilyGo Connection



48V-12V Adapter   Lilygo for AGV   Power   Lilygo for Robotic arm   48V-24V Adapter

We primarily use the LilyGo module for AGV (Automated Guided Vehicle) control. All that's needed is a USB-A to MicroUsb cable to connect the LilyGo module to the computer.

### 3: Code

We can find the AGV control code here: [LINK](#)

In the AGV control code,

---

```

1  #include "test.h"
2  #include <DNSServer.h>
3  #include <ESPUI.h>
4  #include "Freenove_WS2812_Lib_for_ESP32.h"
5
6  const byte DNS_PORT = 53;
7  IPAddress apIP(192, 168, 4, 1);
8  DNSServer dnsServer;
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'''
178      // not connected -> create hotspot
179      if (WiFi.status() != WL_CONNECTED)
180      {
181          Serial.print("\n\nCreating hotspot");
182
183          WiFi.mode(WIFI_AP);
184          delay(100);
185          WiFi.softAPConfig(apIP, apIP, IPAddress(255, 255, 255, 0));
186      }
187      #if defined(ESP32)

```

We manually assign and modify the `apIP` static IP address, then create a WiFi hotspot (Access Point mode) and configure the related IP address and other parameters. After uploading the code to the development board, we can observe the process using the serial monitor.

```
ELF file SHA256: c65ca84b5ff9c0bc
```

```
Rebooting...
```

```
ets Jul 29 2019 12:21:46
```

```
rst:0xc (SW_CPU_RESET),boot:0x13 (SPI_FAST_FLASH_BOOT)
```

```
config: 0, SPIWP:0xee
```

```
clk_drv:0x00,q_drv:0x00,d_drv:0x00,cs0_drv:0x00,hd_drv:0x00,wp_drv:0x00
```

```
mode:DIO, clock div:2
```

```
load:0x3fff0030,len:1184
```

```
load:0x40078000,len:13232
```

```
load:0x40080400,len:3028
```

```
entry 0x400805e4
```

```
Try to connect to existing network.....
```

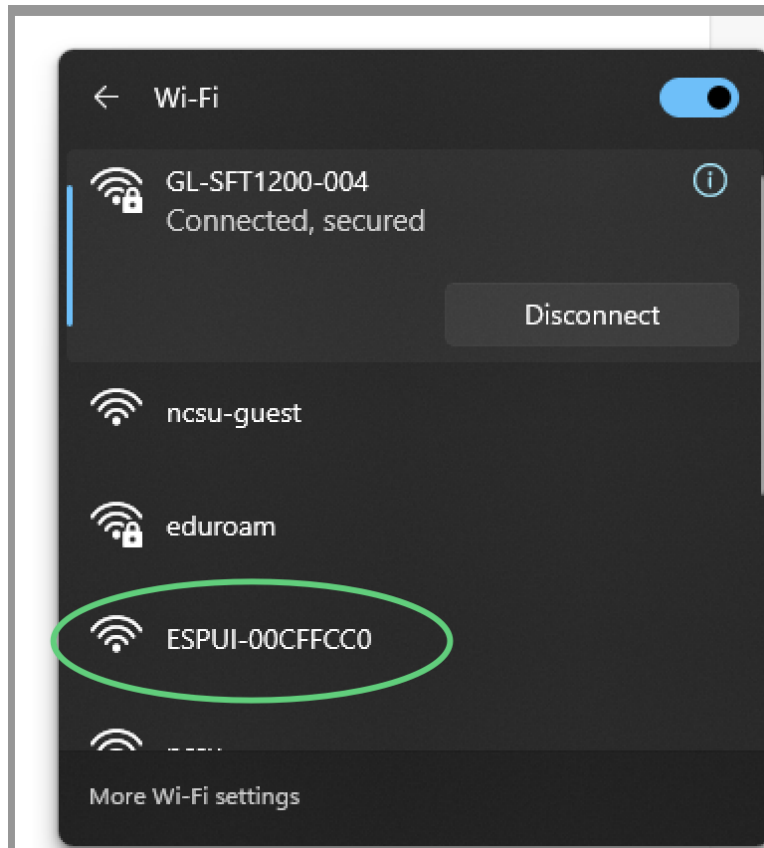
```
Creating hotspot.....
```

```
WiFi parameters:
```

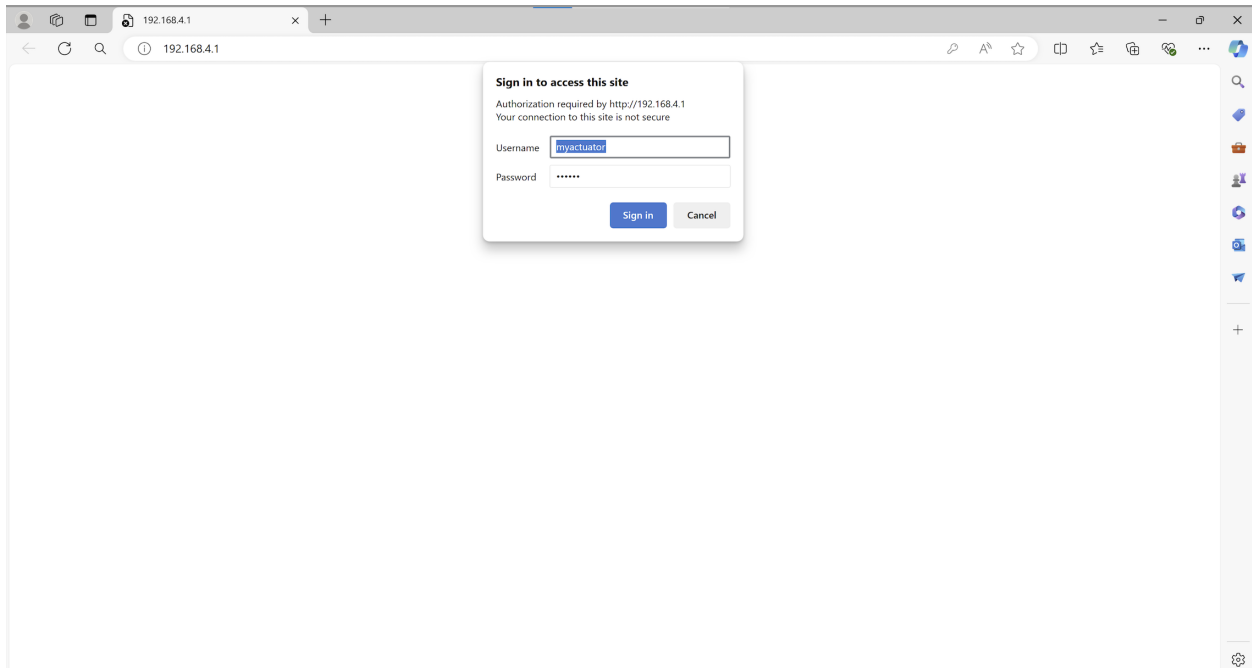
```
Mode: Station
```

```
IP address: 192.168.4.1
```

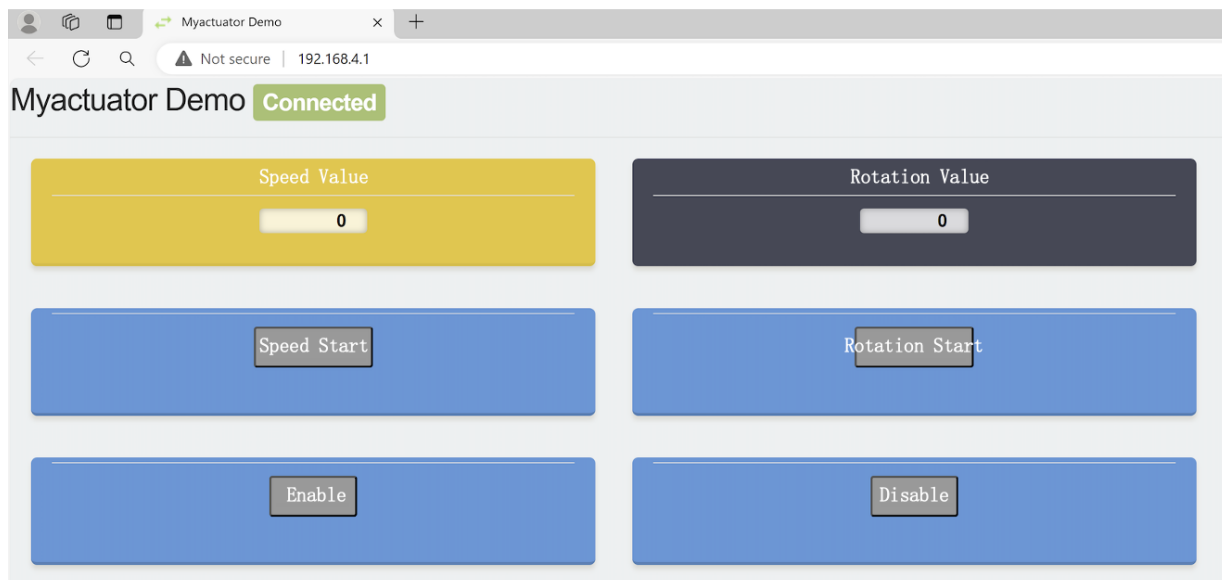
Then, we need to use our laptop to connect to the wifi generated by Lilygo, it should be like following:



Once connected, access the static IP address we assigned. In this case, it is `192.168.4.1`. By entering this address in the browser, a login prompt will appear. The username we set is `myactuator` and the password is `123456`.



Next, the successful login interface appears as shown in the image. Set the values for **speed value** (0-50) and **rotation value** (-15 to 15). Click **enable**, and then click **speed start** or **rotation start** to begin. To stop, click **disable**.



## 4: Start AGV

The black switch has a white line on it. When the line is aligned in the green direction, the power is off. When aligned in the black direction, it turns on with battery power. When aligned in the orange direction, it switches to external power (not in use and can be ignored).

