Esp32 Brain

Code running on the main controller.

Working Environment

Tools:

- Enveronment: `PlatformIO`
- Framework: `Arduino`
- Code editor: `Visual Studio Code`
- MQTT Broker: `shiftr.io`

Hardware:

- Mcu: `ESP 32`

How to build and Flash

Setup Visual studio Code

The VS code setup Instructions are available in Getting Started.

- Setup Visual studio code according to the Host operating system.
- Install PlatformIo extension inside VS code
- Make sure that ESP32 Dev Module is selected, and Framework as Arduino

Building and Flashing Application:

To build the application, clone the `affbotics_software` repo and go to the folder `ESP32_AGV_brain`

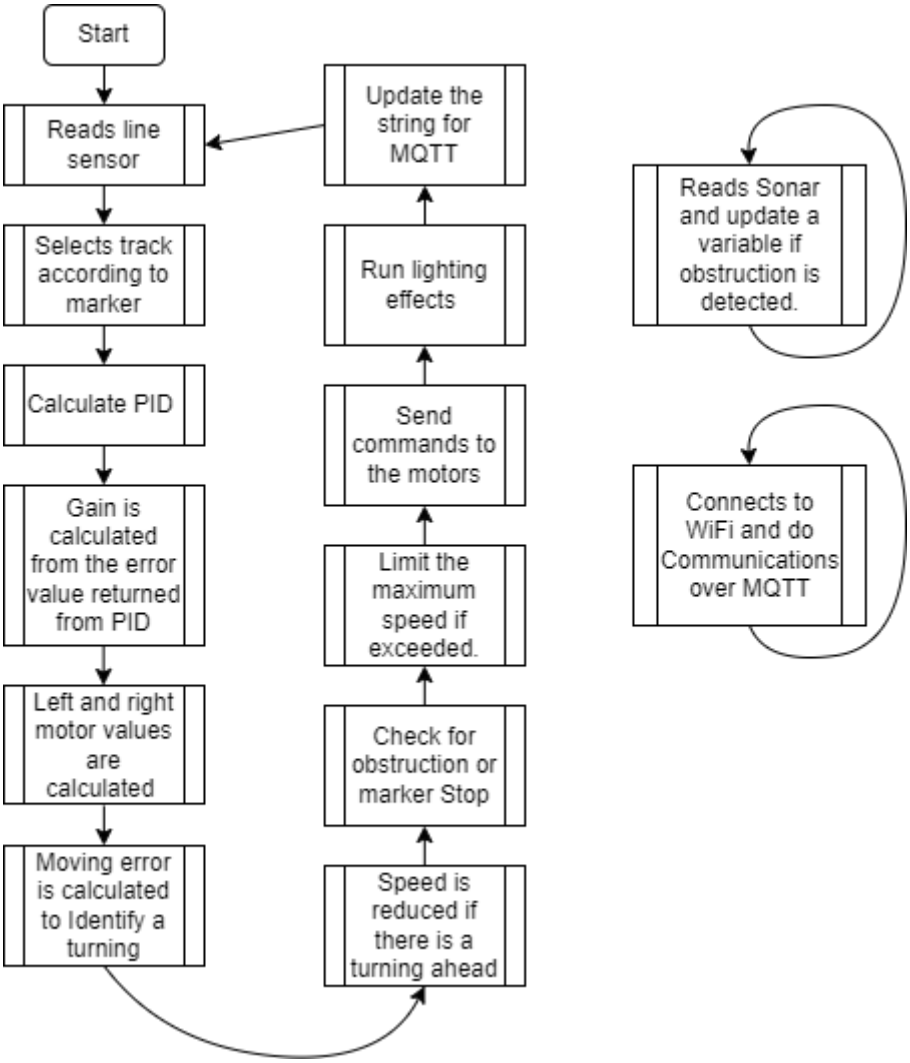
- Pull the repository locally
- Navigate to the directory `affbotics_software/firmware/avg/ESP32_AGV_brain/`
- Select the COM port
- Click Upload

Program Flow

Basic Workflow:

Firmware is present in `affbotics_software/firmware/avg/ESP32_AGV_brain/src/main.cpp`

- Esp32 will connect to the wifi when booted
- It will read the line sensor and Ultrasonic sensor calculate the values and sends commands to the motor via Modbus



Am a Geek:

- WiFi ssid and password can be changed by editing `const char ssid[]` and `const char pass[]`
- MQTT broker can be changed by editing the line `client.connect("esp32", "public", "public" ))` and `client.begin("public.cloud.shiftr.io", net);`
- PID values can be tweaked by changing values of variabled `kp, ki, kd`