Installation

Core Python Setup

Python 3.10+

Download from https://www.python.org/downloads/

(Make sure to check "Add Python to PATH" during installation.)

IDEs:

i. VS Code
   - Install from https://code.visualstudio.com/
   - Extensions: Python, Pylance, Jupyter
ii. PyCharm Community Edition
iii. Jupyter Notebook

Core C++ Setup

C++ Compiler

1. MinGW (GCC for Windows)

- Download: https://www.mingw-w64.org/
- After installation, add the bin path (e.g., C:\mingw64\bin) to your System Environment Variables → PATH.

2. For macOS/Linux: preinstalled g++ works fine (sudo apt install g++ for Ubuntu).

IDEs:

i. Code::Blocks
ii. VS Code

Core Java Setup

Java Development Kit (JDK 17 or 21)

- Download: https://www.oracle.com/java/technologies/downloads/
- During installation, ensure you add Java to PATH or enable "Set JAVA_HOME".

IDE

i. IntelliJ IDEA Community Editio
ii. Eclipse IDE for Java Developers
iii. VS Code

Installation

Embedded C

Hardware requirements

- Stm32F103C8T6 development board
- ST link V2 programmer for stm8 and stm32 boards
- Jumper wires
- Bread board
- Sensor
- LED
- ULTRASONIC HC-SR04
- 16x2 lcd display with I2c interface
- Dht22 sensor