3D Indoor Mapping

Sensors
Actuators
Motors

During setup, the IMU sends the calibration status of all the system, accelerometer, gyroscope and magnetometer. Each one from 0 to 3
(0 – Non Calibrated;
3 – Fully Calibrated)

IMU (BNO055)

LIDAR (Tfmini-S)

I2C Communication
Pitch, Roll, Yaw (radians)

USART Communication
Distance (mm)

Microcontroller (ESP32)

-> Coordinates of the point separated by spaces (ex:0 0 0)
<- User Interface Parameters and Commands
Wifi / Socket Communication

WorkStation

Local Area Network or ESP32
as Access Point?
Test both performances

Pulse / Step

Pulse / Step

During the setup, it will choose step-mode:

1/1 Steps
½ Steps
¼ Steps
1/8 Steps
1/16 Steps
1/32 Steps

Motor Driver (DRV8825)

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Base / Yaw Motor

Side / Pitch Motor

User Interface

Setup parameters

Start/Stop Scan

Data Visualization (VTK)

Save Data

All sensors available outputs

IMU (BNO055)

- Calibration Status (0 to 3)
- Accelerometer (m/s)
- Gyrsoscope (deg/s or rad/s)
- Magnetometer (uTesla)
- Euler Angles (degrees or radians)
- Quaternions (unit quaternion)
- Linear Acceleration (m/s)
- Gravity Vector (m/s^2)
- Temperature (Celsius or Fahrenheit)

LIDAR (Tfmini-S)

- Distance (cm or mm)
- Strength of the signal (0-65535)
- Temperature (Celsius or Fahrenheit)