IIoT Gateway

Jan 03, 2022

Overview

An IIoT Gateway is wirelessly connected to the global Internet, collecting data from all aspects of a process and sharing it with a central server. This data enables analysis and action that has been heretofore unseen, resulting in increased efficiency and productivity

Goals

1. **Implement MQTT to publish data to the cloud**
2. **Add Config file to retrofit on any use case**
3. **Json supported packet structure for payload.**
4. **Add Unit Testcases**

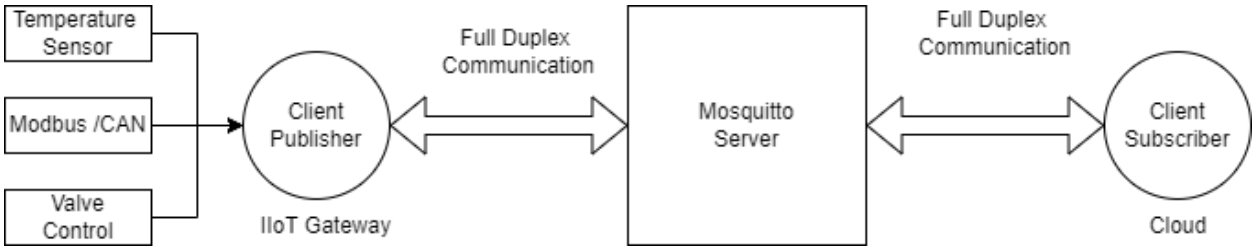
Specifications

- **OS** : Ubuntu
- **Library Used** : LibJson-c,LibConfig,Paho MQTT C , GTEST
- **Build**: CMake

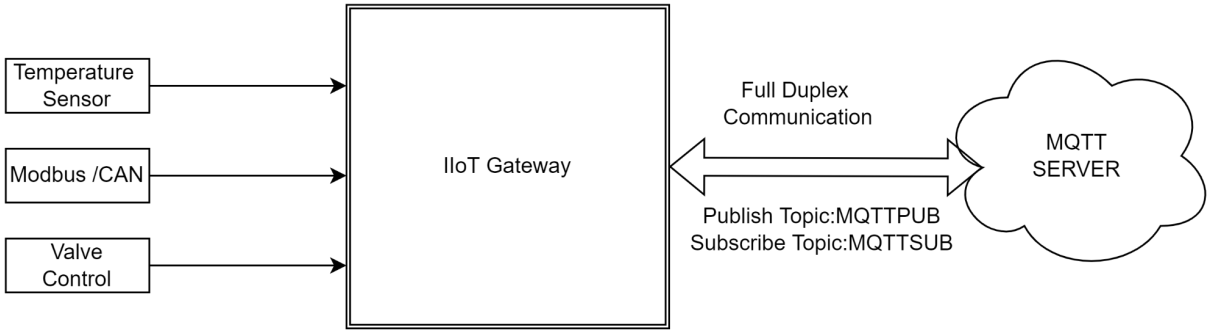
Function Definition

Architectecture specification(static view)

The functionality of the IIoT gateway implements the data acquisition from the sensors through Modbus/SPI/CAN/Digital inputs etc based on the required criteria .The data is then send to the Cloud via MQTT protocol for further data processing and data analytics.



Physical Overview



Functional Description

Packet Structure

The IIoT gateway uses JSON format for payload transactions, the Structure is as follows

{

"**Client_ID**":"{Name of Client to be Connected}",

"**Publish_Topic**":"{Topic name}",

"**Time_Stamp**":"{TimeStamp}",

"**Sensor_data**":{

"**Temperature_Sensor**":{Data},

"**Modbus_Sensor**":{Data},

"**Smoke_Sensor**":{Data},

{Add all the Sensor data in this Payload Structure}

"**Interval**":{Interval to fetch data from sensor}

}

}

Configuration file

The IIoT gateway can be configured with the configuration file for ease of change in settings and deployment.

The Conf.cfg contains the template for the configuration file.

Unit Test

The Unit test is done with the Google test framework.