Project Connect

Generated by Doxygen 1.8.13

Contents

Chapter 1

Project_connect

Based on MQTT and QT Framework this projet contains all applications for gateway and sensor

I. Gateway Message router between the graphics application and the sensors

II. Sensor Air Quality Transmitting the quality of the air

II. Sensor Flame Detector/ BarGraph Alert the graphic application of fire detection and receives the air quality to display

III. Sensor Environnemental Transmitting pressure, temperature, and humidity

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 4

File Index

4.1 File List

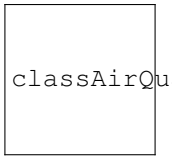
Here is a list of all documented files with brief descriptions:

Chapter 5

Class Documentation

5.1 AirQuality Class Reference

Inheritance diagram for AirQuality:



Public Slots

- void **readSensor** ()
- void **timerSlot** ()

Signals

- void **onDataSensor** (QString topic, QJsonObject payload)

Public Member Functions

- QString **readCo2** ()
- QString **readTvoc** ()

The documentation for this class was generated from the following files:

- /home/thomas/Documents/M2/Archi_logiciel/project_connect/airquality/airquality.h
- /home/thomas/Documents/M2/Archi_logiciel/project_connect/airquality/airquality.cpp

5.2 Gateway Class Reference

Inheritance diagram for Gateway:

Public Slots

- void **onMessage** (QMqttMessage message)

Public Member Functions

- **Gateway** (QString address, quint16 port, QList< QString > topicList)

The documentation for this class was generated from the following files:

- /home/thomas/Documents/M2/Archi_logiciel/project_connect/gateway/gateway.h
- /home/thomas/Documents/M2/Archi_logiciel/project_connect/gateway/gateway.cpp

5.3 MqttCom Class Reference

Inheritance diagram for MqttCom:

Public Slots

- void **onMessage** (QMqttMessage message)
- void **onMeasureSensor** (QString topic, QJsonObject jsonData)

Public Member Functions

- **MqttCom** (QString address, quint16 port, QList< QString > topicList)

Additional Inherited Members

The documentation for this class was generated from the following files:

- /home/thomas/Documents/M2/Archi_logiciel/project_connect/airquality/mqttcom.h
- /home/thomas/Documents/M2/Archi_logiciel/project_connect/airquality/mqttcom.cpp

5.4 MqttHandler Class Reference

The MqttHandler class.

`#include <mqtthandler.h>`

Inheritance diagram for MqttHandler:

Public Slots

- virtual void onMessage (QMqttMessage message)

  onMessage

Public Member Functions

- MqttHandler (QString &address, quint16 port, QList< QString > topicList)

  MqttHandler.
- ~MqttHandler ()

  Destroy the Mqtt Handler:: Mqtt Handler object.
- void publishData (QString &topic, QJsonObject &jsonData)

  publishData

Public Attributes

- QMqttClient * m_client

  m_client

5.4.1 Detailed Description

The MqttHandler class.

5.4.2 Constructor & Destructor Documentation

5.4.2.1 MqttHandler()

```
MqttHandler::MqttHandler (
            QString & address,
            quint16 port,
            QList< QString > topicList )
```

MqttHandler.

Construct a new Mqtt Handler:: Mqtt Handler object.

Parameters

address	
port	
topicList	

5.4.3 Member Function Documentation

5.4.3.1 onMessage

```
void MqttHandler::onMessage (
            QMqttMessage message )  [virtual], [slot]
```

onMessage

Parameters

message	

5.4.3.2 publishData()

```
void MqttHandler::publishData (
            QString & topic,
            QJsonObject & jsonData )
```

publishData

Parameters

topic	
jsonData	

The documentation for this class was generated from the following files:

- /home/thomas/Documents/M2/Archi_logiciel/project_connect/mqtthandler/mqtthandler.h
- /home/thomas/Documents/M2/Archi_logiciel/project_connect/mqtthandler/mqtthandler.cpp

5.5 MqttSensor Class Reference

The MqttSensor class.

`#include <MqttSensor.h>`

Inheritance diagram for MqttSensor:

Public Slots

- void onMessage (QMqttMessage message) override
  MqttSensor::onMessage.
- void dataPublish (QString Topic, QJsonObject data)
  MqttSensor::data_publish.

Public Member Functions

- MqttSensor (QString address, quint16 port, QList< QString > topicList)
  MqttSensor::MqttSensor.

Additional Inherited Members

5.5.1 Detailed Description

The MqttSensor class.

class allow connection of class

5.5.2 Constructor & Destructor Documentation

5.5.2.1 MqttSensor()

```
MqttSensor::MqttSensor (
            QString address,
            quint16 port,
            QList< QString > topicList )
```

MqttSensor::MqttSensor.

Parameters

address	address ip of gateway
port	1883
topicList	all topics using by the mqtt protocol

5.5.3 Member Function Documentation

5.5.3.1 dataPublish

```
void MqttSensor::dataPublish (
            QString Topic,
            QJsonObject data )  [slot]
```

MqttSensor::data_publish.

Parameters

Topic	
data	function transmit data via mqtt protocol

5.5.3.2 onMessage

```
void MqttSensor::onMessage (
            QMqttMessage message )  [override], [slot]
```

MqttSensor::onMessage.

Parameters

message	Function receiving data via mqtt protocol

The documentation for this class was generated from the following files:

- /home/thomas/Documents/M2/Archi_logiciel/project_connect/bme280/MqttSensor.h
- /home/thomas/Documents/M2/Archi_logiciel/project_connect/bme280/MqttSensor.cpp

5.6 Sensor Class Reference

The Sensor class.

`#include <Sensor.h>`

Inheritance diagram for Sensor:

Public Slots

- void onMessage (QMqttMessage message) override

  Sensor::onMessage treatement of the message receive.
- void SendData (QString, QJsonObject)

  SendData.

Public Member Functions

- Sensor ()

  Sensor::Sensor function collect the different class declaration of both class for connect call all the function for the sending of data.
- ∼Sensor ()

  Sensor::∼Sensor.
- Sensor (QString address, quint16 port, QList< QString > topicList)

  Construct a new Inter Obj:: Inter Obj object this function make the connection beetween Receivedata and CommMqtt.

Additional Inherited Members

5.6.1 Detailed Description

The Sensor class.

connect the mqtt protocol and the data of sensor

5.6.2 Constructor & Destructor Documentation

5.6.2.1 Sensor() [1/2]

```
Sensor::Sensor ( )
```

Sensor::Sensor function collect the different class declaration of both class for connect call all the function for the sending of data.

Parameters

parent	

5.6.2.2 Sensor() [2/2]

```
Sensor::Sensor (
            QString address,
            quint16 port,
            QList< QString > topicList )
```

Construct a new Inter Obj:: Inter Obj object this function make the connection beetween Receivedata and Comm↩ Mqtt.

Parameters

parent	

object gpio chip

5.6.3 Member Function Documentation

5.6.3.1 onMessage

```
void Sensor::onMessage (
            QMqttMessage message )  [override], [slot]
```

Sensor::onMessage treatement of the message receive.

Parameters

message	data receive from a pc

5.6.3.2 SendData

```
void Sensor::SendData (
            QString topic,
            QJsonObject msg )  [slot]
```

SendData.

Sensor::SendData Call the method publish of MqttHandler to send data to the gateway.

Parameters

topic	name of the topic where we want to send message
msg	data to send, in QJsonObject

The documentation for this class was generated from the following files:

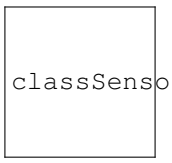
- /home/thomas/Documents/M2/Archi_logiciel/project_connect/bme280/Sensor.h
- /home/thomas/Documents/M2/Archi_logiciel/project_connect/bme280/Sensor.cpp

5.7 SensorGpioData Class Reference

The ReceiveData class.

```
#include <SensorGpioData.h>
```

Inheritance diagram for SensorGpioData:



Public Slots

- void GpioEvent ()

  ReceiveData::timerEvent this function are call when the timer is over, it take the bool flame pin value and send it.

Signals

- void **DataGpioReady** (QString, QJsonObject)

Public Member Functions

- SensorGpioData ()

  Construct a new My Timer:: My Timer object.

5.7.1 Detailed Description

The ReceiveData class.

5.7.2 Constructor & Destructor Documentation

5.7.2.1 SensorGpioData()

```
SensorGpioData::SensorGpioData ( )
```

Construct a new My Timer:: My Timer object.

Parameters

parent	

object gpio chip

The documentation for this class was generated from the following files:

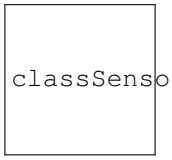
- /home/thomas/Documents/M2/Archi_logiciel/project_connect/flameGraph/SensorGpioData.h
- /home/thomas/Documents/M2/Archi_logiciel/project_connect/flameGraph/SensorGpioData.cpp

5.8 SensorValue Class Reference

The SensorValue class.

```
#include <SensorValue.h>
```

Inheritance diagram for SensorValue:



Public Slots

- void dataSensor ()

  SensorValue::dataSensor read and convert data.
- void send (QJsonObject)

  SensorValue::send send data with mqtt protocol the jobject of data sensor function will be send with this emit.
- double stringToValue (QString)

  SensorValue::stringtovalue function of conversion and reading in file the file contains the value of differents sensor.
- double castValue (double, int)

  SensorValue::cast_value function allow choice the number after the comma.

Signals

- void **dataChanged** (QString, QJsonObject)

Public Member Functions

- SensorValue ()

  SensorValue::SensorValue function in interruption and called the function reading after a time define.

Public Attributes

- QFile **file**
- QTextStream **flux**
- QTimer ∗ **timer**

5.8.1 Detailed Description

The SensorValue class.

set up the reading and emit the data to mqtt protocol

5.8.2 Constructor & Destructor Documentation

5.8.2.1 SensorValue()

```
SensorValue::SensorValue ( )
```

SensorValue::SensorValue function in interruption and called the function reading after a time define.

QObject::connect connect timer with the function who will be called

5.8.3 Member Function Documentation

5.8.3.1 castValue

```
double SensorValue::castValue (
            double valeur,
            int n )  [slot]
```

SensorValue::cast_value function allow choice the number after the comma.

Parameters

valeur	contains the value who will be convert
n	number de digits after the comma

Returns

return the value with a cast

5.8.3.2 dataSensor

```
void SensorValue::dataSensor ( )  [slot]
```

SensorValue::dataSensor read and convert data.

add topics who will be use for the data sending

5.8.3.3 send

```
void SensorValue::send (
            QJsonObject dataSensor )  [slot]
```

SensorValue::send send data with mqtt protocol the jobject of data sensor function will be send with this emit.

Parameters

data_sensor	contains the data which must be send

5.8.3.4 stringToValue

```
double SensorValue::stringToValue (
            QString path )  [slot]
```

SensorValue::stringtovalue function of conversion and reading in file the file contains the value of differents sensor.

Parameters

path	contains the path which will be open

Returns

the value contains in the file but in double type

The documentation for this class was generated from the following files:

- /home/thomas/Documents/M2/Archi_logiciel/project_connect/bme280/SensorValue.h
- /home/thomas/Documents/M2/Archi_logiciel/project_connect/bme280/SensorValue.cpp

Chapter 6

File Documentation

6.1 /home/thomas/Documents/M2/Archi_logiciel/project_connect/bme280/MqttSensor.cpp File Reference

A Document file.

```
#include "MqttSensor.h"
```

6.1.1 Detailed Description

A Document file.

Author

Eric Rebillon (eric.rebillon@ynov.com)

6.2 /home/thomas/Documents/M2/Archi_logiciel/project_connect/bme280/MqttSensor.h File Reference

A Document file.

```
#include <QList>
#include "mqtthandler.h"
```

Classes

- class MqttSensor

  The MqttSensor class.

6.2.1 Detailed Description

A Document file.

Author

Eric Rebillon (eric.rebillon@ynov.com)

6.3 /home/thomas/Documents/M2/Archi_logiciel/project_connect/bme280/SensorValue.cpp File Reference

A Document file.

```
#include "SensorValue.h"
```

6.3.1 Detailed Description

A Document file.

Author

Eric Rebillon (eric.rebillon@ynov.com)

6.4 /home/thomas/Documents/M2/Archi_logiciel/project_connect/bme280/SensorValue.h File Reference

A Document file.

```
#include <QFile>
#include <QTextStream>
#include <QString>
#include <QEvent>
#include <QTimer>
#include <QList>
#include <QDebug>
#include <QJsonObject>
#include <QtMath>
```

Classes

- class SensorValue

  The SensorValue class.

Macros

- #define **PATH_TEMPERATURE** "/sys/bus/iio/devices/iio\:device0/in_temp_input"
- #define **PATH_PRESSIURE** "/sys/bus/iio/devices/iio\:device0/in_pressure_input"
- #define **PATH_HUMIDITY** "/sys/bus/iio/devices/iio\:device0/in_humidityrelative_input"
- #define **PATH_TEST** "/home/eric/Master1/workspace/Cpp_project_archi_logicielle/fichier_sim_bme_280.↩ txt"
- #define **TOPIC_TEMPERATURE** "/sensor/temperature"
- #define **TOPIC_HUMIDITY** "/sensor/humidity"
- #define **TOPIC_PRESSIURE** "/sensor/pressure"
- #define **TOPIC_ENVIRONMENT** "/sensor/environment"
- #define **TMP_TIMER** 3000

6.4.1 Detailed Description

A Document file.

Author

Eric Rebillon (eric.rebillon@ynov.com)