

Industrial Communication based on MQTT and Modbus Communication applied in a Meteorological Network

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1st Juan Naula *GIHP4C, Universidad Politecnica Salesiana, Cuenca, Ecuador*
jnaulas@ups.edu.ec

Abstract—In this paper, we propose an architecture to enable hierarchical sensors networks that use MQTT protocol for sensors data acquisition interact with the MODBUS protocol to send information to the SCADA system. The proposed architecture implemented with three stages. In the first stage, we configure the MQTT protocol in sensors. In the second stage, we configure the middleware to transport the data to SCADA system by MODBUS protocol. And in the third stage, the SCADA system is implemented. We conclude that the architecture proposed is feasible to hierarchical sensor networks that used the MQTT protocol and interacts with MODBUS industrial networks.

Index Terms—MQTT, modbus, industrial communication, SCADA.

I. INTRODUCTION

The Internet of Things (IoT) will change the way we live, its technological impact will give intelligence to almost everything things and will allow the development of cloud computing since more data can be collected, stored and analyzed than ever before, as described by authors in [1].

In this regard, as described in [?], [2] the IoT is growing and is expected that by 2020 there will be more than two billion devices connected to Internet. In the same way, in [3], [4]–[6], the authors emphasize that interconnected things uses existing Internet standards to provide information transfer services, analysis, applications and communications, i.e., not only collects information from the environment (detection) to interact with the physical world (action/command/control) independently.

II. GENERAL SYSTEM ARCHITECTURE

In Fig. 1 we showed the General System Architecture above described.

A. Algorithm

III. PSEUDOCODE

• Python

```
## Programa que escriba numetos
## impares desde 100 hasta la unidad
## y calcule la suma
```

• C

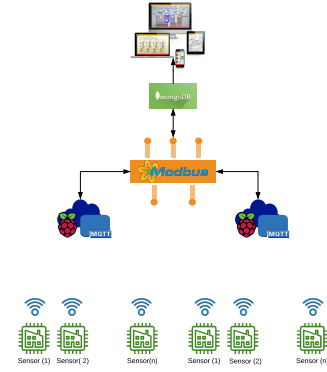


Fig. 1: general System Architecture

Algorithm 1: How to write algorithm

Result: Write here the result

initialization;

while while condition **do**

instructions;

if condition **then**

instructions 1;

instructions 1;

else

instruction3;

end

end

n=100

def mi_funcion(n, acum):

acum:0

while n>=1:

if n%2 !=0:

print n

acum +=n

n-=1

print 'y su suma es: ' + str(acum)

mi_funcion(n)

#include <stdio.h>

```
#define N10
/*
Comenrario en un bloque
*/
int main()
{
int i;

//line coment
puts(hola mundo);
for(i=0; i<N; i++)
{
puts("\LaTeX_es_genial
para_los_
programadores");
}
return 0;
}
```

A. TIKZ

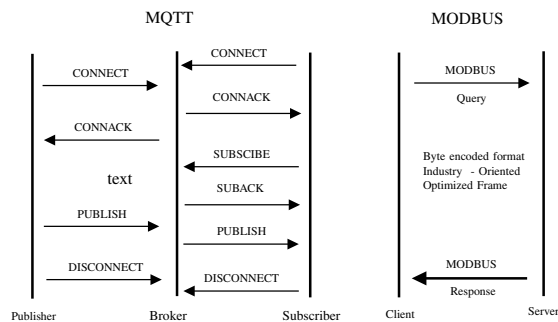


Fig. 2: Caption

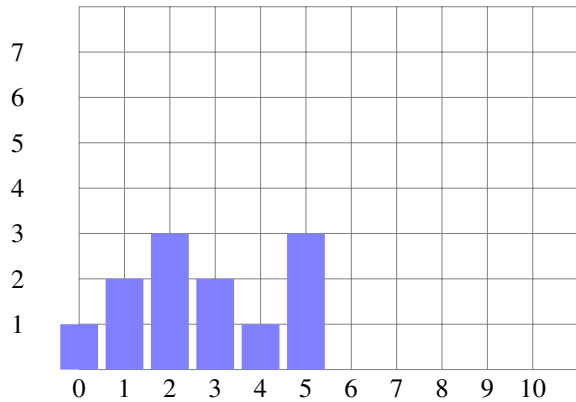


Fig. 3: Confusion matrix

ACKNOWLEDGMENT

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REFERENCES

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