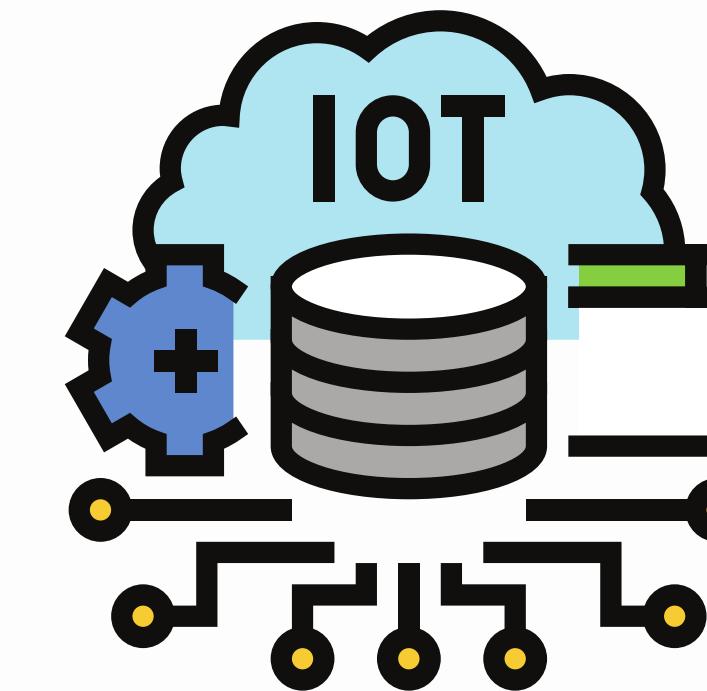
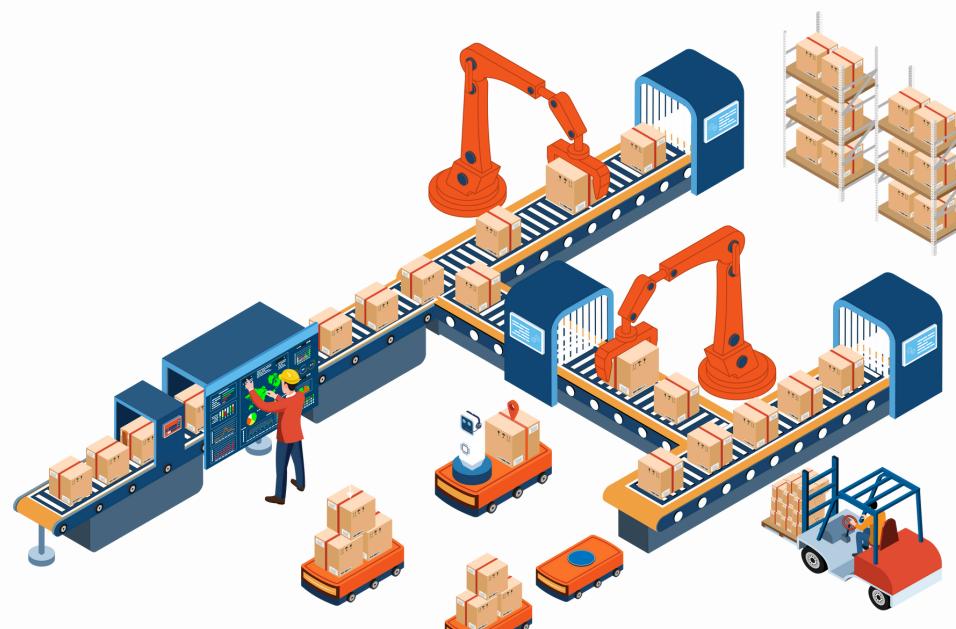


AT83.9002: Industrial IoT: Machine Development and Industrial Application

Project Presentation



Members:

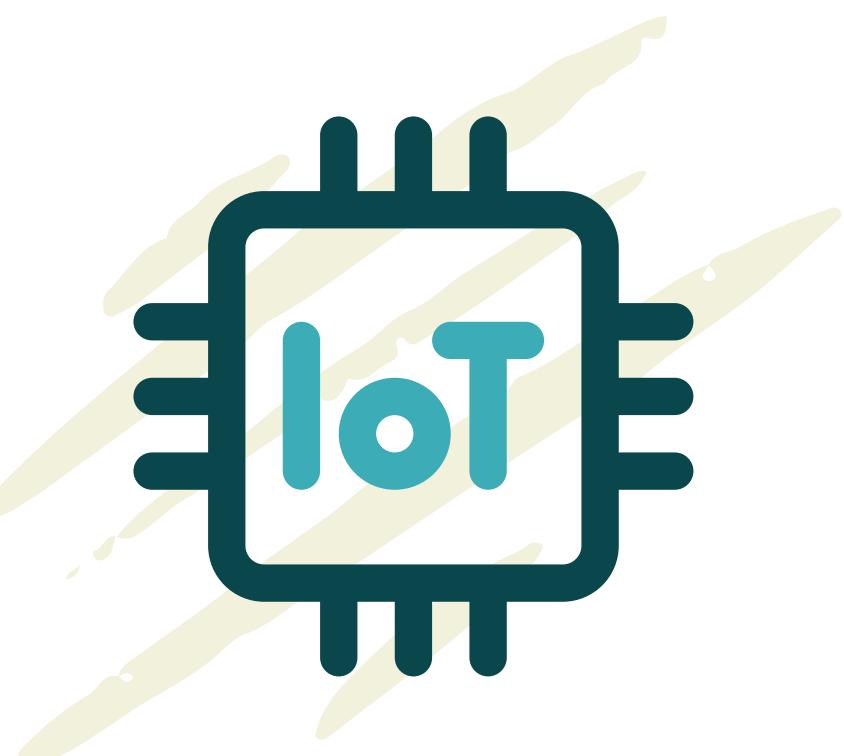
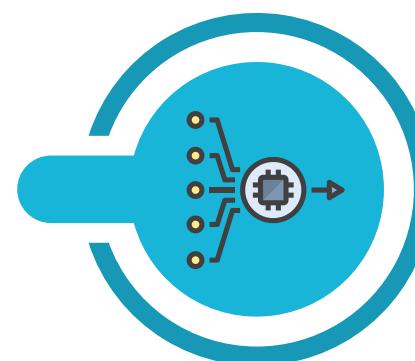
- Pyae Sone - st122645
- Thang Sian Hoih - st124473
- Thang Sian Khawm - st124642
- Sat Naing Tun - st125333

Date: 21.11.2024 (Thursday)

WORKFLOW

01 Input

- collect data from PLC starter-kit
- s7 protocol
- modbus protocol



02 Database

- InfluxdB for time-series
- SQLite when data changes



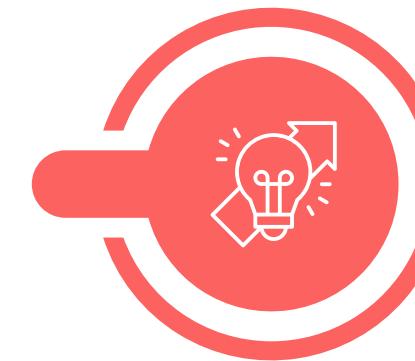
03 Output

- send data to server
- mqtt
- Restful API

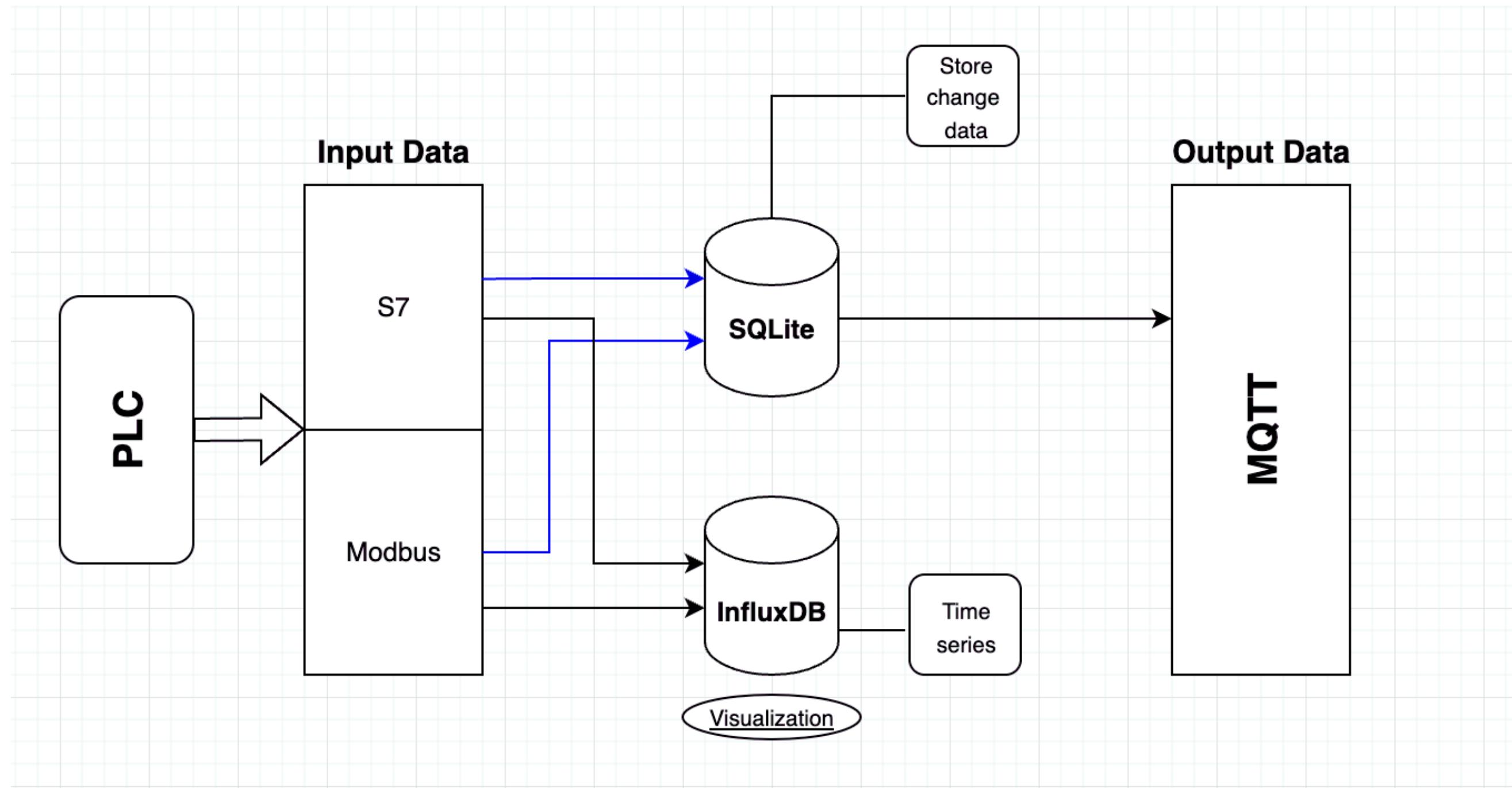


04 General Edge

- UX/UI view
- Wi-Fi, IP configuration



Architecture of our project



Technology Stack

Input

Output

Database & Visualization

Data Collector & General

Technology Stack

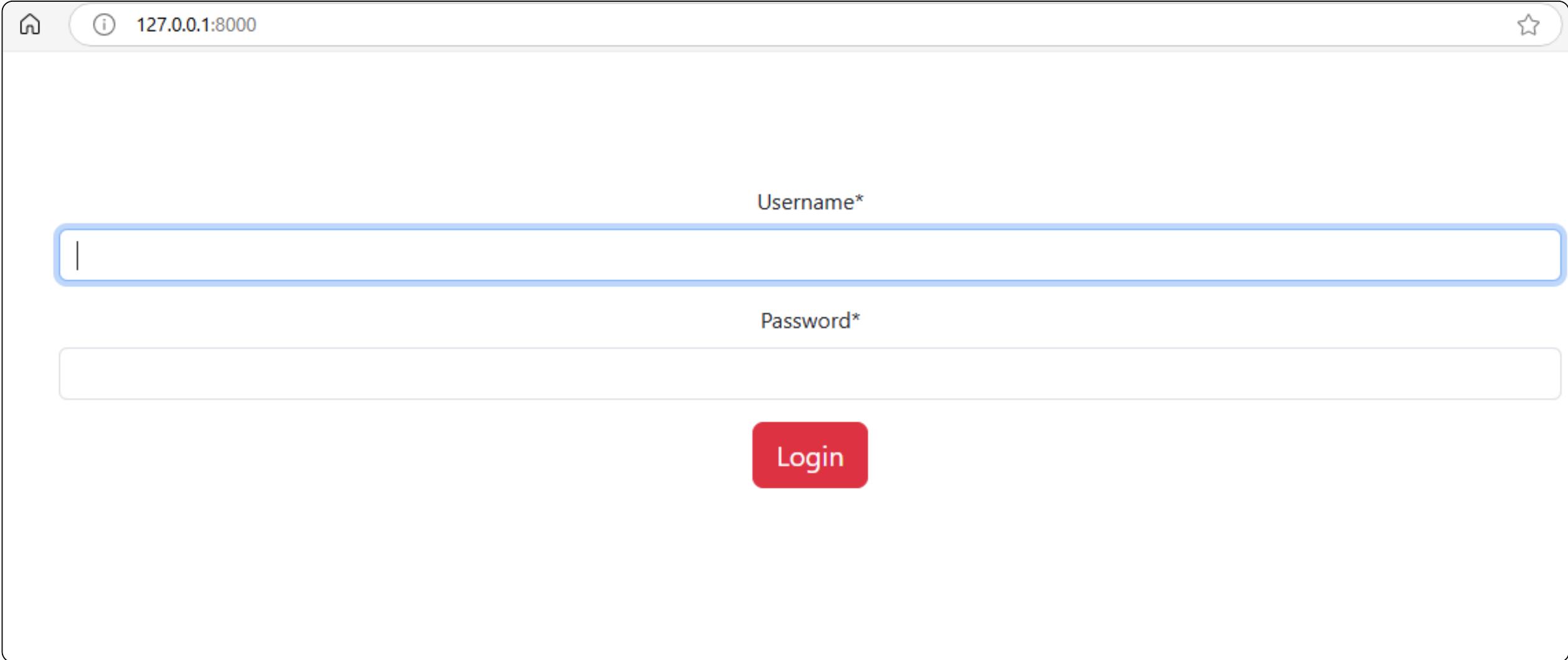
S7, Modbus
(python language, py-modbus)

MQTT
(paho-mqtt, django)

InfluxDB, SQLite
(Time Series and changes data)

Array to JSON and JSON to Array

ACCESS TO WEBPAGE WITH AUTHENTICATION



The screenshot shows a web browser window with the URL `127.0.0.1:8000` in the address bar. The page displays a login form. The first field is labeled "Username*" and contains a single character, "p". The second field is labeled "Password*" and is empty. Below the fields is a red rectangular button with the word "Login" in white.

- We will login and read data through UX/UI
- username is pi, password is raspberry
- without authentication passed, we will not be able to login

1.INPUT (TEST INPUT PLC CONNECTION)



1. Test to read data from PLC with modbus protocol

127.0.0.1:8000/test/

List Devices Server Info Server Wifi Test PLC Logout

192.168.200.2

S7Tsap

504

0x0100

0x0100

Input Variable name
Counter

Address Memory:
40530

Submit

Variable Name	Address	Data
Counter	40530	6

2. we get the data from PLC through modbus protocol

1.INPUT (COLLECT DATA FROM MACHINE)



1. Read data from PLC (s7 protocol, modbus protocol)



Address*
DB1.WORD1132

Device*
Logo Tsap

Variable name*
Input 2

Save

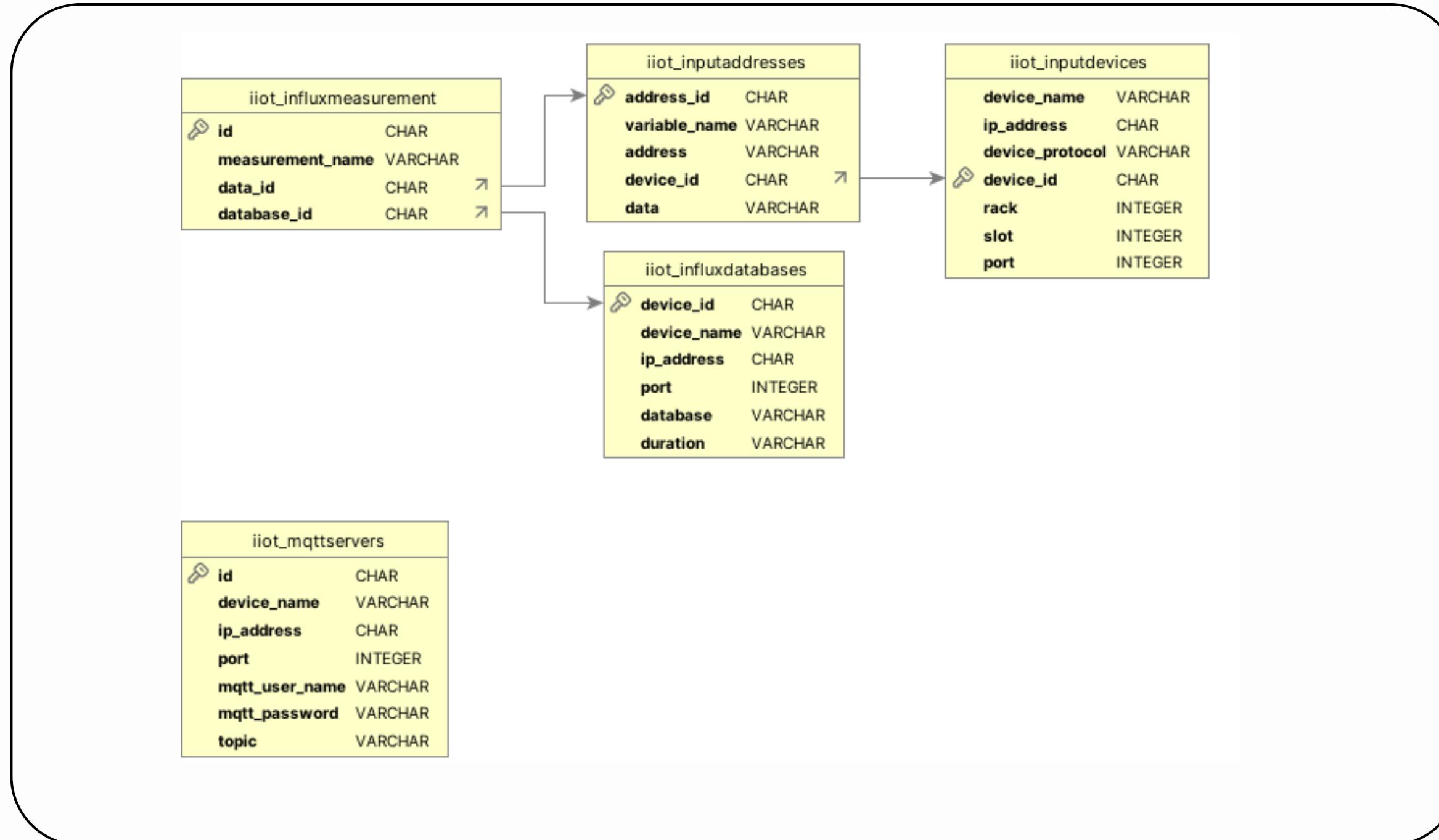
2. Here we put Address, Device, and variable name to read data from PLC.



Device	Type	Address	Data	Status
Counter	Counter	40530	8	Logo Modbus
	Input 1	40531	0	Logo Modbus
	Input 2	DB1.WORD1132	0	Logo Tsap

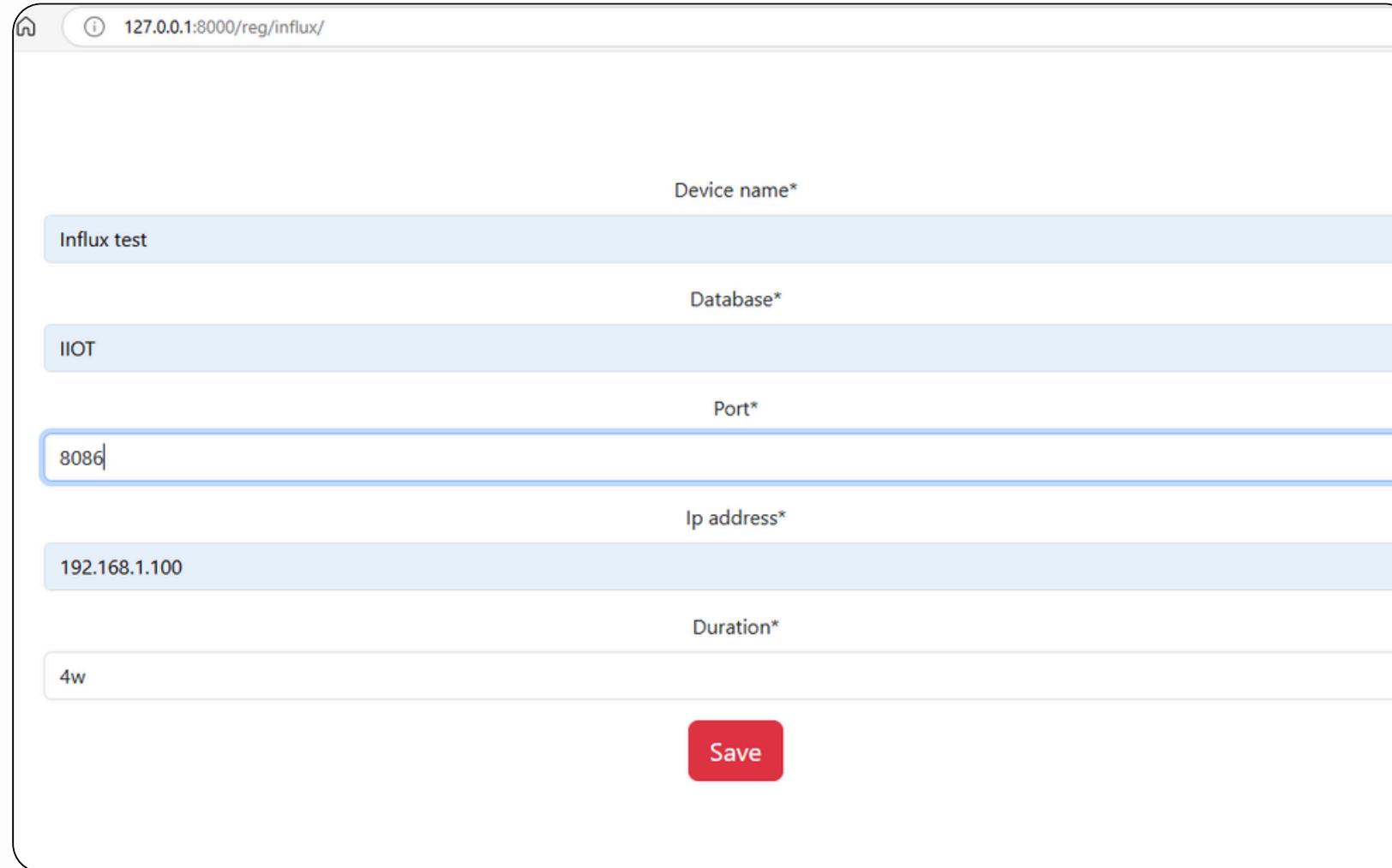
3. Now, it shows data in our Web browser

2.DATABASE



This is SQLite table scheme for our program

2.DATABASE



Device name*

Influx test

Database*

IIOT

Port*

8086

Ip address*

192.168.1.100

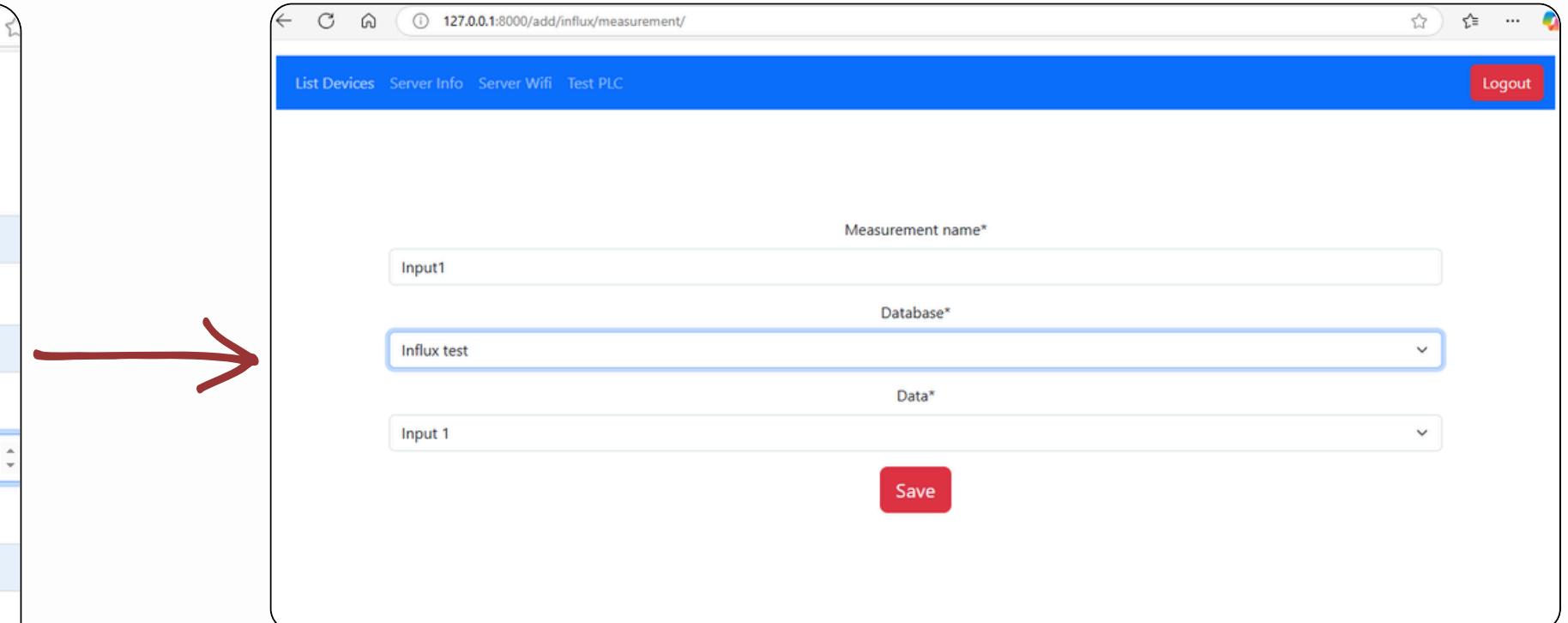
Duration*

4w

Save

To store in influxdB,

- register influxdb IP address
- create database and measurement name
- read data through measurement



Measurement name*

Input1

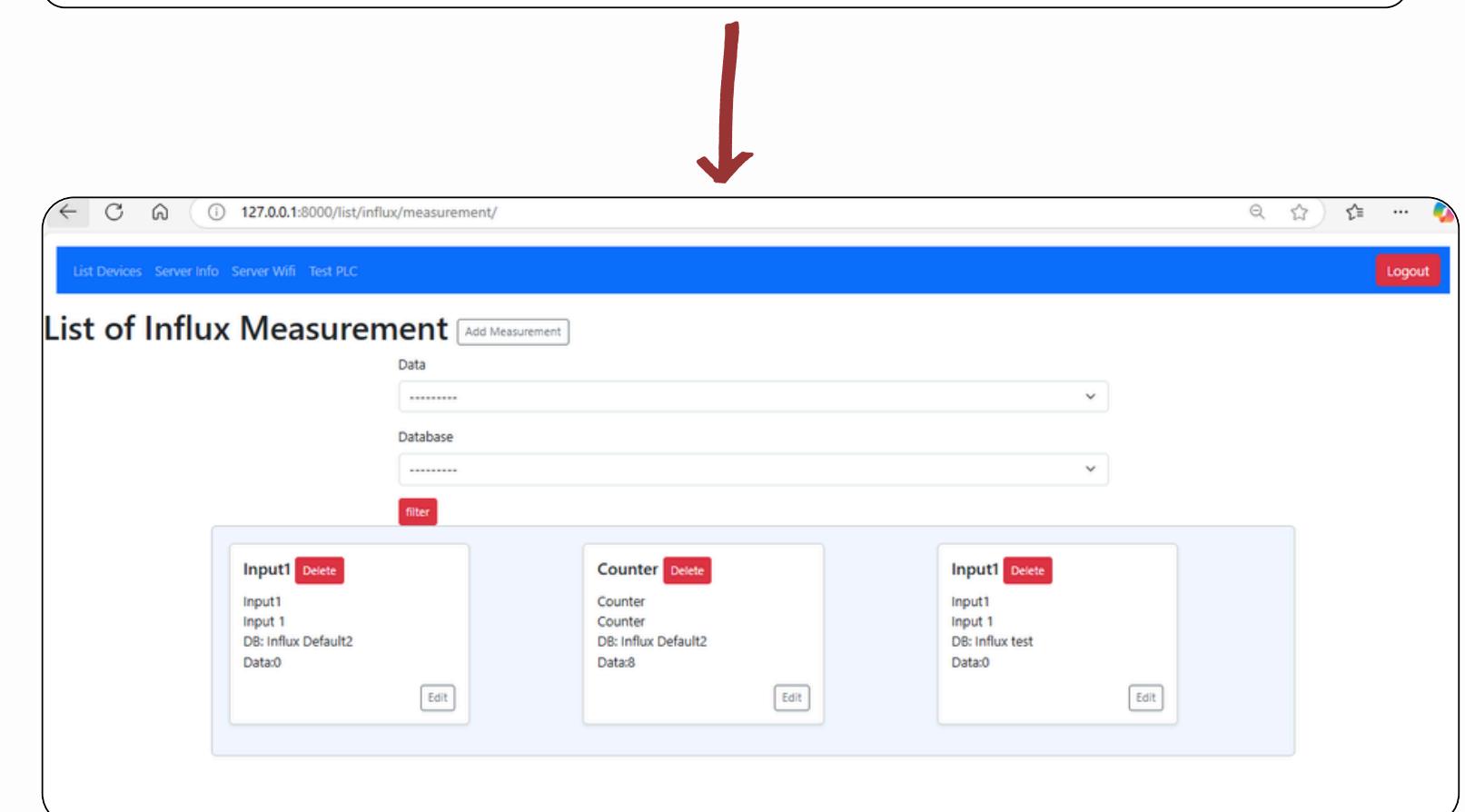
Database*

Influx test

Data*

Input 1

Save



List of Influx Measurement	
Data
Database
	filter
Input1	Delete
Input1	Edit
Input 1	Delete
Counter	Edit
Counter	Delete
Input1	Delete
Input1	Edit

3.OUTPUT

- Send data to server through mqtt

The screenshot shows a web browser window with a blue header bar containing navigation icons, a search bar, and a URL field showing `127.0.0.1:8000/edit/mqtt/976f63d2-98d5-43ce-84b2-821a373e7231/`. The main content area has a white background with several input fields and labels:

- Device name***: P mqtt
- Mqtt user name***: pi
- Port***: 1883
- Mqtt password***: pi
- Ip address***: 192.168.1.104
- Topic***: iiot/data

A red **Save** button is located at the bottom center of the form.

first, register mqtt server

3.OUTPUT

The image displays two screenshots illustrating the MQTT output process. The left screenshot shows a 'List of Mqtt Server' interface with a single entry for a server named 'P mqtt'. The right screenshot shows a 'Subscription Log' interface with four received messages from the topic 'iiot/data' at QoS 0.

List of Mqtt Server:

- P mqtt Delete
- 976f63d2-98d5-43ce-84b2-
821a373e7231
- 192.168.1.104
- 1883
- P mqtt
- Topic: iiot/data

Subscription Log:

- + New Subscription
- Plaintext ▾
- All | Received | Published
- iiot/data QoS 0
- 2024-11-20 14:59:10:140
- Topic: iiot/data QoS: 0
- {'S7PLC': {'Input 1': 6}, 'ModbusPLC': {'Counter': 6}}
- 2024-11-20 15:09:50:966
- Topic: iiot/data QoS: 0
- {'S7PLC': {'Input 1': 6}, 'ModbusPLC': {'Counter': 6}}
- 2024-11-20 15:09:51:195
- Topic: iiot/data QoS: 0
- {'S7PLC': {'Input 1': 6}, 'ModbusPLC': {'Counter': 6}}
- 2024-11-20 15:09:52:686
- Topic: iiot/data QoS: 0
- {'S7PLC': {'Input 1': 6}, 'ModbusPLC': {'Counter': 6}}

now, we get the data with subscribe to mqtt

4.GENERAL EDGE

127.0.0.1:8000/server/wifi/

List Devices Server Info Server WiFi Test PLC Logout

Select WiFi*

iot-ict-lab50g

Wifi Password*

Save

Wi-Fi configuration through web-page

127.0.0.1:8000/server/info/

List Devices Server Info Server WiFi Test PLC Logout

Machine Name*

pynes-MacBook-Pro.local

Machine Address*

192.168.1.106

Save

checking the device-name

THANK YOU