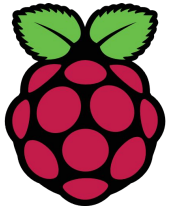
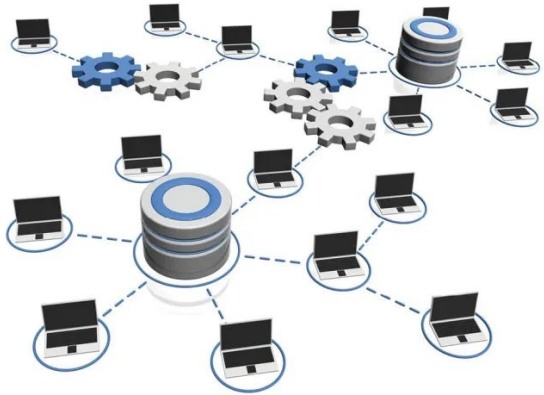
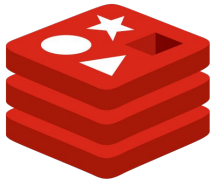
Skill Mapping IoT Workshop

Create an IoT Device Worker from RPi and Connect to THOpenSCADA via REDIS

Nattapong Wattanasiri

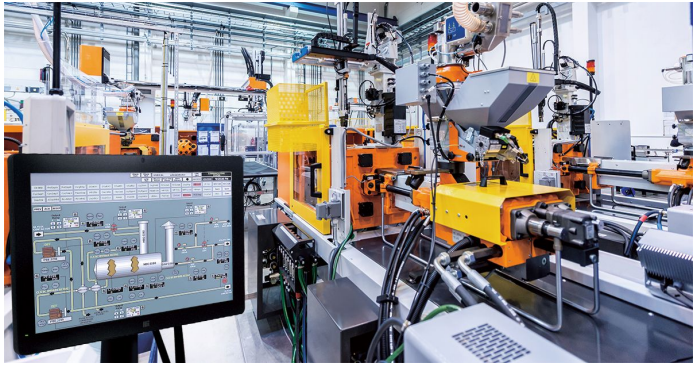




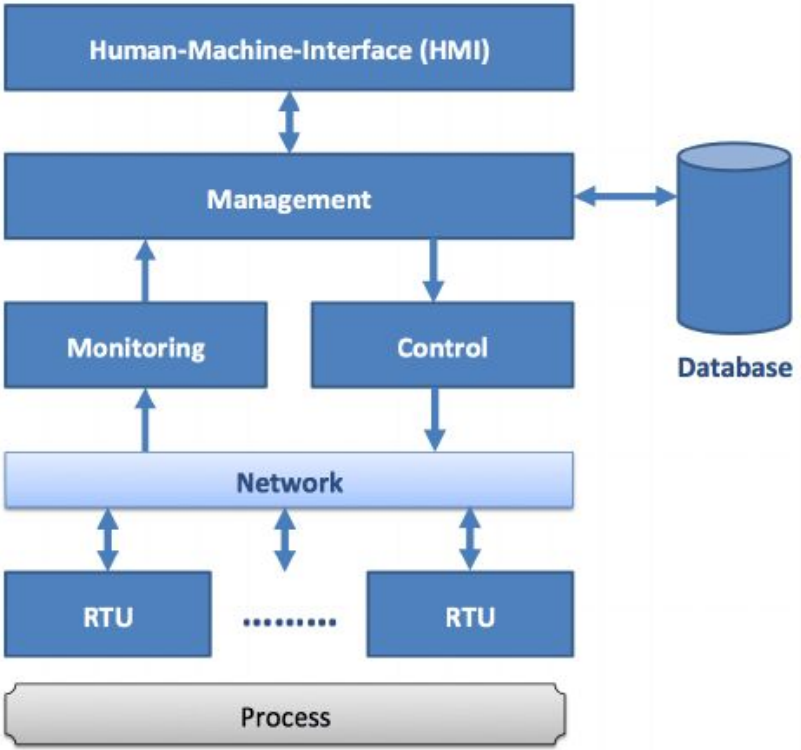


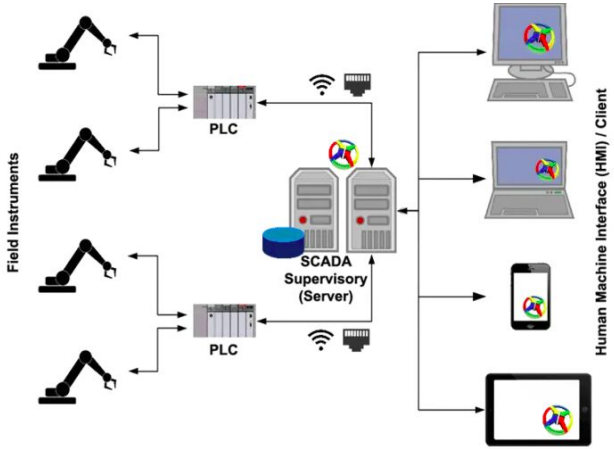
redis

What is SCADA?



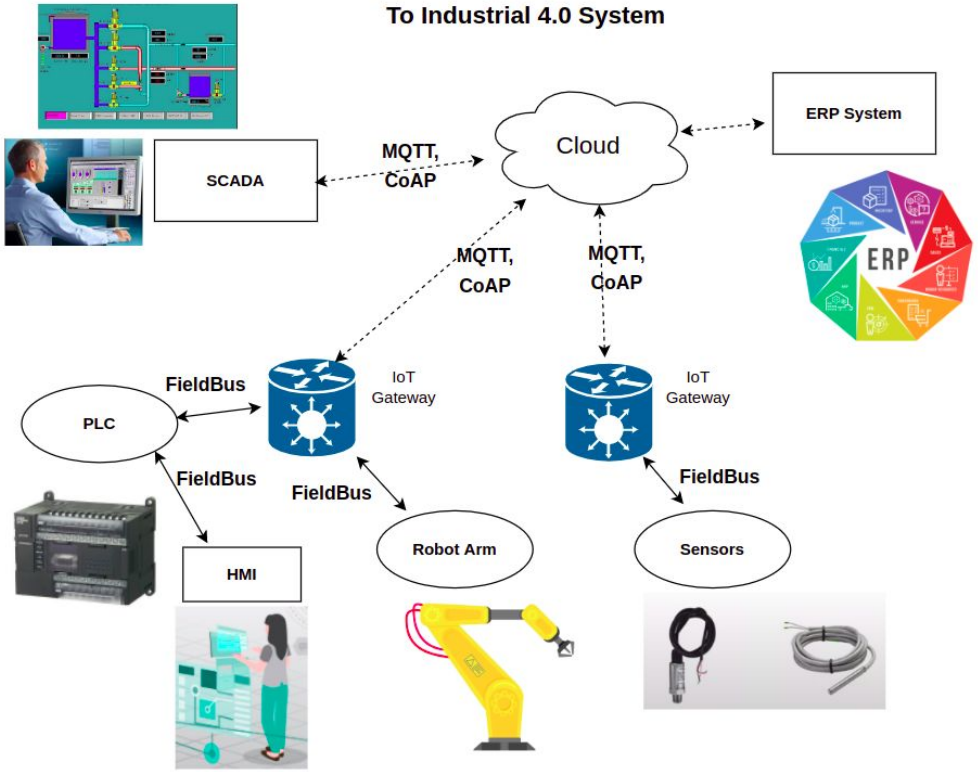
SCADA Architecture





SCADA Architecture

IoT Device in SCADA

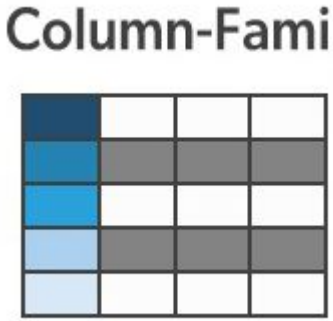


Device worker?

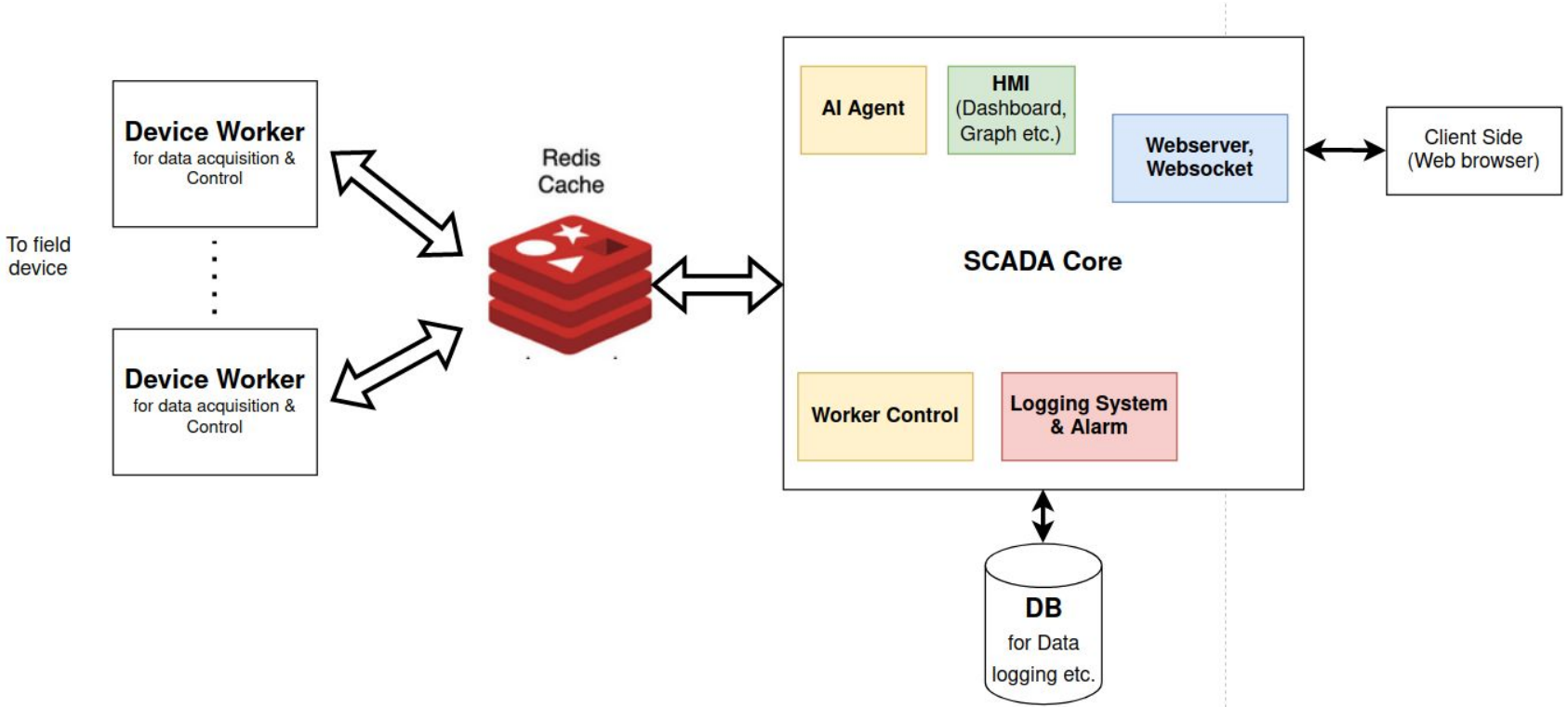
- Software for running the device in specific task.
- Data Acquisition
- Writing them to the database

Database for IoT Device?

- Sensor data: time series data in multiple dimensions
- Logging



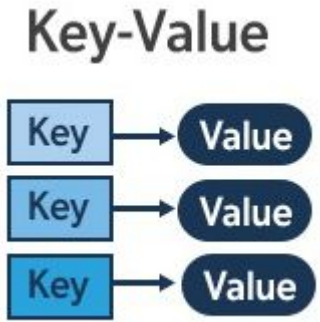
THOpenSCADA



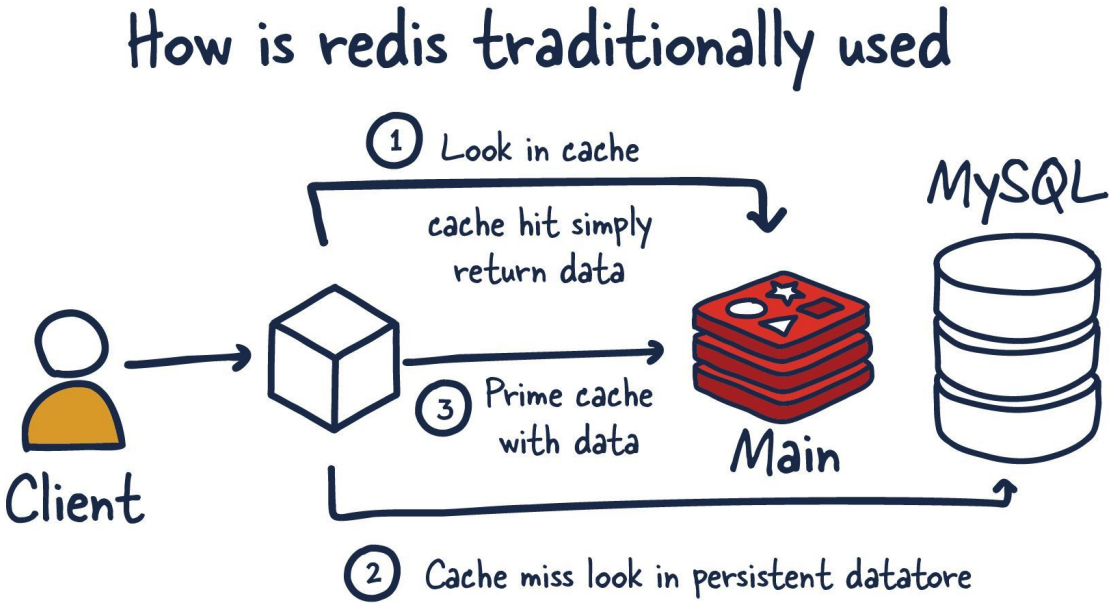
What is Redis? And Why?

- **In-memory** data structures **(On RAM)**
- key-value DB
- Very fast

  The stream data type enables high-rate data ingestion, messaging, event sourcing, and notifications in SCADA



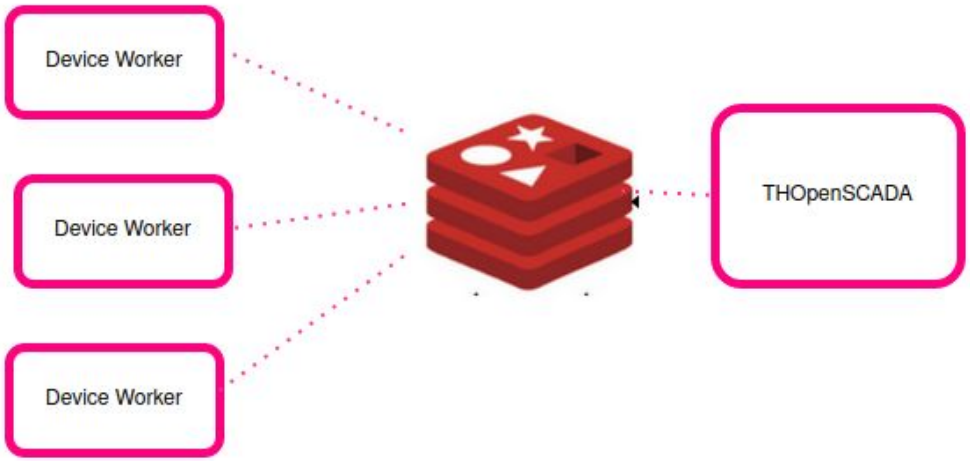
Redis use case

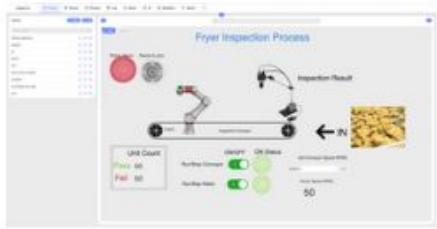


Redis use case

Objective

- Create joystick device worker on RPi (From previous workshop)
- Connect to THOpenSCADA via Redis



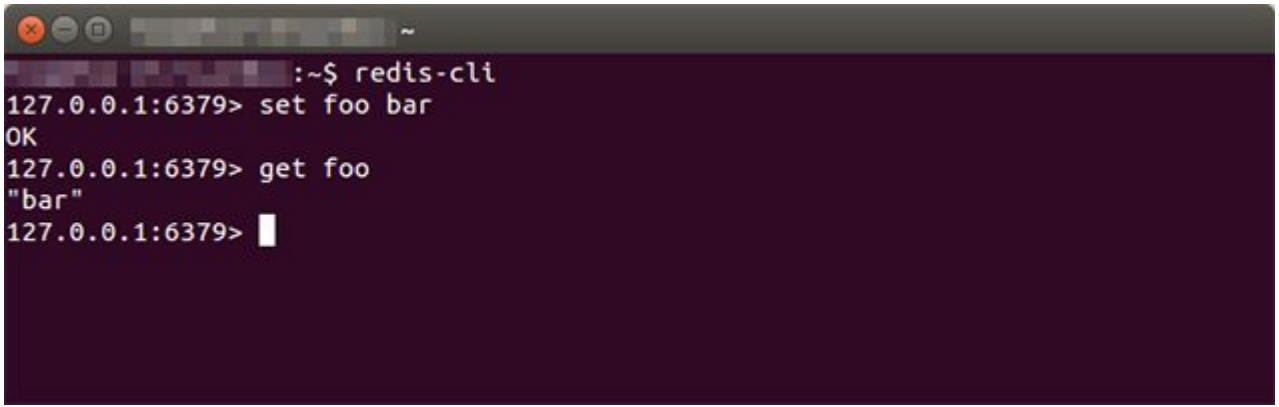


Install Redis-cli

$ sudo apt update

$ sudo apt install redis-tools

$ sudo apt install libevent-dev



Install C Redis Library

$ git clone https://github.com/redis/hiredis.git

$ cd path/to/hiredis
$ make
$ make install

Install C Redis Library

Add this line to file /etc/ld.so.conf

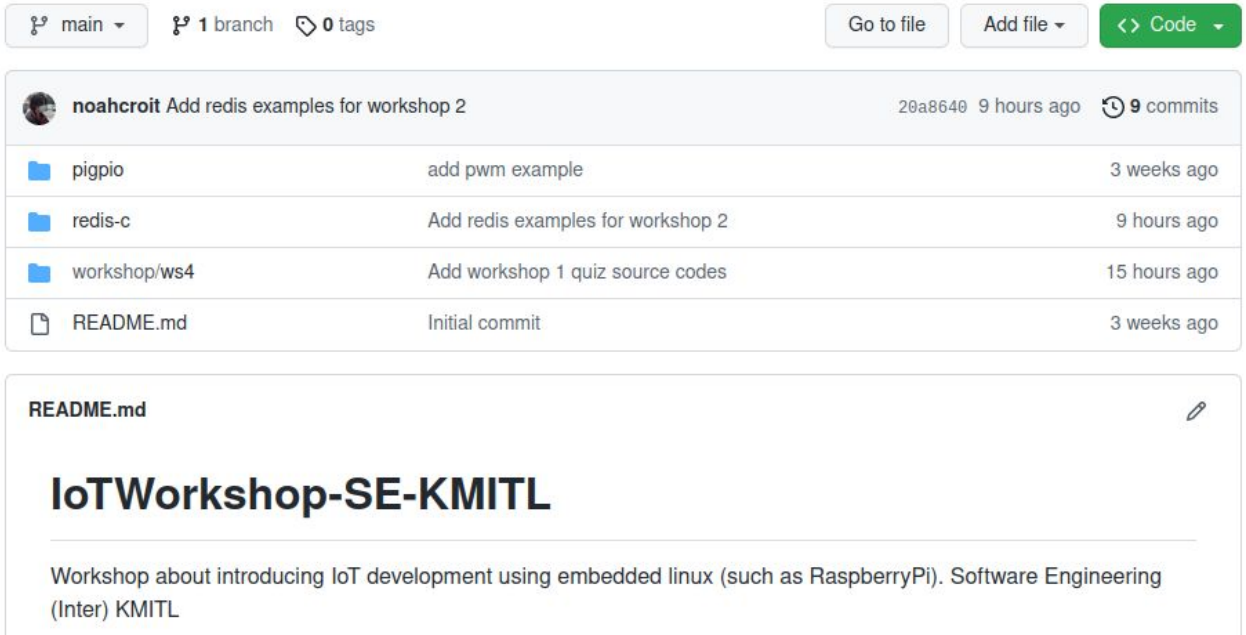
```
noah-croit@noahcroit-desktop:~/Workspace/ictlab/smartmeter$ cat /etc/ld.so.conf
include /etc/ld.so.conf.d/*.conf
include /usr/local/lib/
include /usr/include
include /usr/lib
```

Then, run

$ sudo /sbin/ldconfig

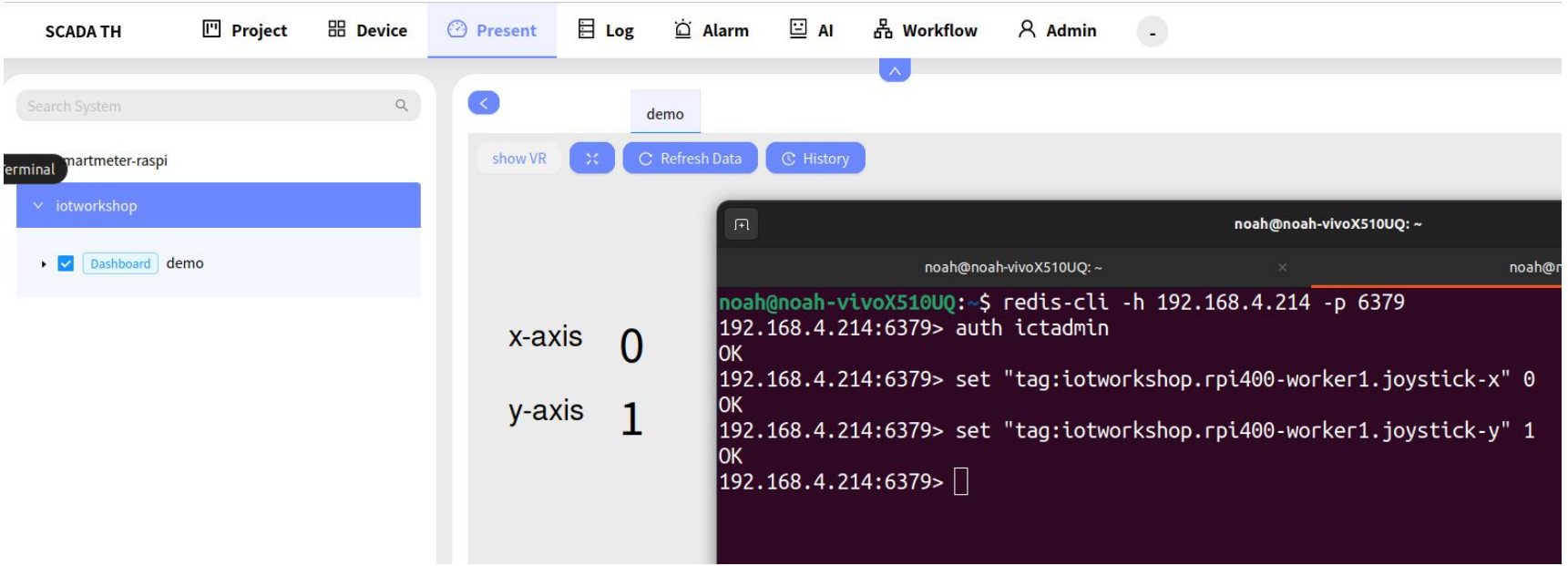
Download source files for workshop

$ git clone https://github.com/noahcroit/IoTWorkshop-SE-KMITL.git

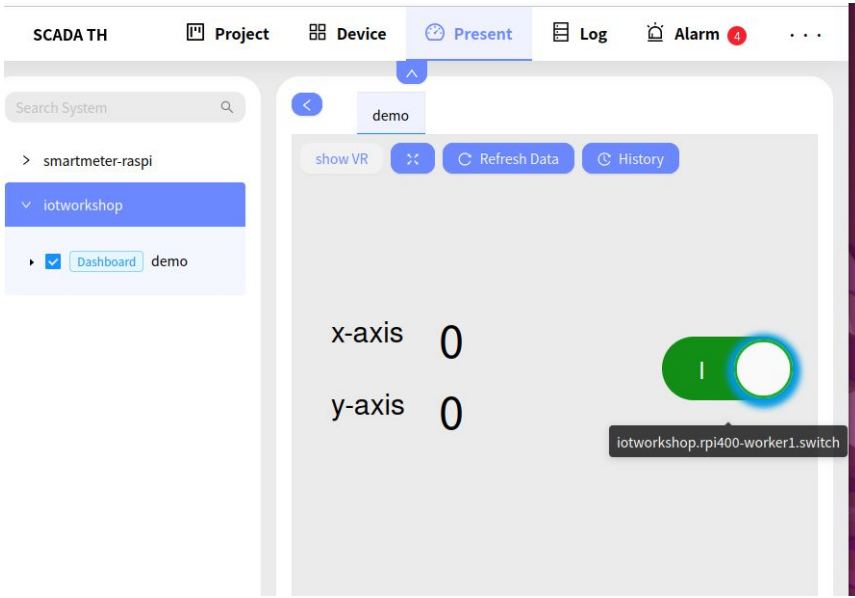


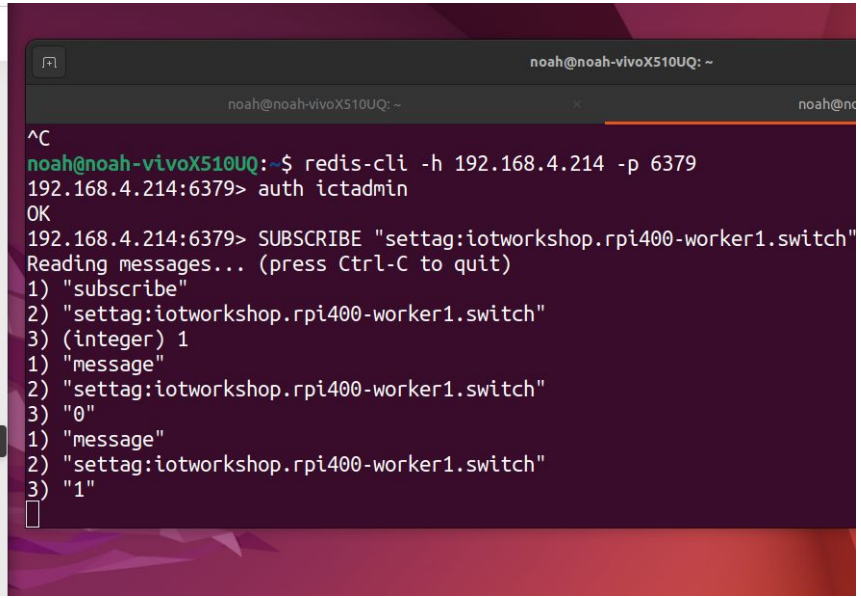
Create system in THOpenSCADA

Test Redis-cli with THOpenSCADA

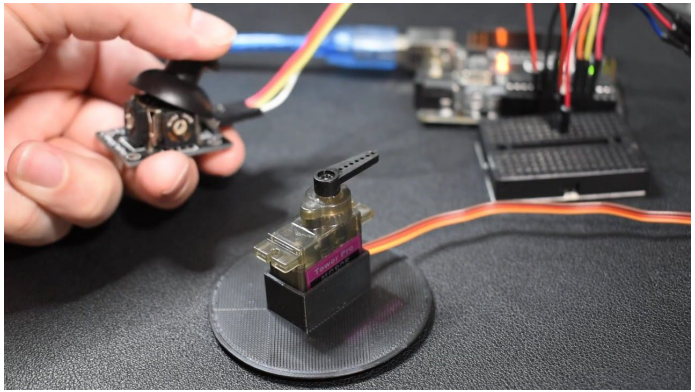


Test Redis-cli with THOpenSCADA

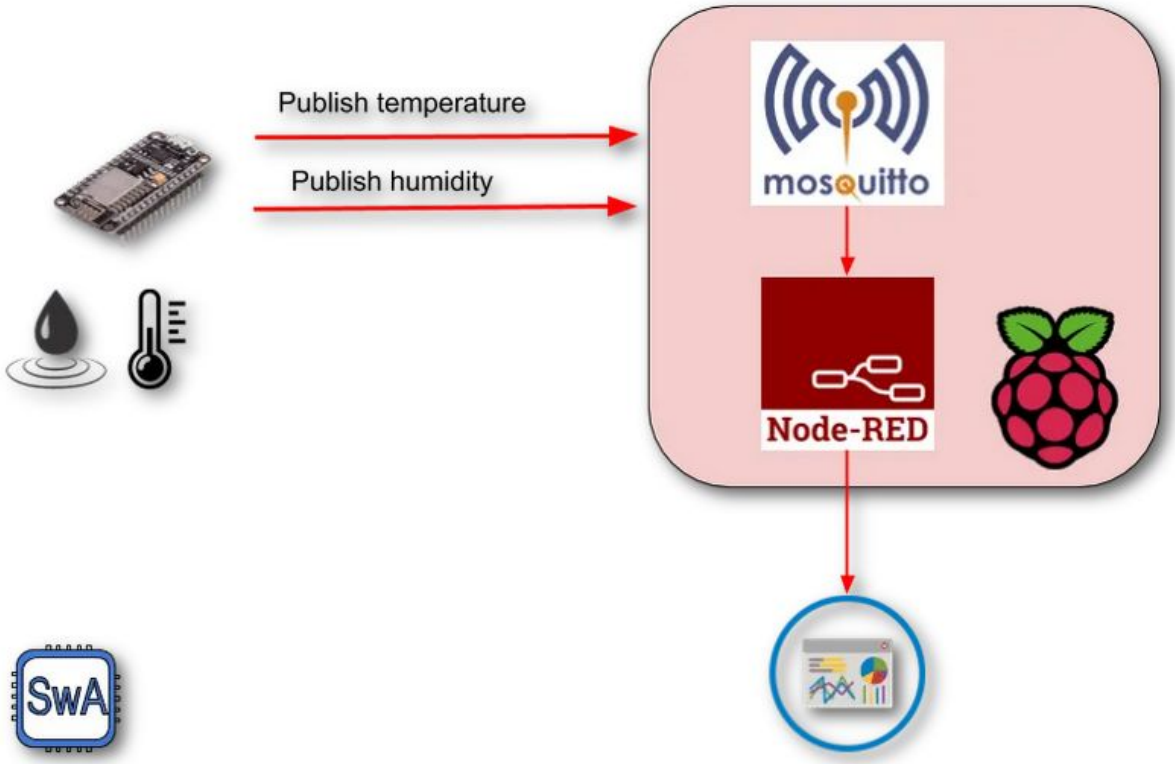




Control servo with joystick program



Create your own SCADA with NodeRED & MQTT



Q&A