Water Nutrient Monitoring

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Section 1

Introduction

Introduction

- Monitoring water quality
- Build IOT system to collect data
- Visualization of the data

Section 2

Our Work

System Overview

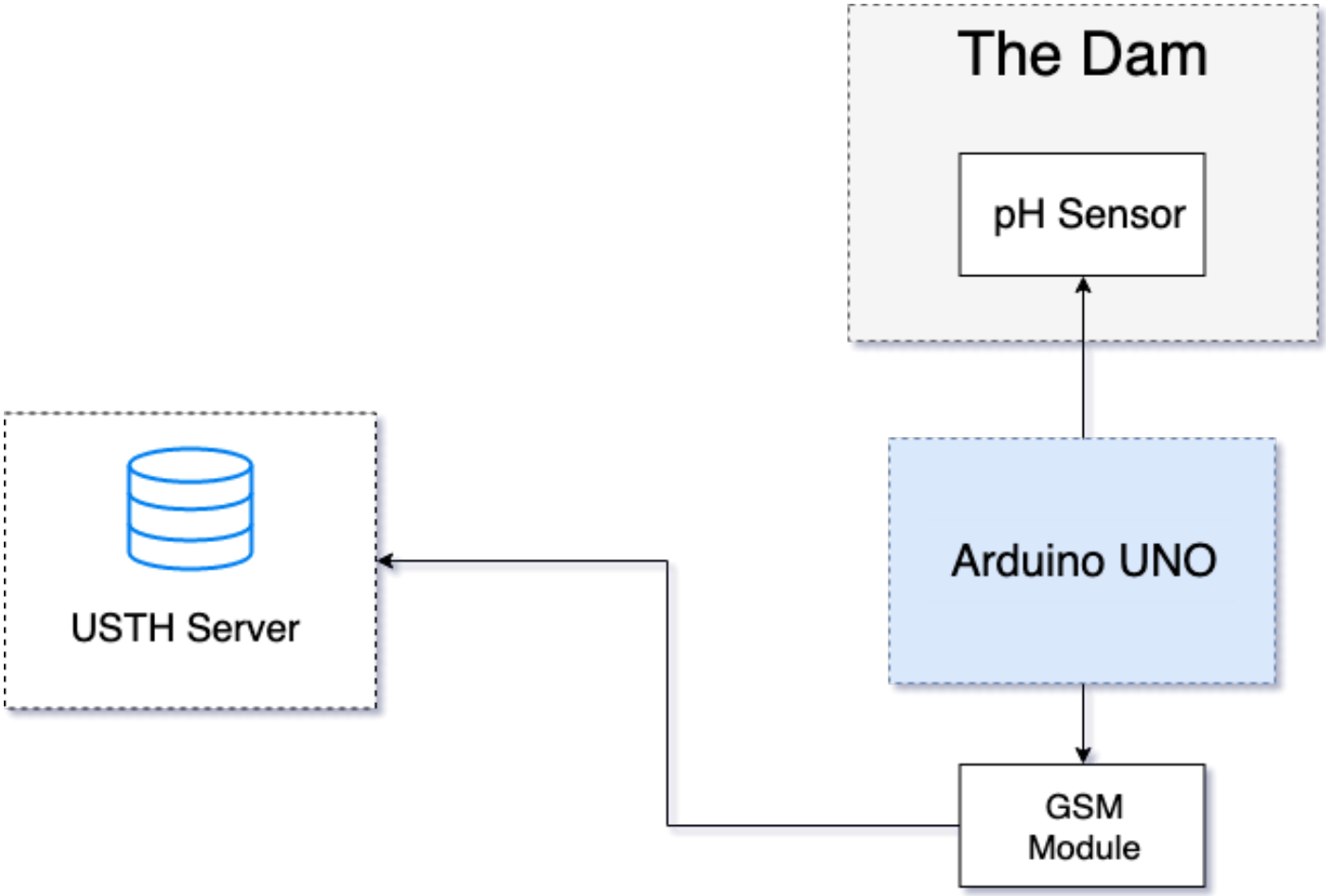

Figure 1: System Overview

Components: Sensors

- Module Power: 5.00V
- Measuring Range: 0-14PH
- Measuring Temperature: 0-60 Celcius
- Accuracy: 0.1pH (25 Celcius)
- Response Time: <= 1min
- Industry pH Electrode with BNC Connector

Figure 2: pH Sensor

Components: Arduino

- Arduino UNO:
  - Microcontroller board
  - Provides electricity to the sensors
  - Collects data directly from the sensors
  - Delivers the data

Figure 3: Arduino UNO-R3

Components: Communication

- Module Power: 5-18VDC - >= 1A
- Communication Signal Level: TTL (3.3-5VDC) or RS232
- Intergrated with IC RS232 MAX232
- Provide internet connection for Arduino

Figure 4: Sim800A

Data flow

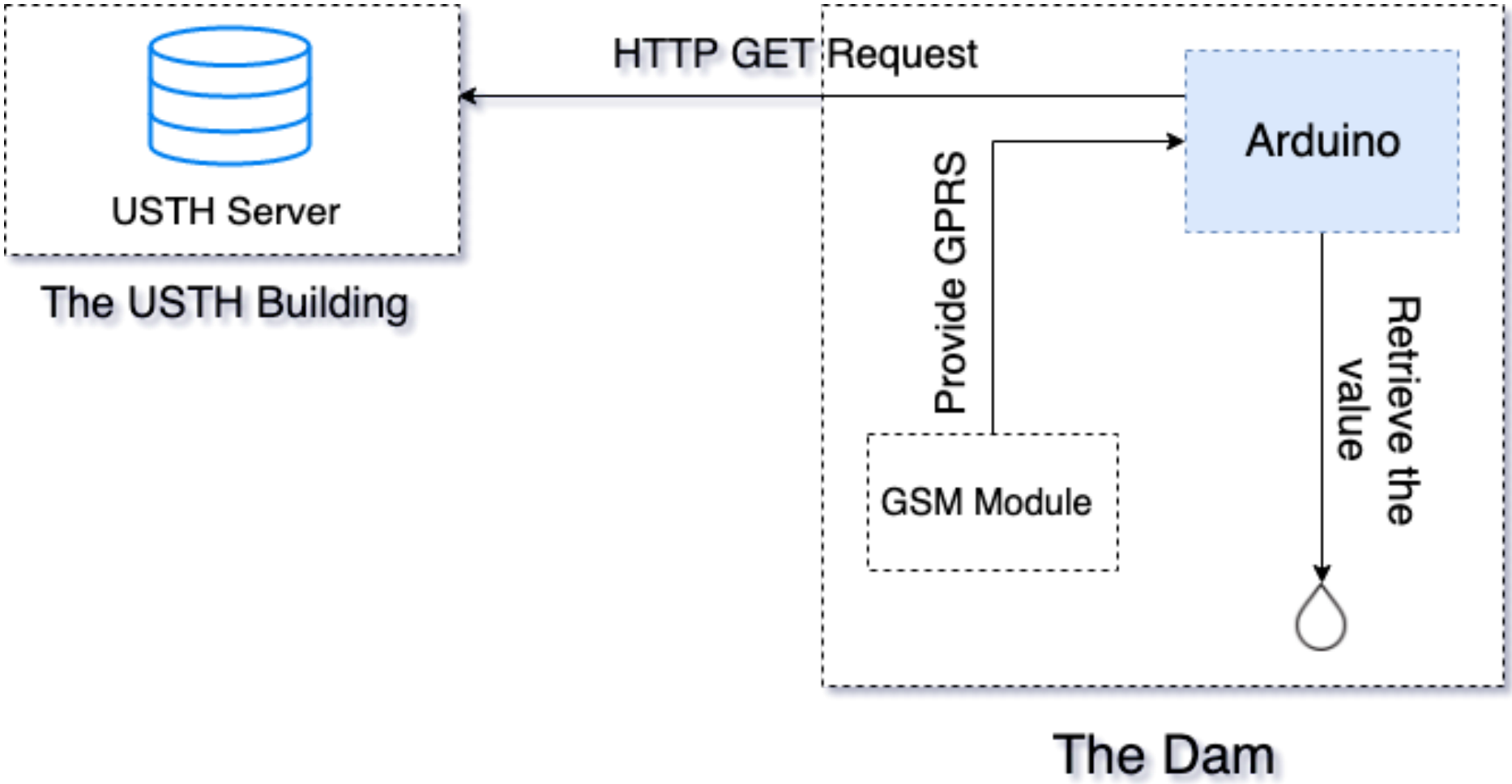

Figure 5: Data flow

Components

- USTH Server:
  - Hosted by the ICTLab
  - Receives data via HTTP GET request
  - Manages database

Section 3

Results

Results: Hardware

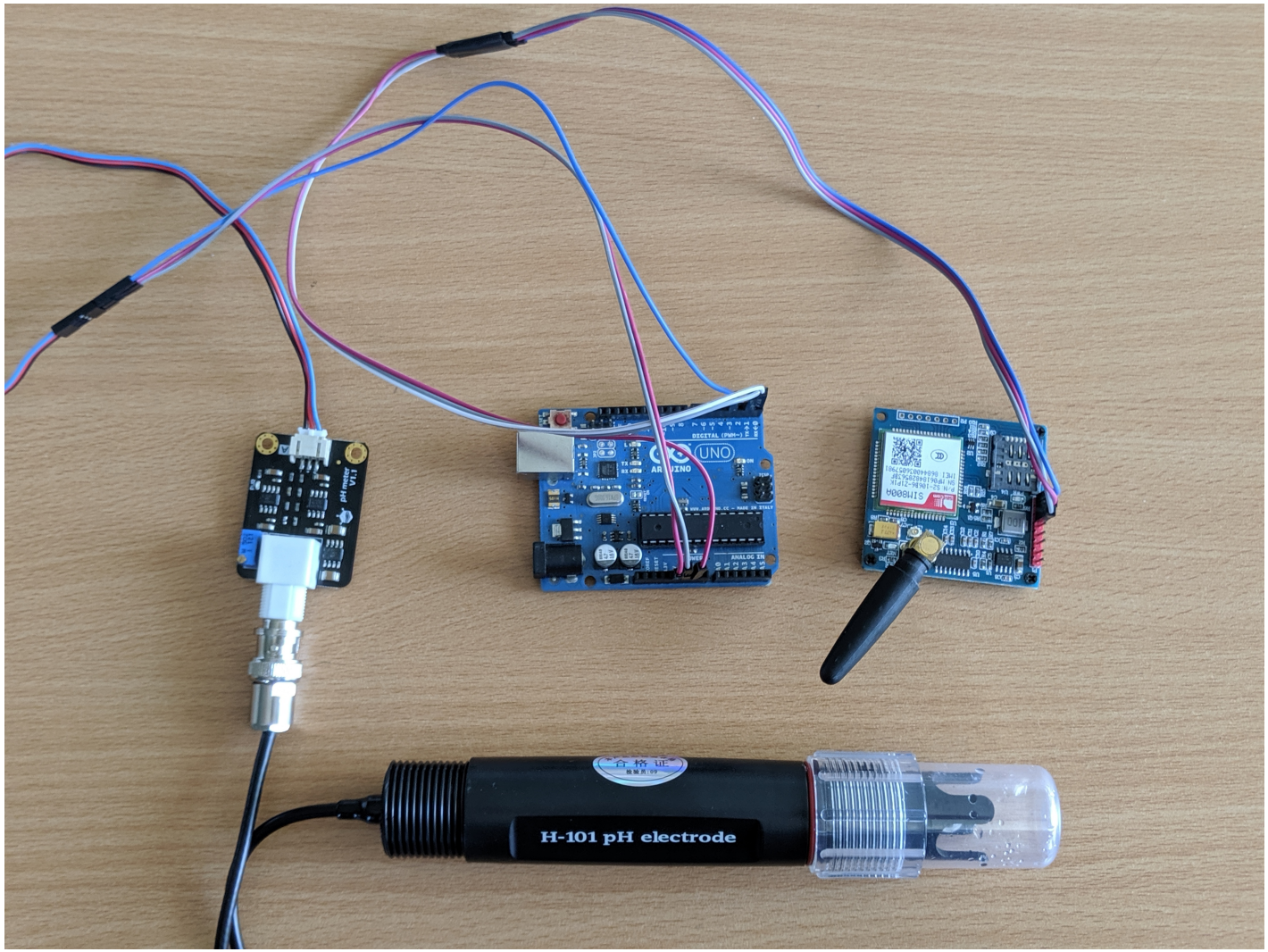

Figure 6: Hardware Connection

Results: Software

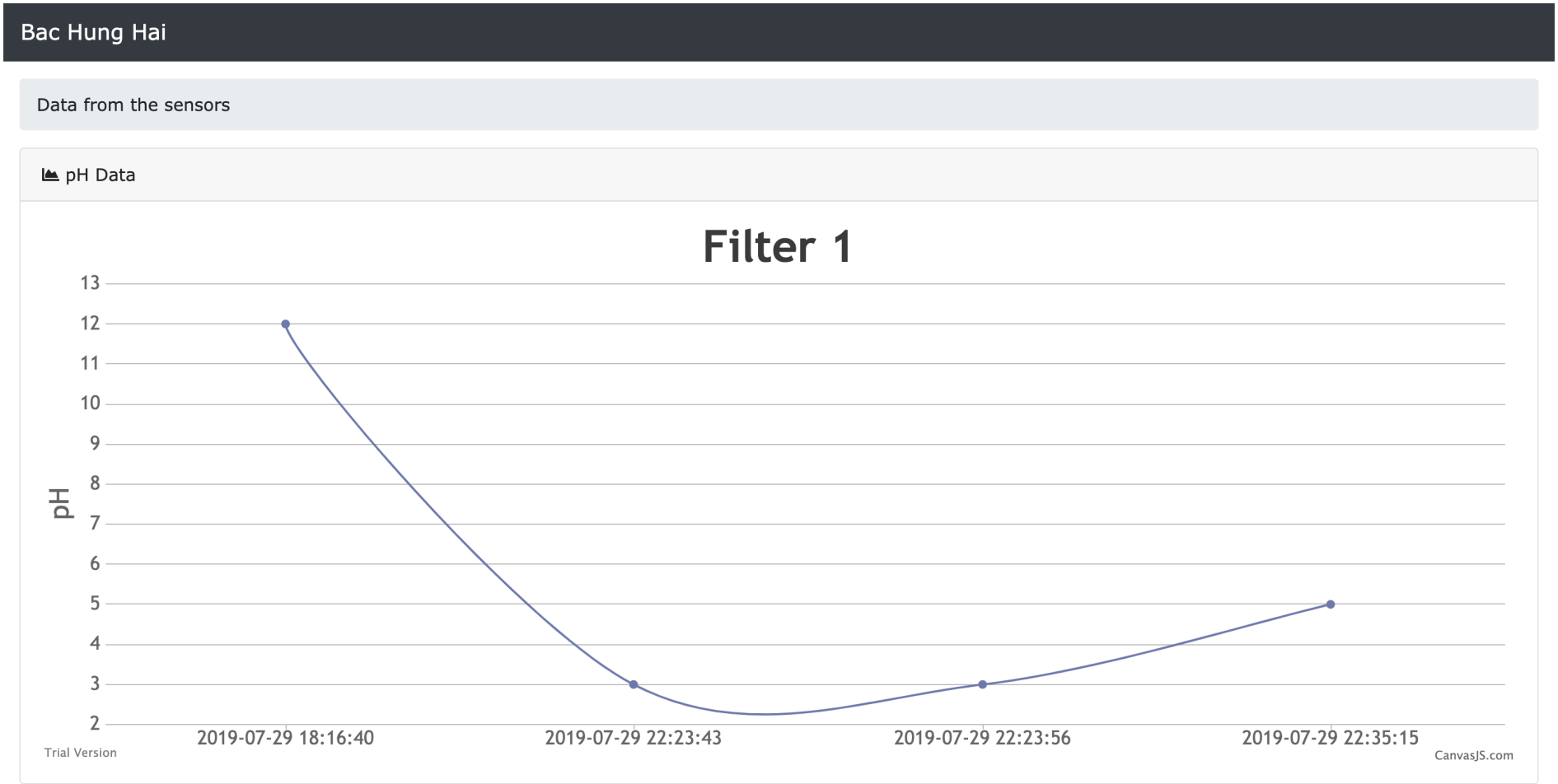

Figure 7: http://scg.sontg.net/ph_index.php

Section 4

Future Plan

Future Plan

- Better architecture
- Better energy consumption
- Better visualization
- Use more sensor type such as Electrical Conductivity(EC), Total dissolved solid (TDS), Salinity Sensors