Water Nutrient Monitoring

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Introduction
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Our Work
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Results
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Future Plan
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1 Introduction

2 Our Work

3 Results

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Section 1

Introduction

Introduction

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

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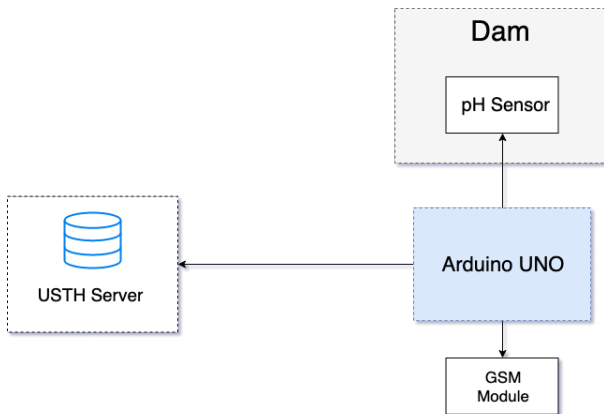Future Plan
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Section 2

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

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Components: Communication

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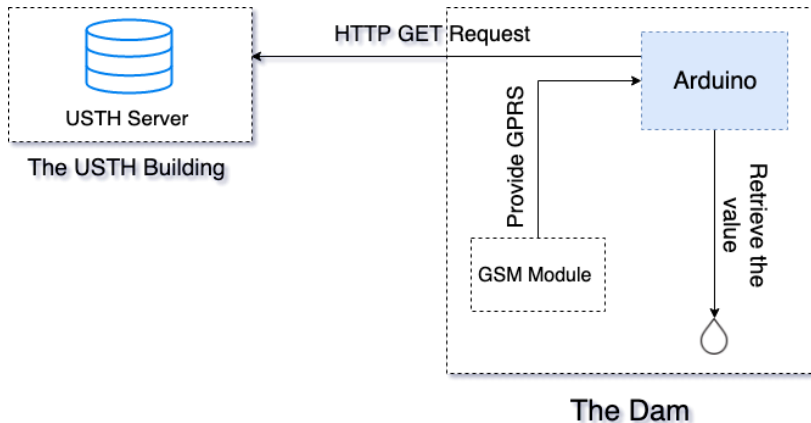- Provide internet connection for Arduino

Figure 4: Sim800A

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Data flow

Figure 5: Data flow

Components

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

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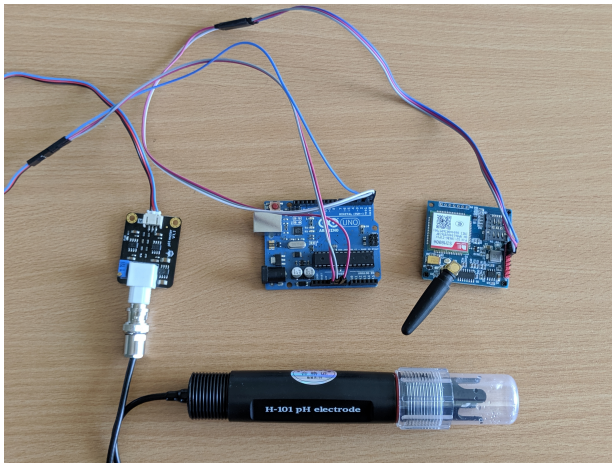Our Work
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Section 3

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Results: Hardware

Figure 6: Hardware Connection
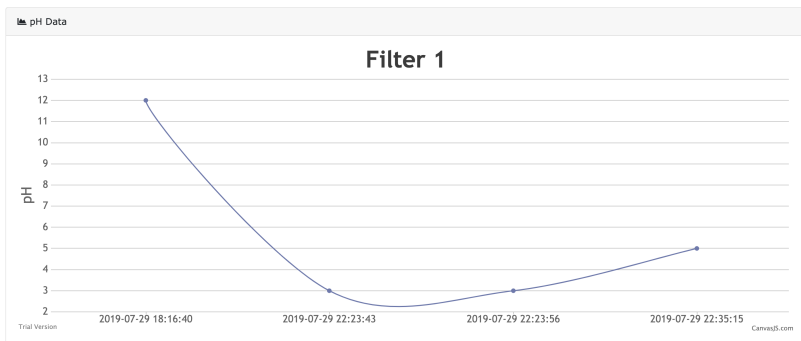
Results: Software

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