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From: IEEE

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## Summary

This week, the experiment preparation was continued following last year. The Kubernetes team studied the dockerization and the Kubernetes and practiced. The network team tried to test the weather sensors and started to make a chirpstack server. The front-end team designed the web interface. The back-end team developed a server.

## What IEEE completed this week:

- Kubernetes team
  - experiment with google cloud platform(GCP)
    - Took a variety of lab classes on GCP
    - Set Kubernetes clusters using Google Kubernetes Engine(GKE)
- Network team
  - testing weather sensors
    - Soil temperature sensor and UV sensor are tested during this week.
  - making a chirp stack server using raspberry pi
- Front-end team
  - Setting developing environment
    - The project was created using React framework.
    - Prettier which is a tool for formatting code was applied.
  - Making issues in the Github repository
    - Favicon and title were changed to fit our project.
    - A responsive layout was made for developing the main page.
- Back-end team
  - Developing backend server
    - A Server was developed with a spring boot framework.
    - Application Programming Interface(API) for the sensor was created.
    - API for the station was created.
  - Building database on Google Cloud Platform
    - Data architecture was settled.
      - The sensor's data architecture contains sensor values.
      - Station's data architecture contains location, name, and the list of sensors.

## Things to do by next week

- Kubernetes team
  - Setting up a real Kubernetes environment
  - Finding benchmark tools to test our cluster performance
- Network team

- Figuring out how to get real-time data from the weather cloud to ESP LoRa 32
- Testing wind direction and speed sensor with ESP LoRa 32
- Starting to make a weather station in the K-SW Square front yard
- Front-end team
  - Developing web page
    - The main page will be created.
    - Visualizing data library will be found and applied.
- Back-end team
  - Developing backend server
    - API for the sensor will be tested.
    - The network between the backend server and frontend will be connected.

### **Problems or challenges:**

- Financial problem
  - Credit was required to experiment, however, there is a free credit provided by the GCP.

### **References**

[1] “Complete Guide to Use Soil Moisture Sensor w/ Examples.” Project HUB.  
<https://create.arduino.cc/projecthub/electropeak/complete-guide-to-use-soil-moisture-sensor-w-examples-756b1f> (accessed June. 17, 2022).