



arm
DevSummit

OCTOBER 19-21, 2021

Environmental Data Acquisition and Processing

Water Resource Monitoring

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Introduction

Work shop Brake down

- a) Introduction water resource monitoring
- b) What water parameters are being monitored?
- c) How are the parameters monitored?
- d) Hardware development
- e) Data acquisition
- f) Data analysis and presentation
- g) Incorporation of other datasets

Water resource monitoring

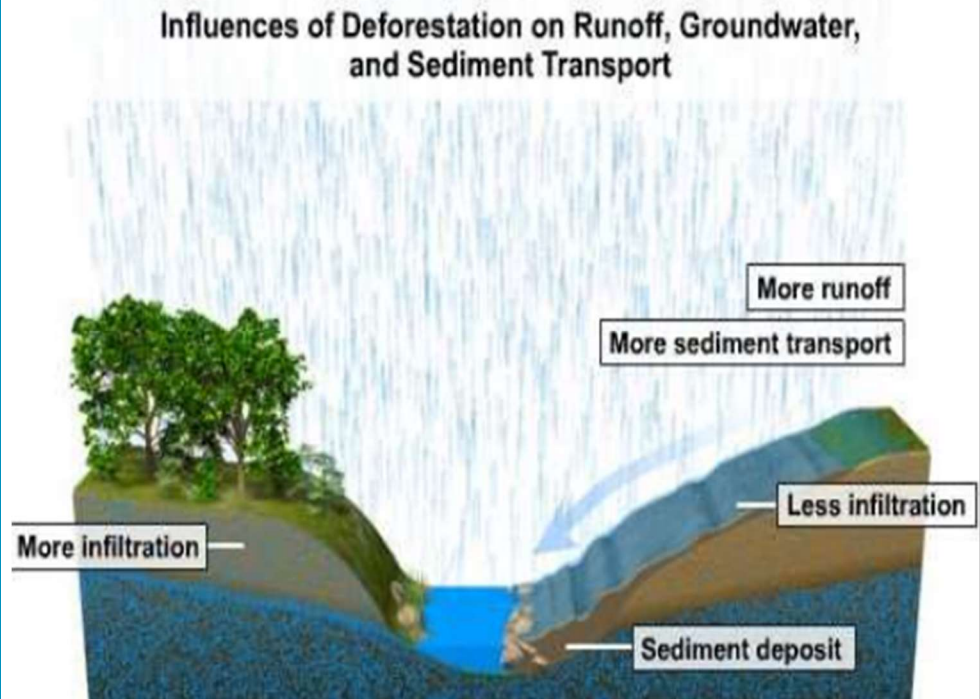
Introduction

Goal: River catchment analysis using **water-level data** by leveraging IoT and machine learning

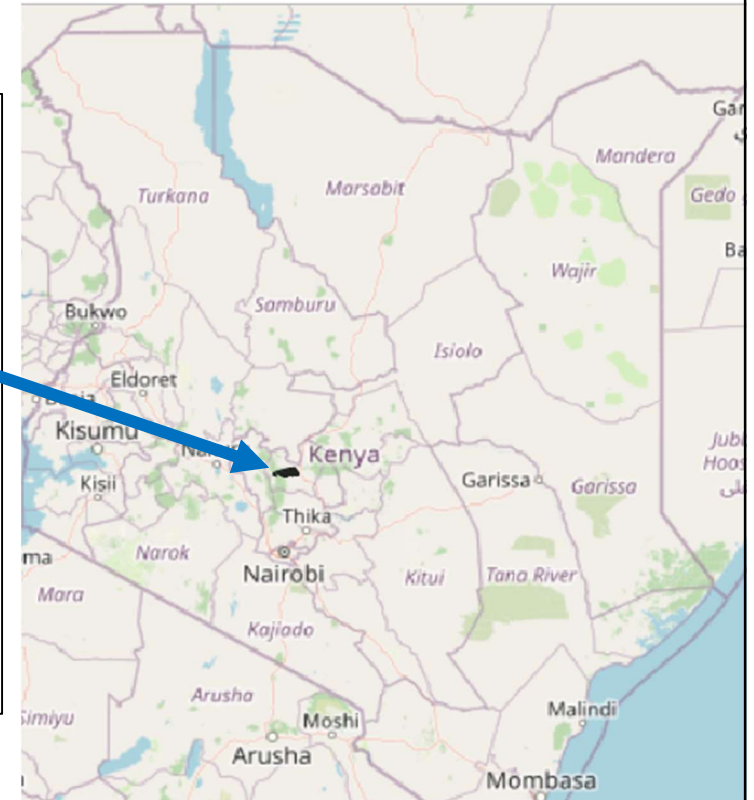
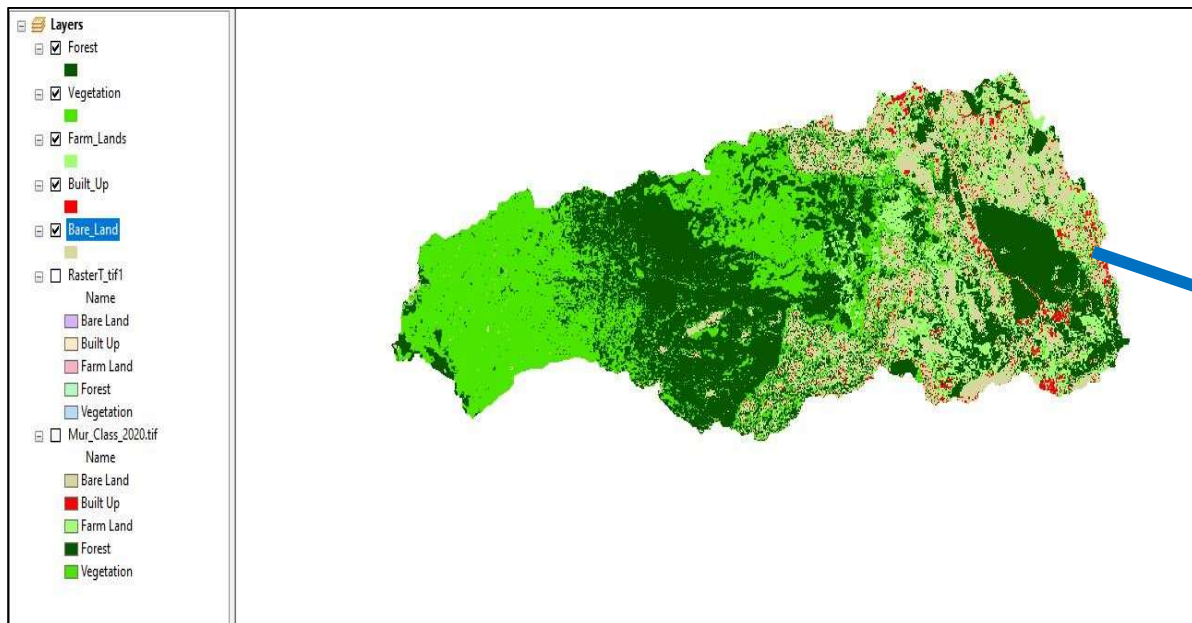
Takeaways

- Water level data can be used to “diagnose” a river catchment by watching the trends over some time.
- Question: How long does a spike in water level take to occur after a spike in rain.

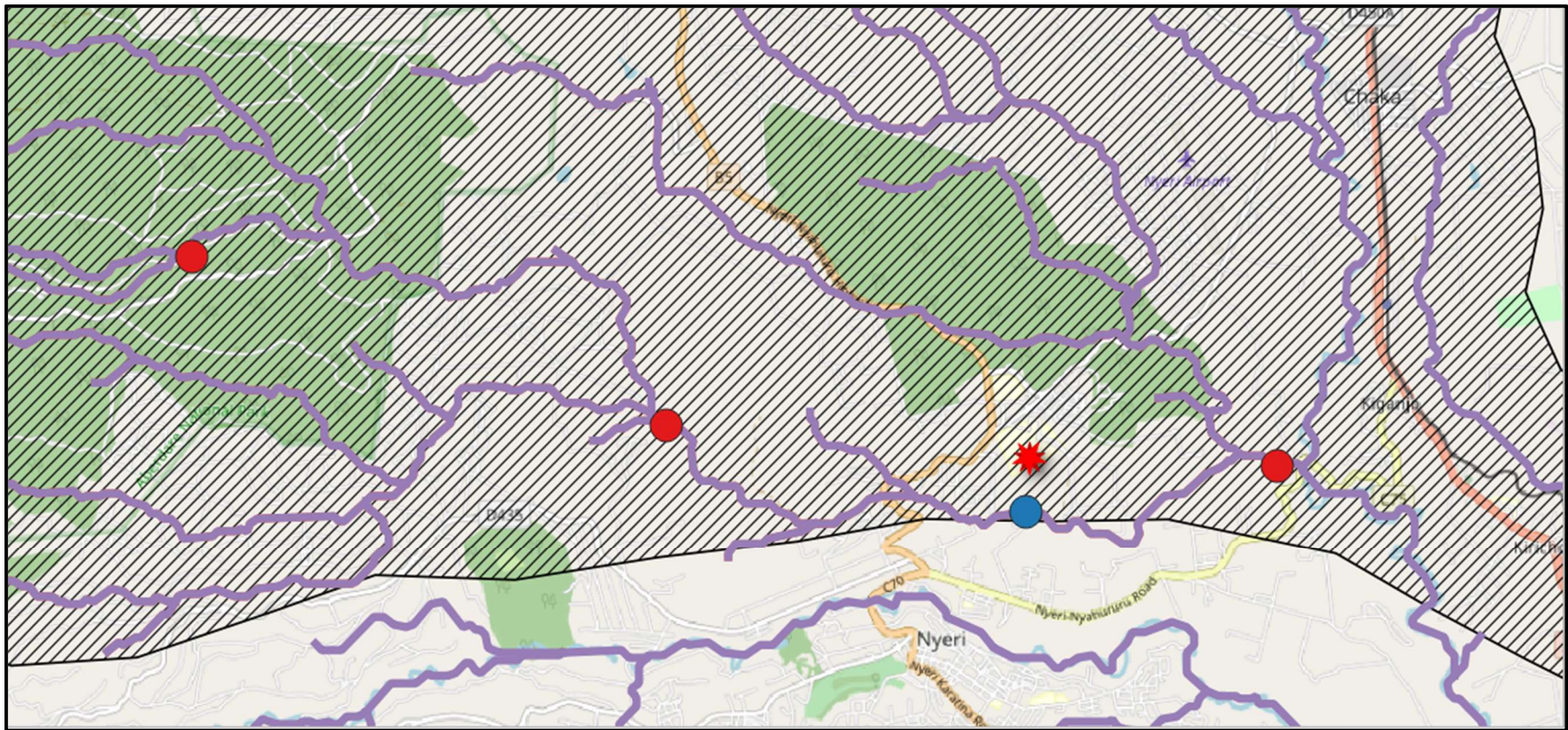
Dataset



catchment under study



Deployment location (catchment under study)



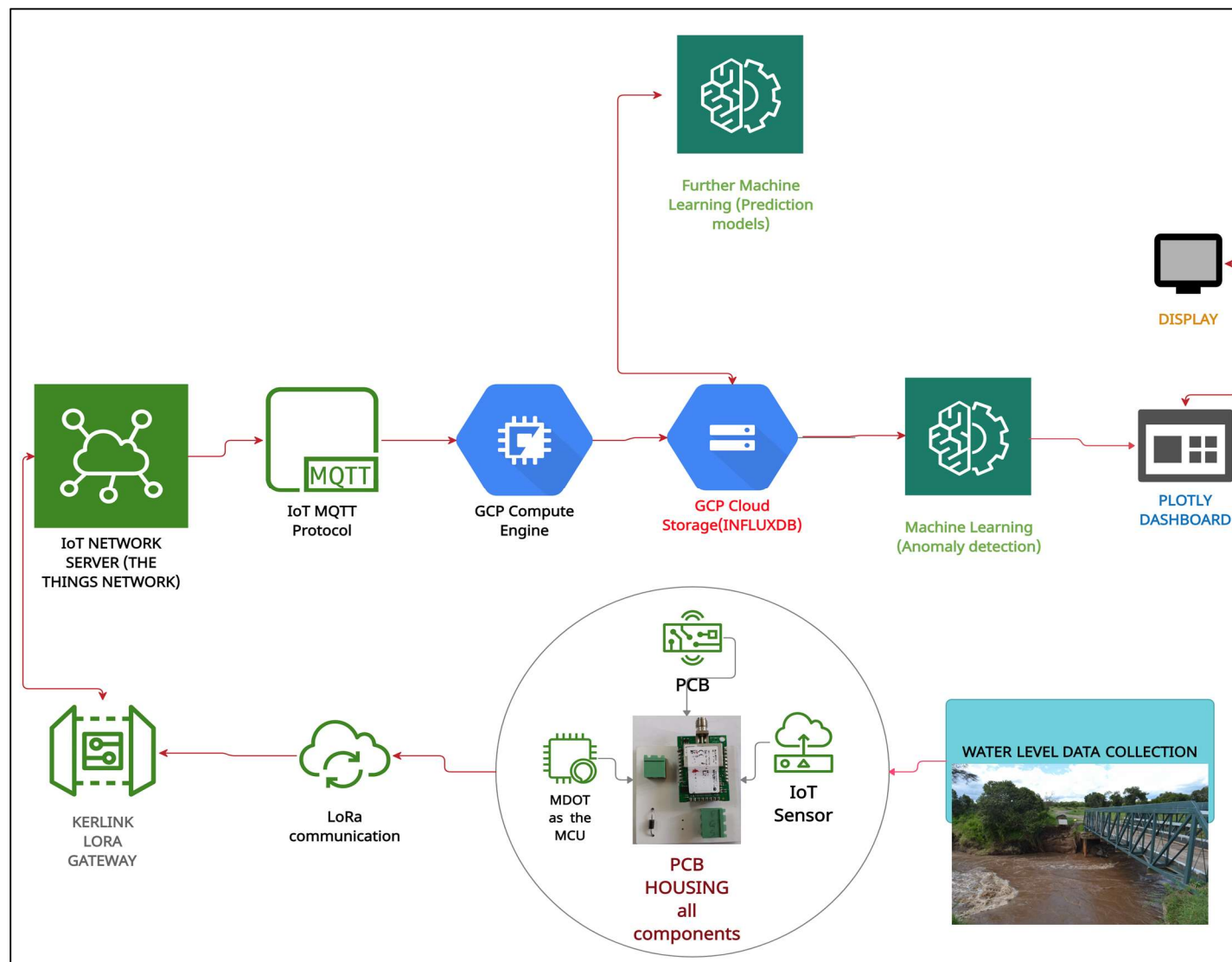
Hardware development

Hardware development Brakedown

- a) Setting up the LoRa IoT Network
- b) LoRa Network analysis.
- c) Hardware setup and schematic
- d) Deploying the water-level prototypes

Water level resource monitoring

Hardware setup (Flow Chart)

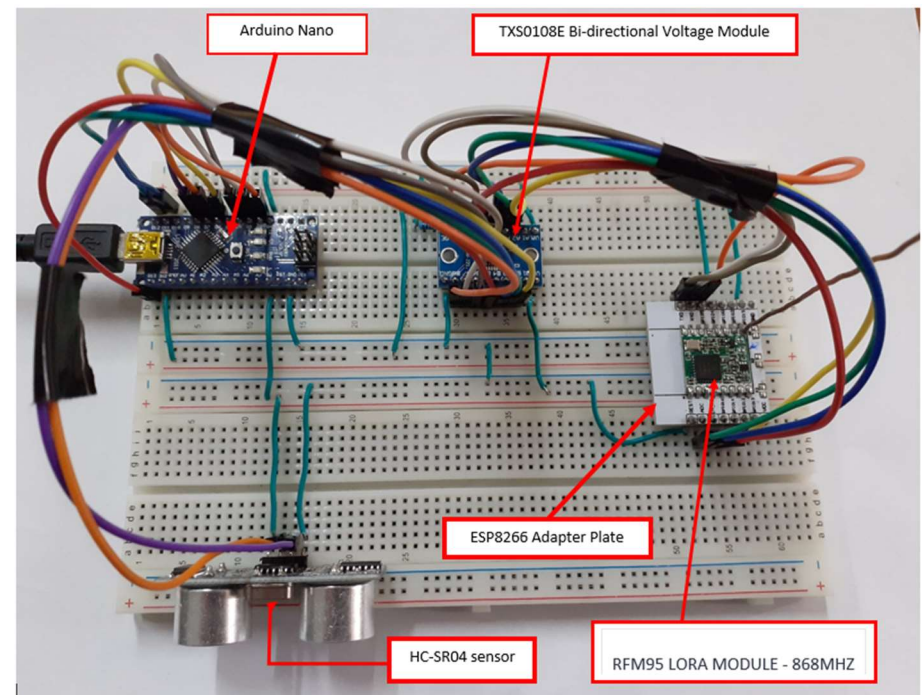


Hardware setup

Key Takeaways

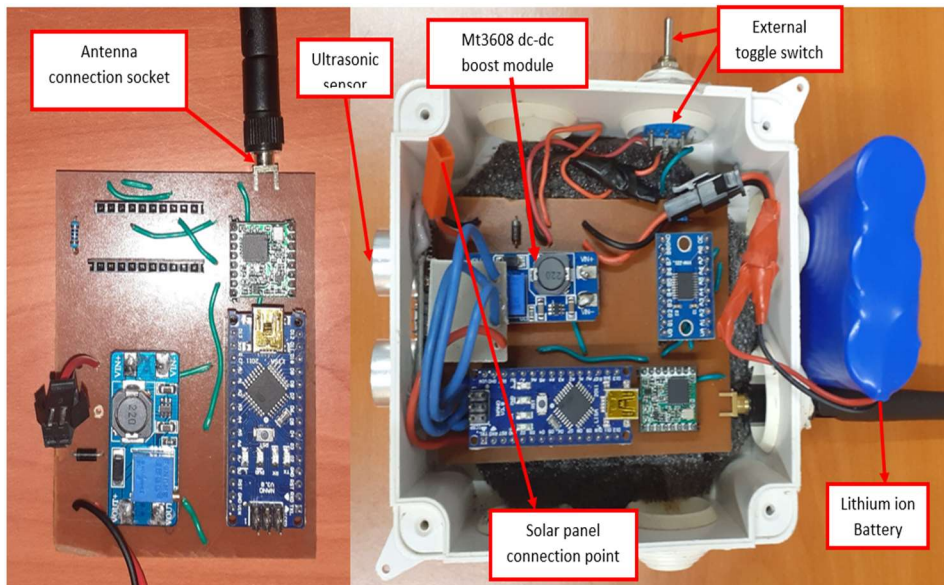
- **Setting up the LoRa Network – to handle data transmission.**
- **Network analysis – to determine the radius of deployment .**
- **Development of the actual water level monitoring prototype – to collect the data.**
- **Development of web infrastructure – to handle transmission and storage (time-series cloud database).**
- **Deployment .**

Developed prototype



Hardware setup

Ready for deployment

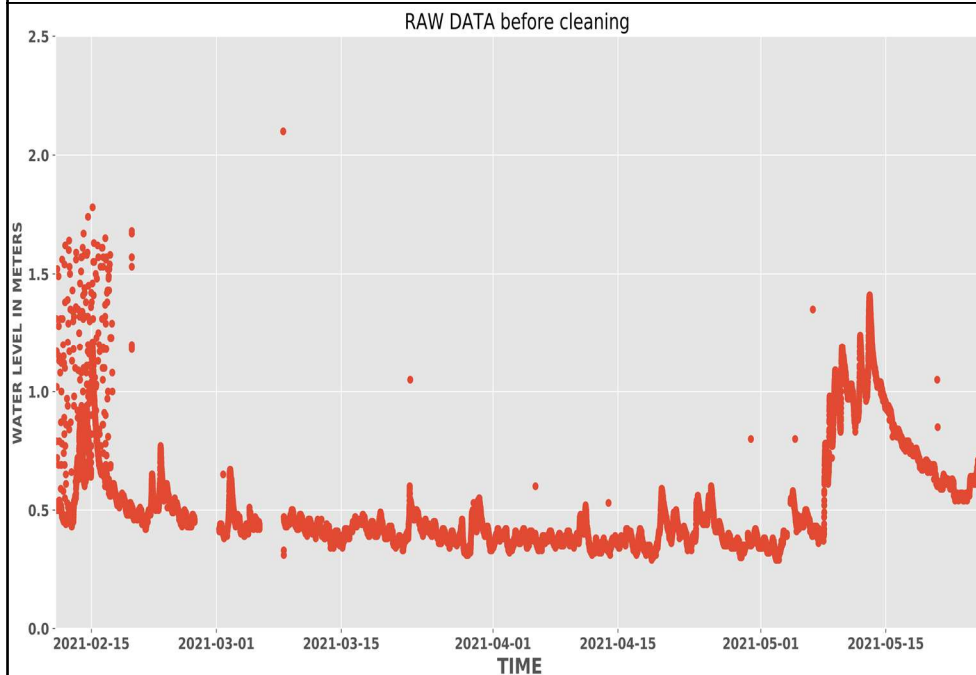


Deployed prototype

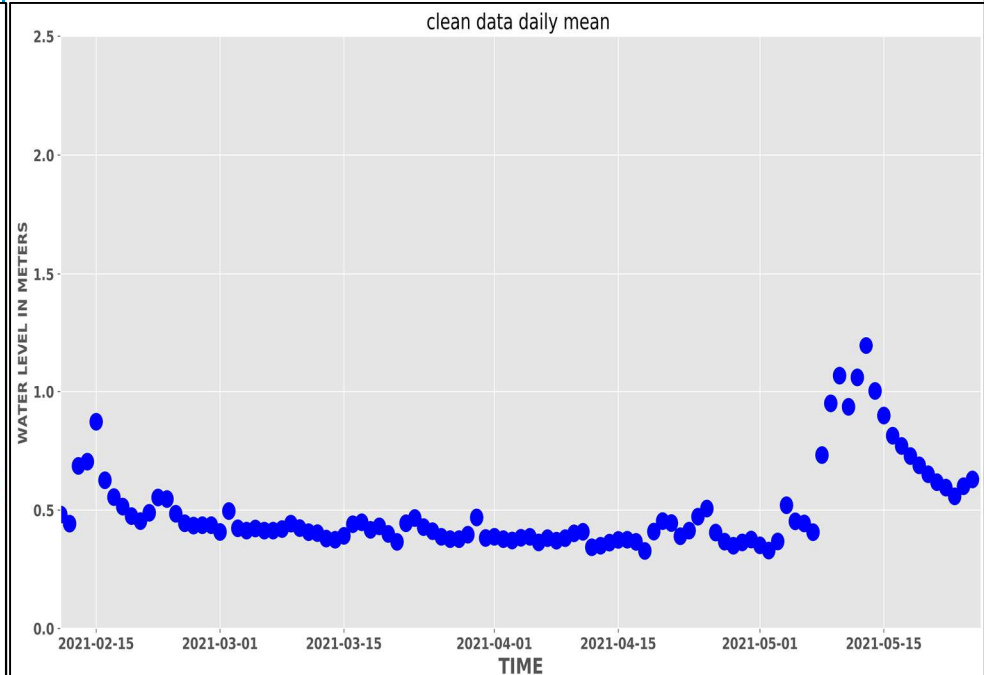


ANOMALY DETECTION (KMeans)

Raw data



Clean data (daily mean)



Links to this workshop



Links.

- [Kabi23.github.io](https://kabi23.github.io)
- [Dekut-dsail.github.io](https://dekut-dsail.github.io)
- <https://github.com/DeKUT-DSAIL/arm-dev-summit>

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Thank You

Danke

Gracias

谢谢

ありがとう

Asante

Merci

감사합니다

धन्यवाद

Kiitos

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