Environmental Data Acquisition and Processing

Water Resource Monitoring and Catchment Analysis

By

Jason Kabi

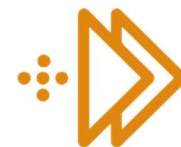Centre for Data and Artificial Intelligence

DSAIL

Session breakdown

Session Break Down

a) Motivation – The main goal
b) What water parameters are being monitored?
c) How are the parameters monitored?
d) Hardware development
e) Data acquisition
f) Data analysis – Anomaly detection

DSAIL
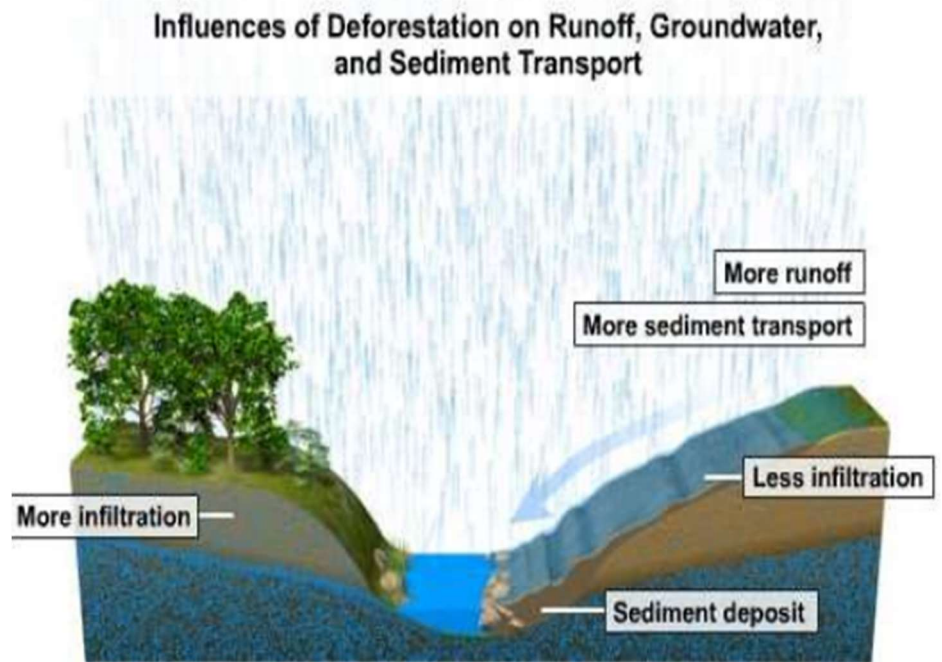SOLVING REAL WOLRD PROBLEMS

Motivation

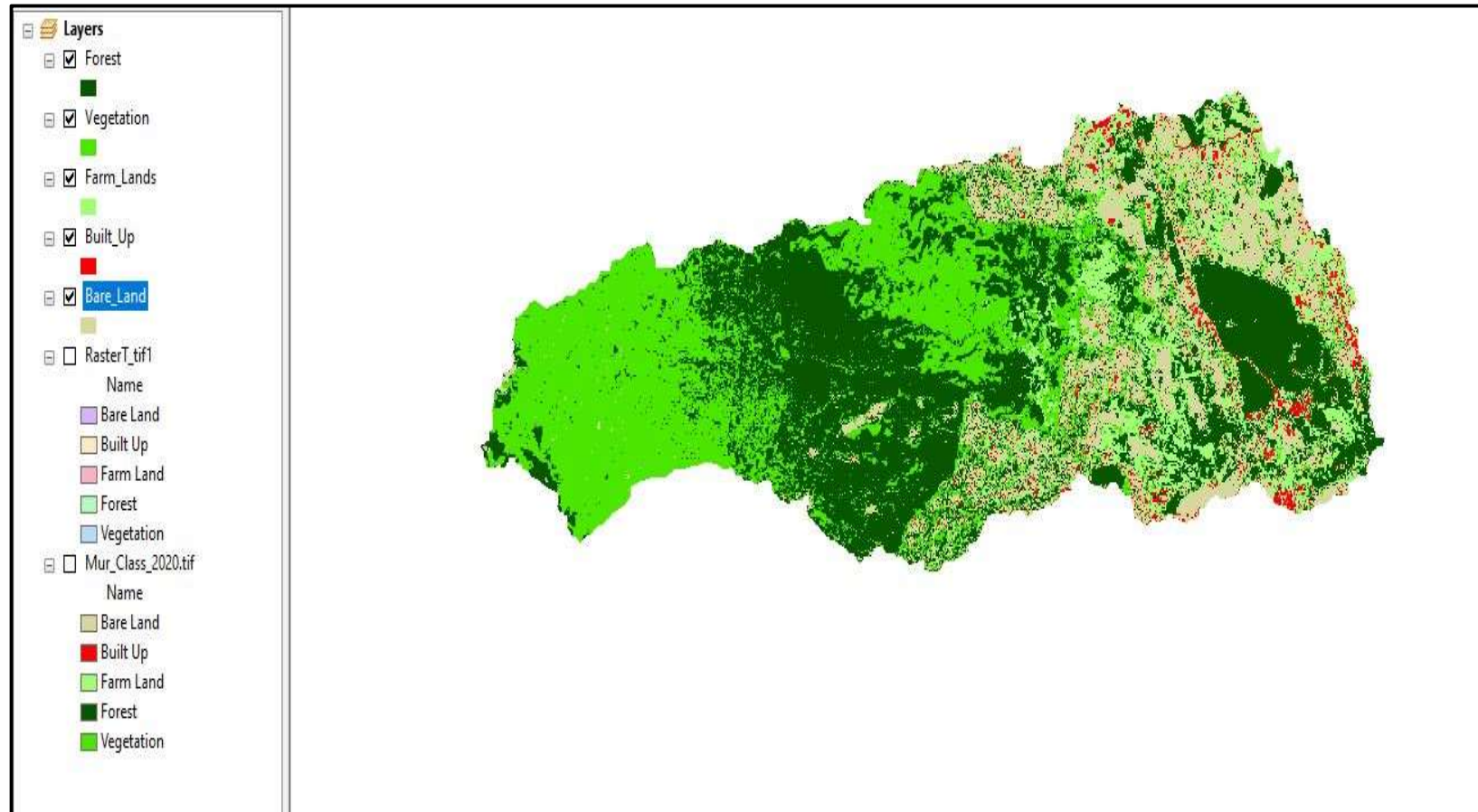**Main goal:** River catchment analysis using water-level data by leveraging IoT and machine learning

Takeaways

- Water level data can be used to "diagnose" a river catchment by watching the trends over some time.

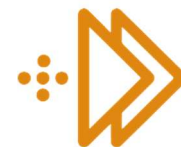- Question: How long does a spike in water level take to occur after a spike in rain.

Influences of Deforestation on Runoff, Groundwater, and Sediment Transport

More runoff
More sediment transport
Less infiltration
More infiltration
Sediment deposit

DSAIL
SOLVING REAL WOLRD PROBLEMS

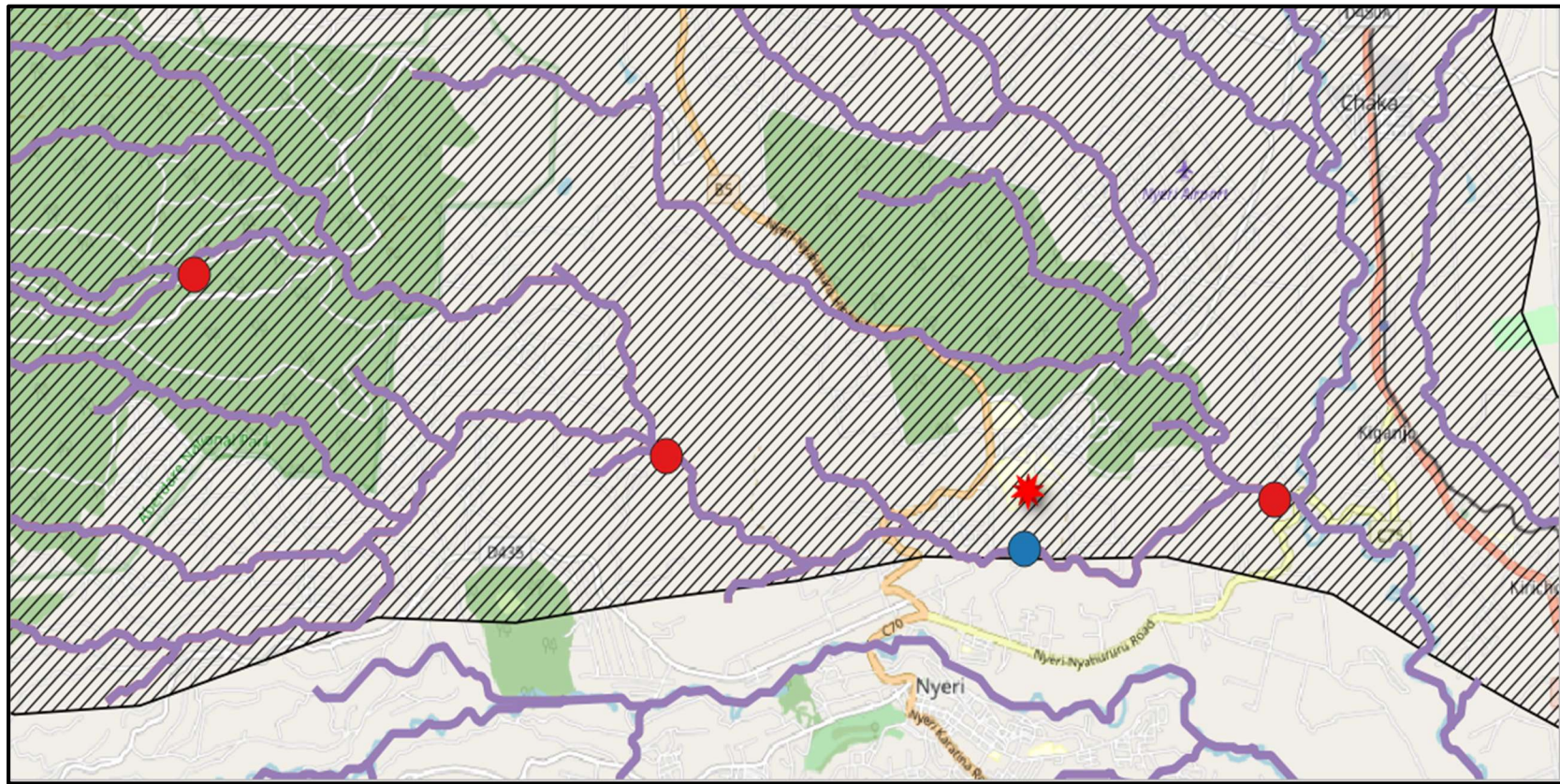# Catchment under study

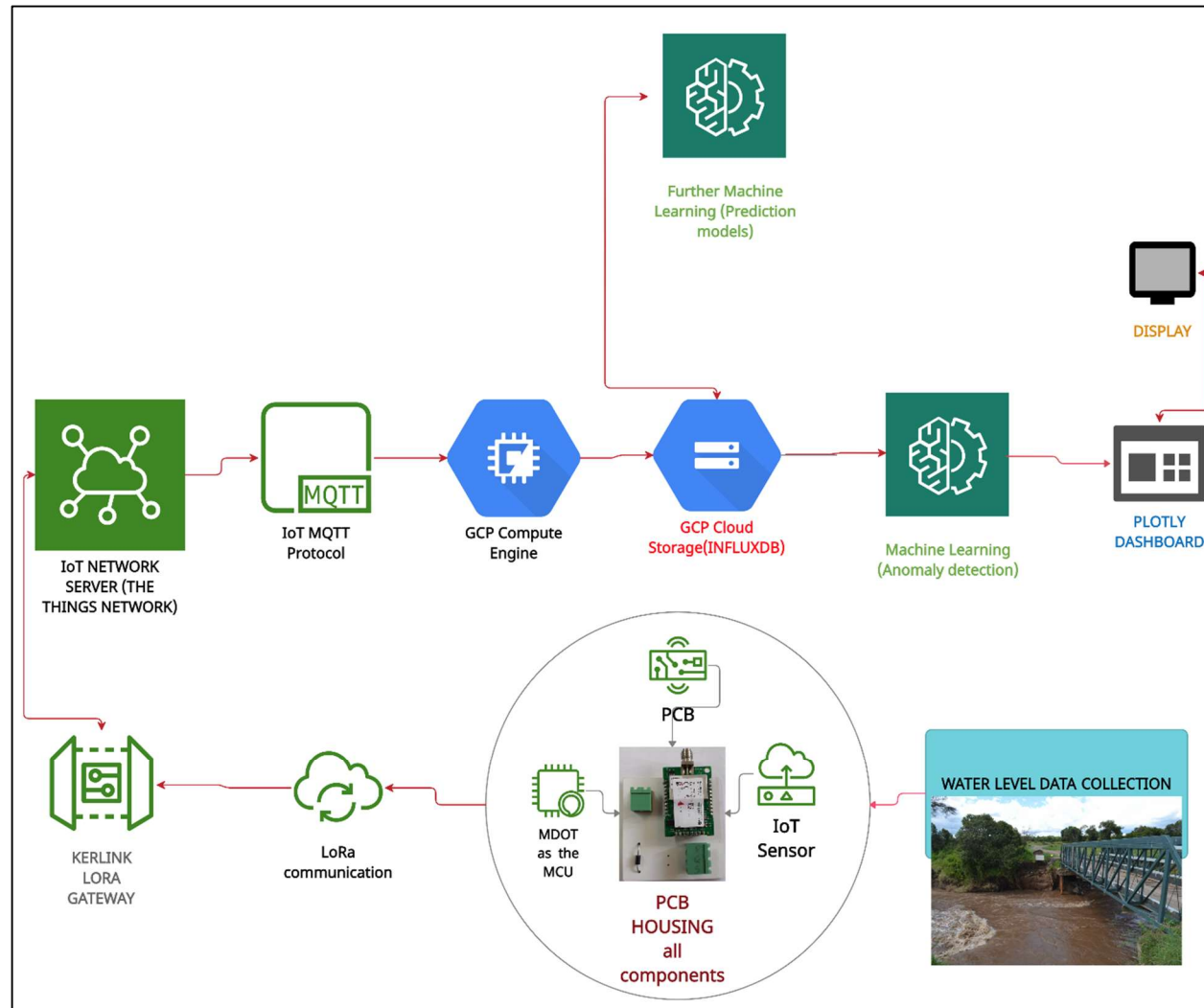Muringato Water shed – Nyeri - Kenya

DSAIL
SOLVING REAL WOLRD PROBLEMS
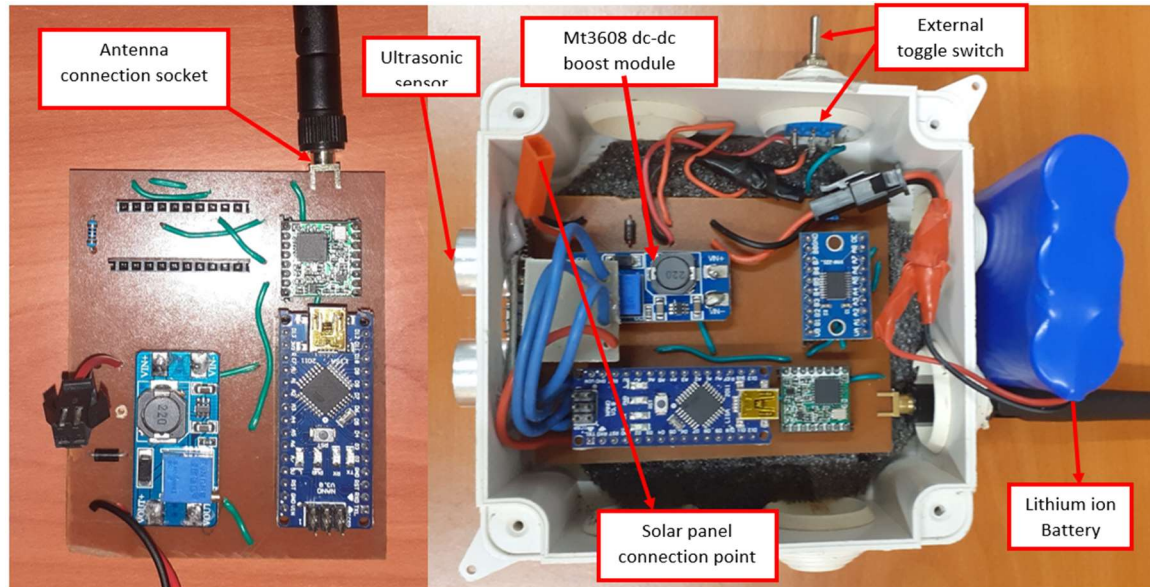
Deployment location (catchment under study)

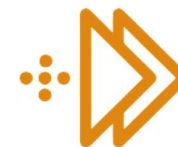# Water level monitoring setup (Flow Chart)

Hardware setup

Ready for deployment

Deployed

6

UPNEXT

ANOMALY DETECTION ON TIME SERIES WATER LEVEL DATA

DSAIL

SOLVING REAL WOLRD PROBLEMS