



# Plant WatchDog

Jonathan Bättig

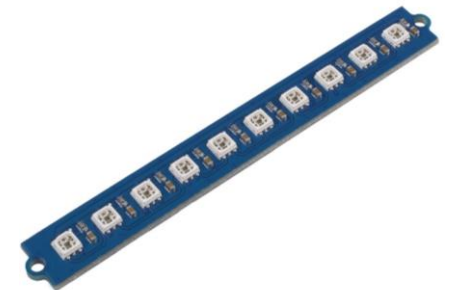
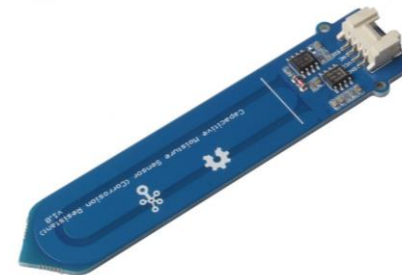
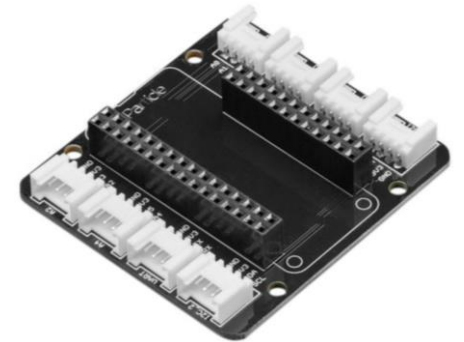
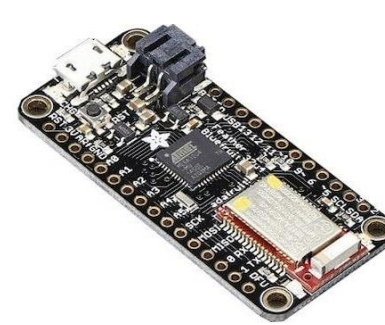
Mark Straub





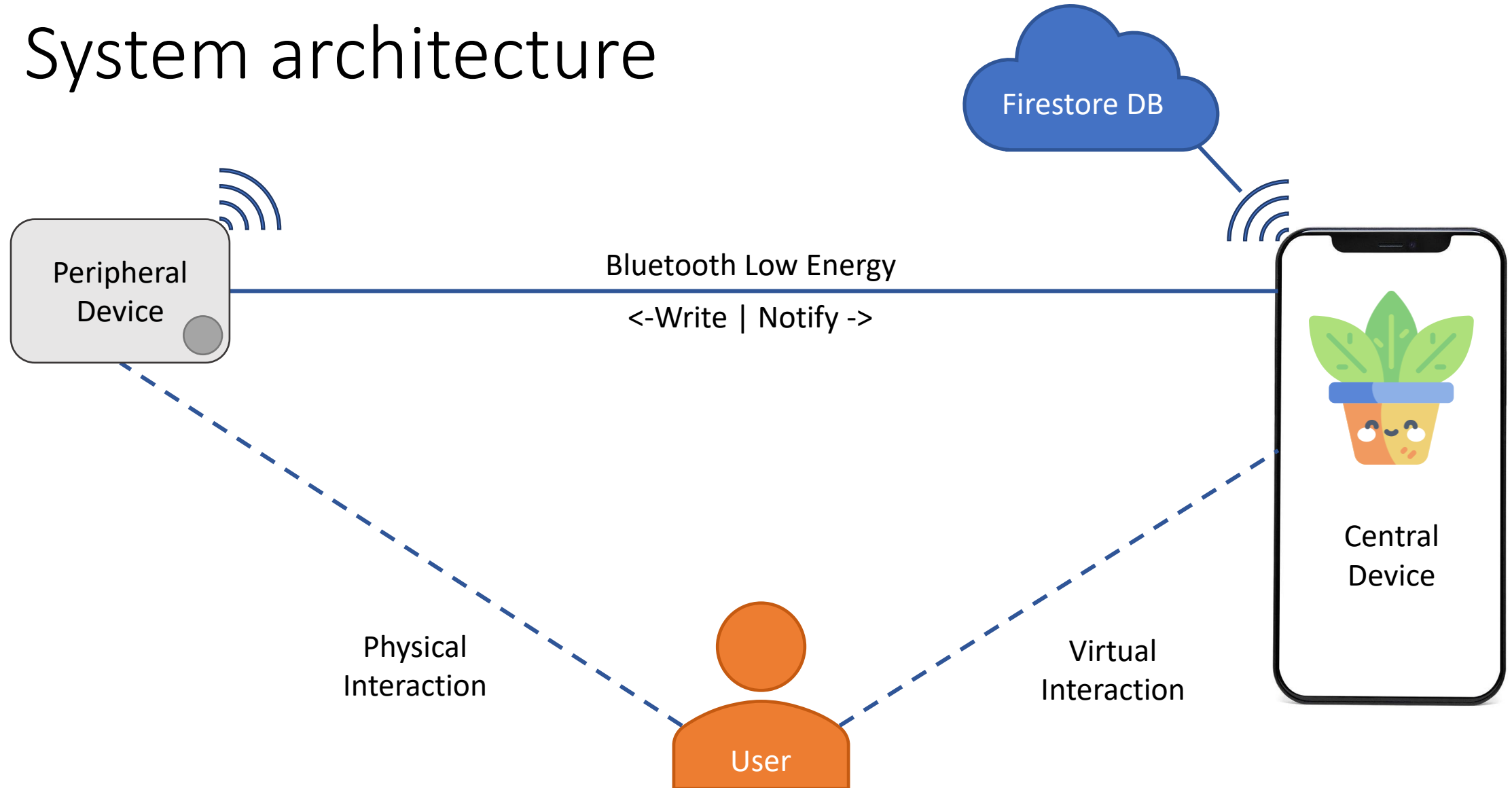
# Use case & device

- Plant health monitor
- Controller: Feather nRF52840
- Sensors: Temperature, Humidity, Capacitive Moisture
- Actuators: Grove RGB LED Stick
- Shield: Grove Particle Mesh





# System architecture





# System architecture

## BLE Interface

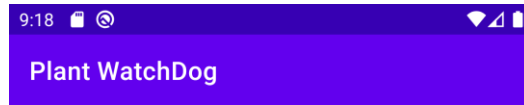
- Service:  
AAD50001-DE89-4B63-9486-975DAFAAAEBC
- Notify:
  - 02 -> Temperature
  - 03 -> Humidity
  - 04 -> Moisture
- Write:
  - 05, 06 -> Min., Max. Temperature
  - 07, 08 -> Min., Max. Humidity
  - 09, A0 -> Min., Max. Moisture

## HTTP Interface

- Google Firestore Library
  - HTTP GET & POST



# User interface



## Login



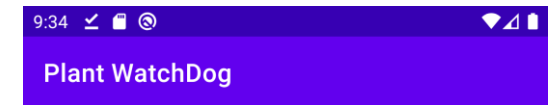
### LOGIN TO PLANT WATCHDOG

LOGIN

Don't have an account? [Register](#)



## Registration



### REGISTER TO PLANT WATCHDOG

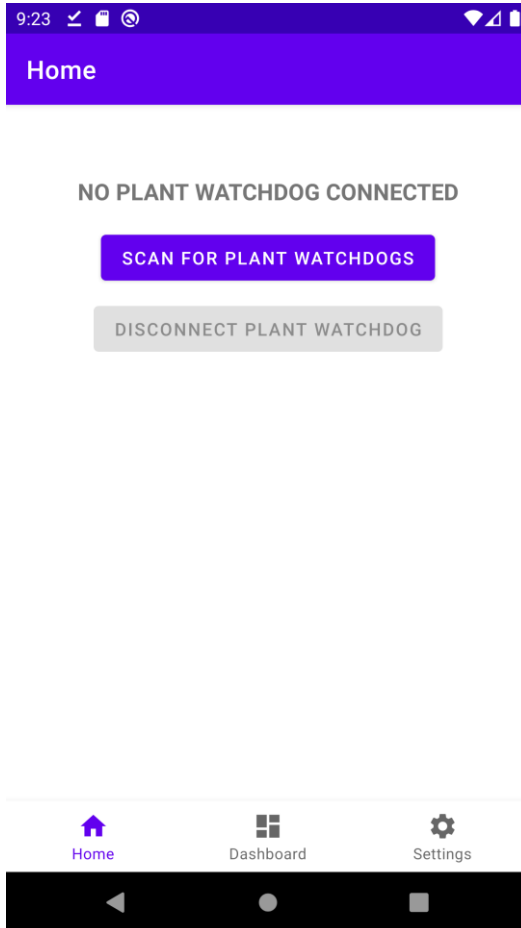
REGISTER

Already have an account? [Login](#)



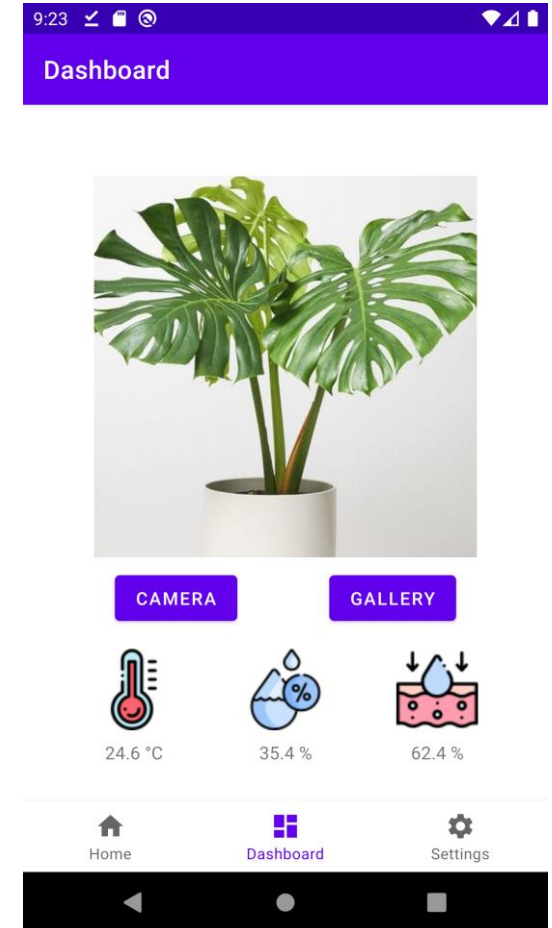


# User interface



## Home

- Scan
- Disconnect

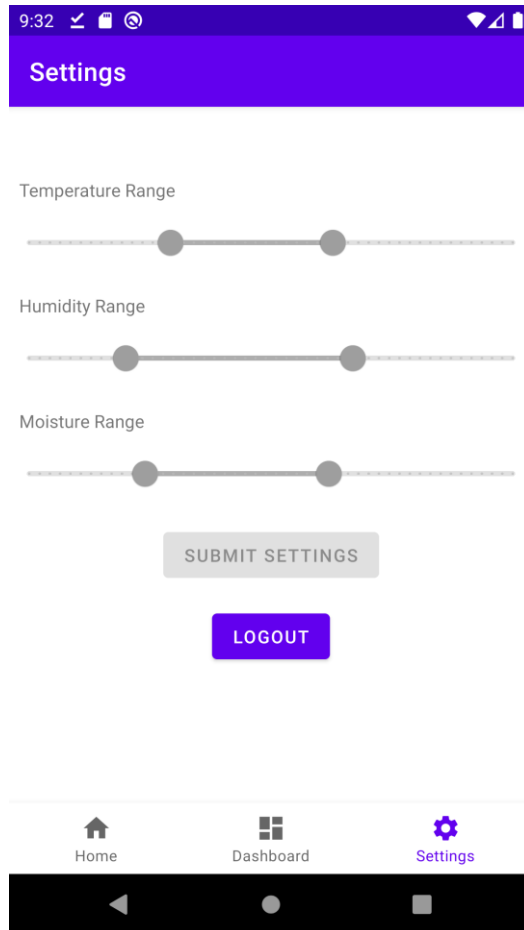


## Dashboard

- Image
- Current data

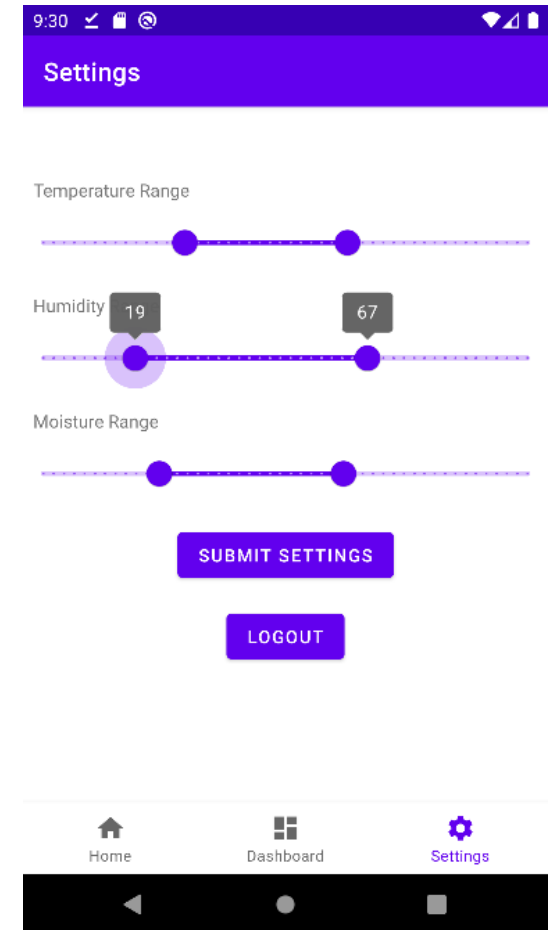


# User interface



## Settings

– Logout

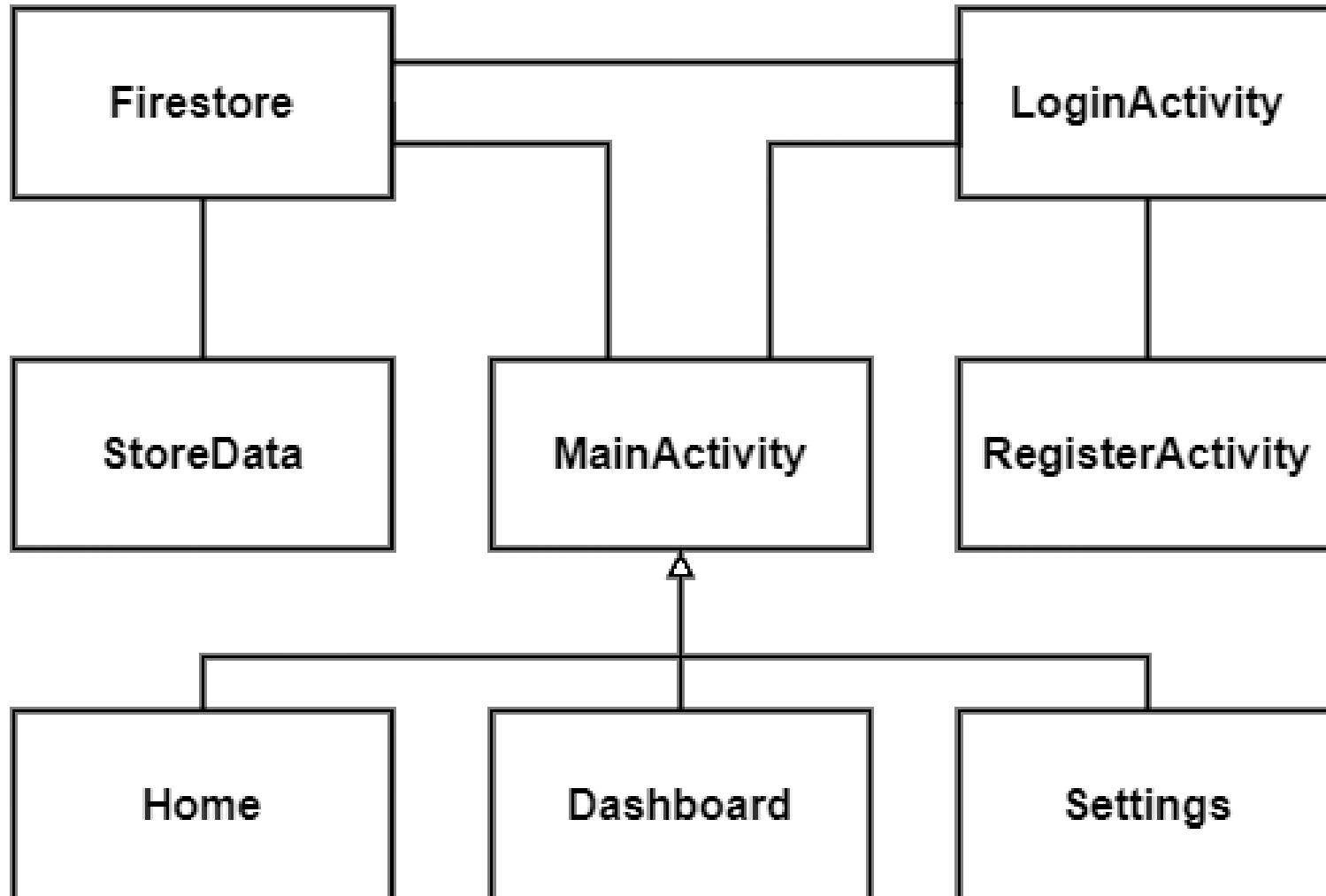


## Settings

– Adjust LED  
– Logout



# Software design



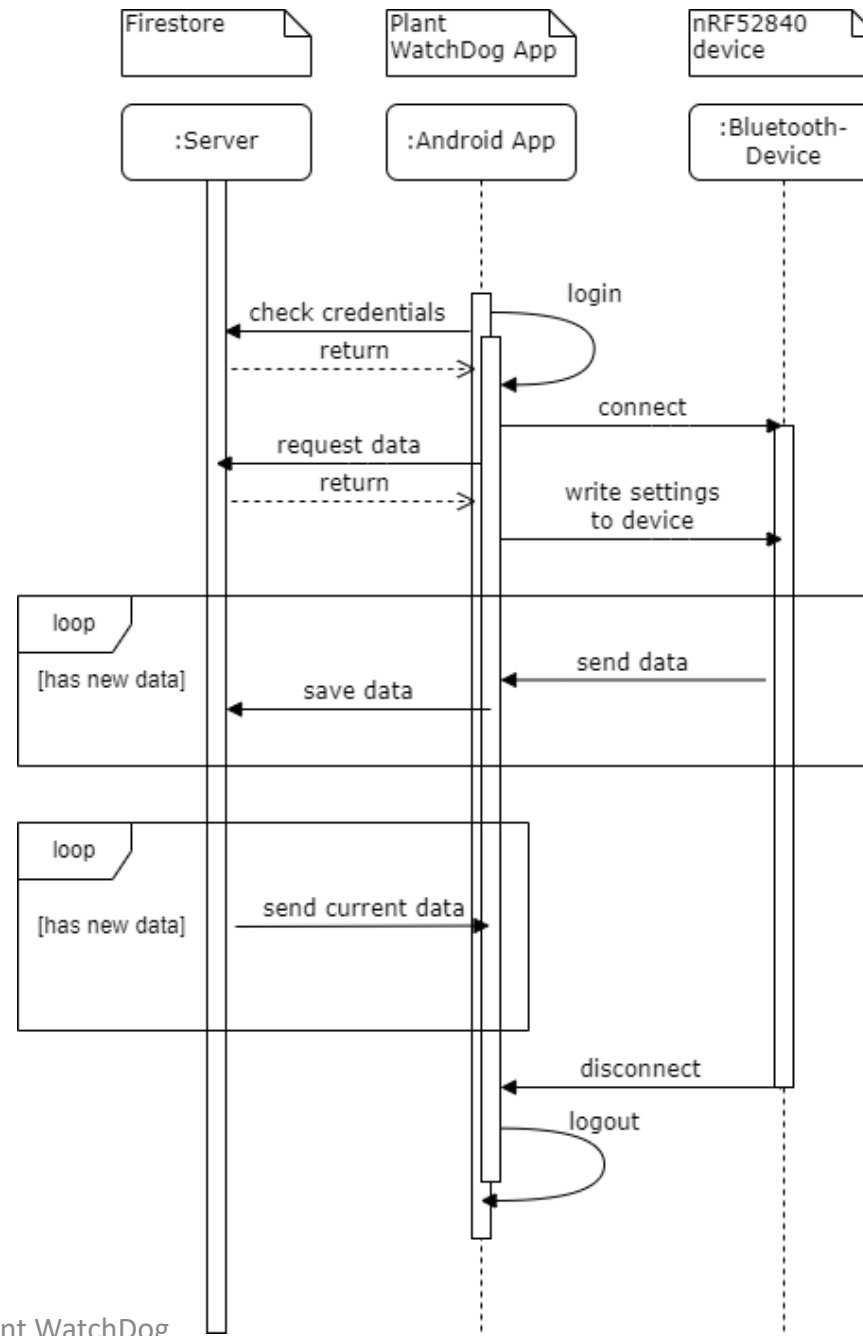
Class diagram





# Software design

## Sequence diagram





# Code quality

- Pair programming
- Standards from Android Documentation
- Logging



# Conclusion

- Achievements:
  - Theory put into practice
  - Stable & well-functioning product
  - Used Firestore & Android Camera
  - Multiuser support with login
- Outlook:
  - Use external temperature sensor
  - Display historical data in the app
  - Support monitoring of multiple plants on one account
- Technical Issues:
  - Solved: Firebase was wrong choice
  - Solved: Bluetooth write error
  - Unsolved: charts.kt installation

