DendroDoggie - An app to read data from a TOMST dendrometer

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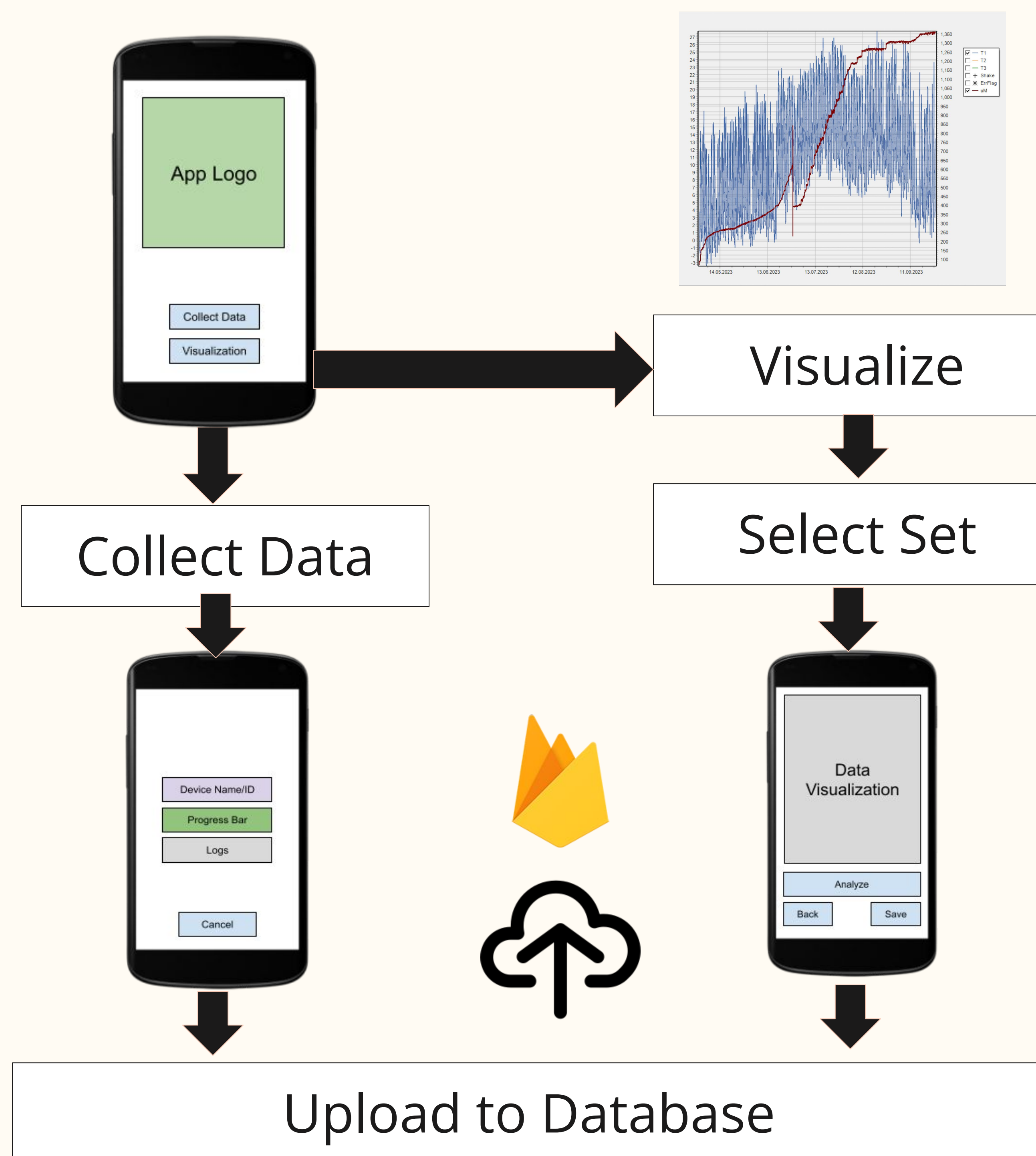DENDRO-DAWGZ
| GROWING A BRIGHTER FUTURE |

What is the Problem?

- Have to carry a laptop to the top of a Redwood tree for data collection
- Two handed use, with a long download from an awkward cable attachment
- Can only view data from one dendrometer at a time
- Difficult to share data with others

Prototype Interface

App Logo

Collect Data
Visualization

→ Visualize

Collect Data → Select Set

Device Name/ID
Progress Bar
Logs
Cancel

Data Visualization
Analyze
Back   Save

Upload to Database

Implementation

Frontend: Kotlin
- Future proof
- Easy to develop Android apps

Backend: C
- Large community of developers
- Allows access to low-level systems

Cloud Export: Firebase
- Powerful cloud platform
- Easy to implement

Graph Display: MPAndroidChart
- Large variety of charting options
- Allows customization of graphs

Solution Review

Develop a mobile application
- One handed, safer and cheaper
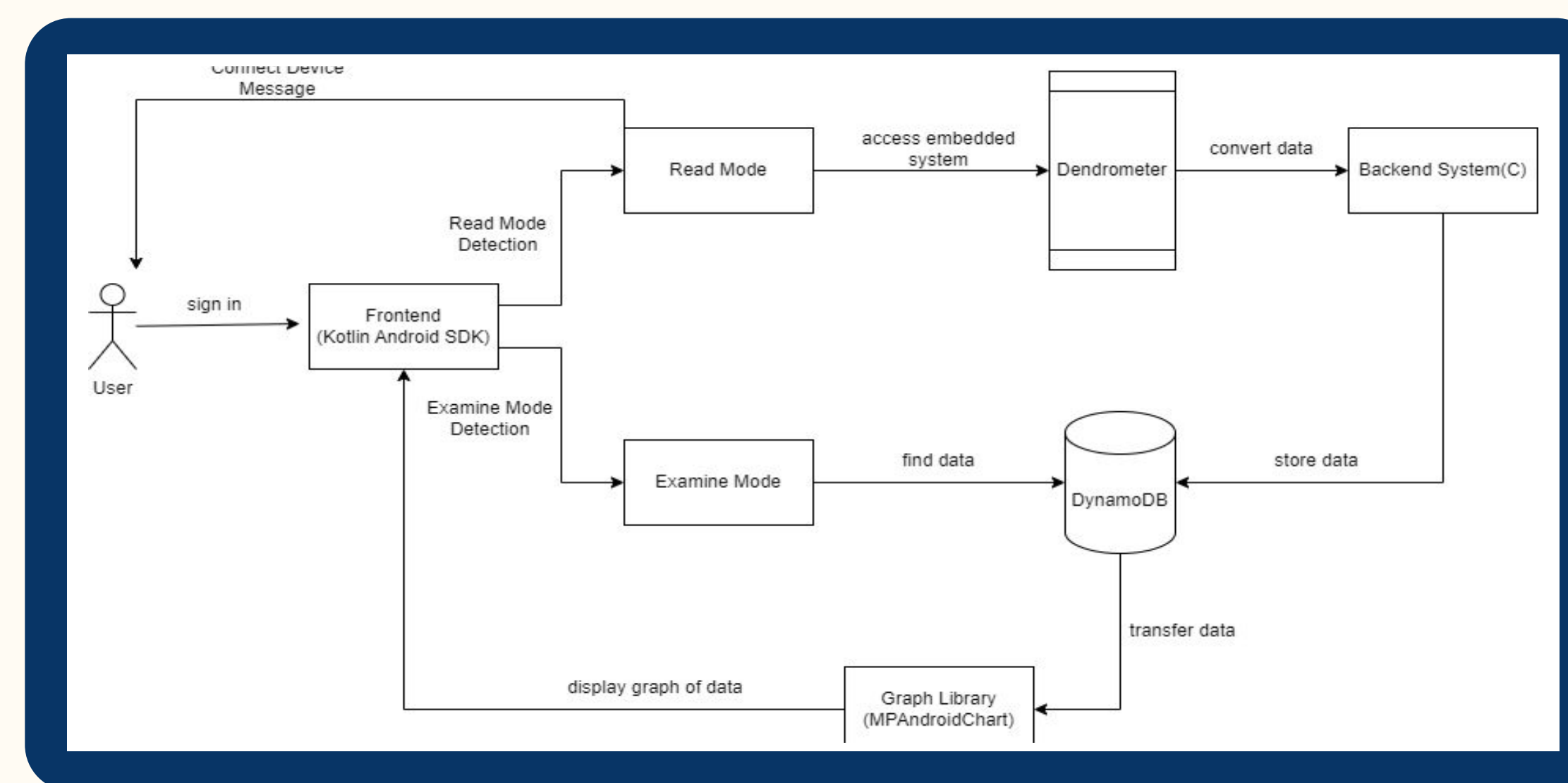
Several dendrometers, trees, or sites at a time
- Interactive graphs
- Comprehensive data

Export data to the cloud
- Easy data and file sharing
- Viewable from anywhere

Firebase

Solution Flow

Connect Device Message

Read Mode   access embedded system   Dendrometer   convert data   Backend System(C)

User   sign in   Frontend (Kotlin Android SDK)

Read Mode Detection

Examine Mode Detection

Examine Mode   find data   DynamoDB   store data

transfer data

display graph of data   Graph Library (MPAndroidChart)

Technologies

Firebase
MPAndroidChart
FTDI Chip
Kotlin
C