Bonnit-ws16-WoT-Lab

Sensor Project

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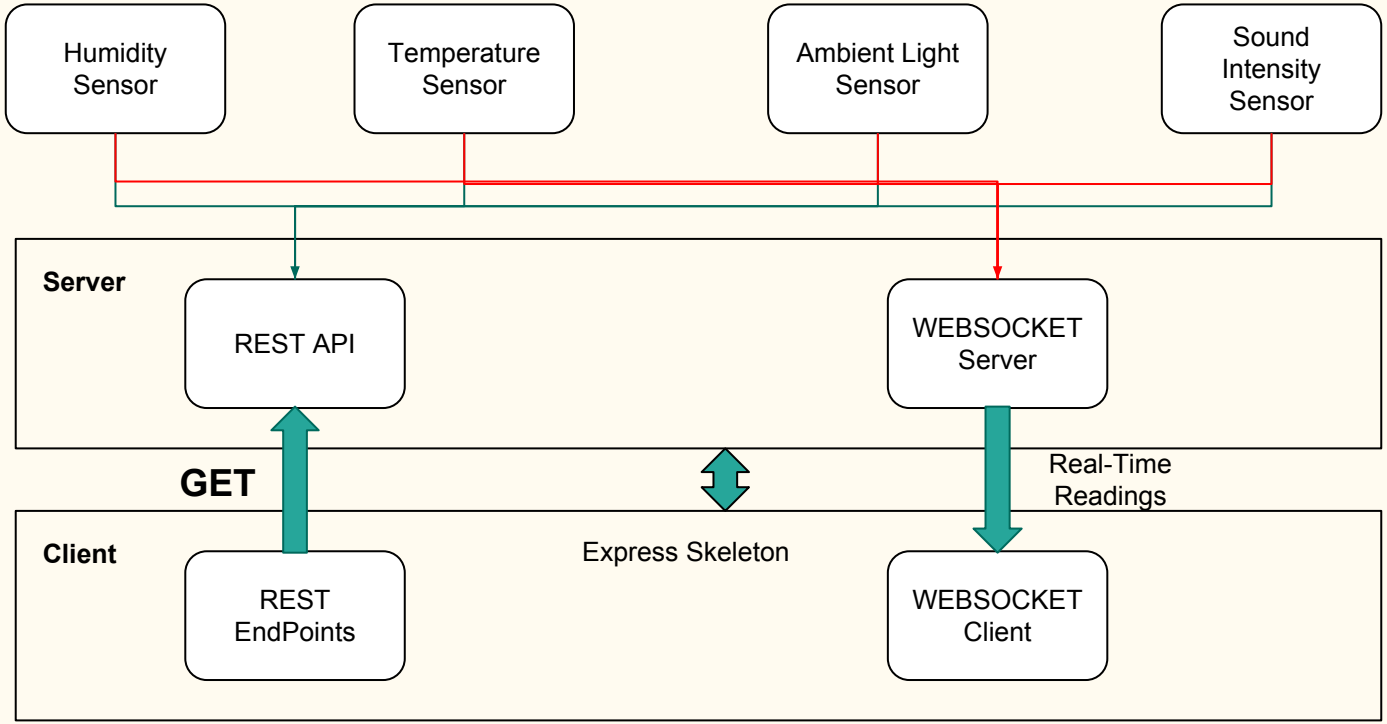
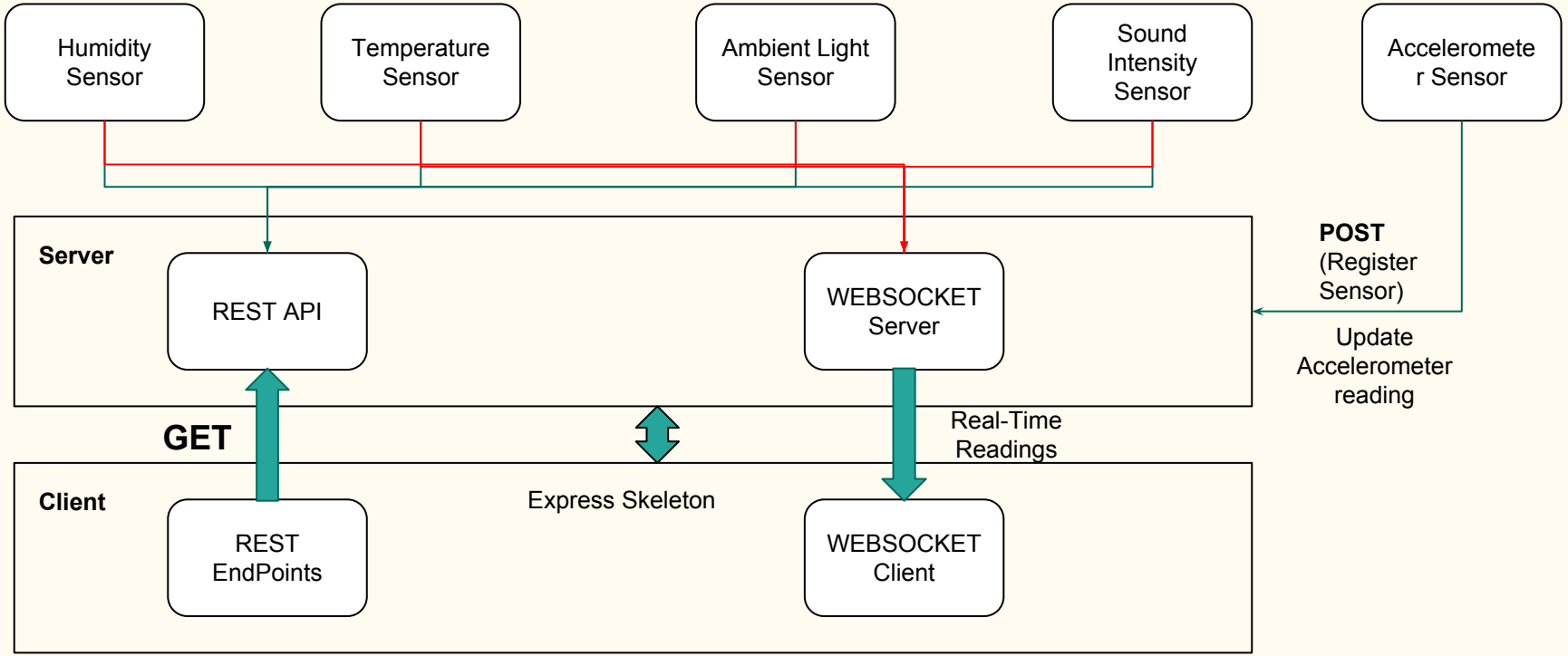
Code Organization and Architecture



Code Organization and Architecture



Use Cases

1. Starting and setting up server.
2. Sending dummy sensor data.
3. Sending accelerometer data from mobile app.
4. Displaying sensor readings on a dashboard.

1. Starting and setting up server.

Flow:

1. Create Sensors instances using dummy sensors.
2. Start the sensors .
3. Create server to handle REST requests(port 8080).
4. Create WebSocket Server(port 8082).

2. Sending dummy sensor data.

Condition: Server is Running

Flow:

1. User opens sensor dashboard Server detects web socket connection.
2. Collect the latest sensor value.
3. Send value to web client via websocket.

3. Sending accelerometer data from mobile app.

Condition: Server is Running and App is running.

Flow:

1. Post sensor data and Register sensor.
2. Server sends in response a JSON object of all sensor ids.
3. Then start the sensor through App.
4. Post request is sent to server with latest reading and timestamp.

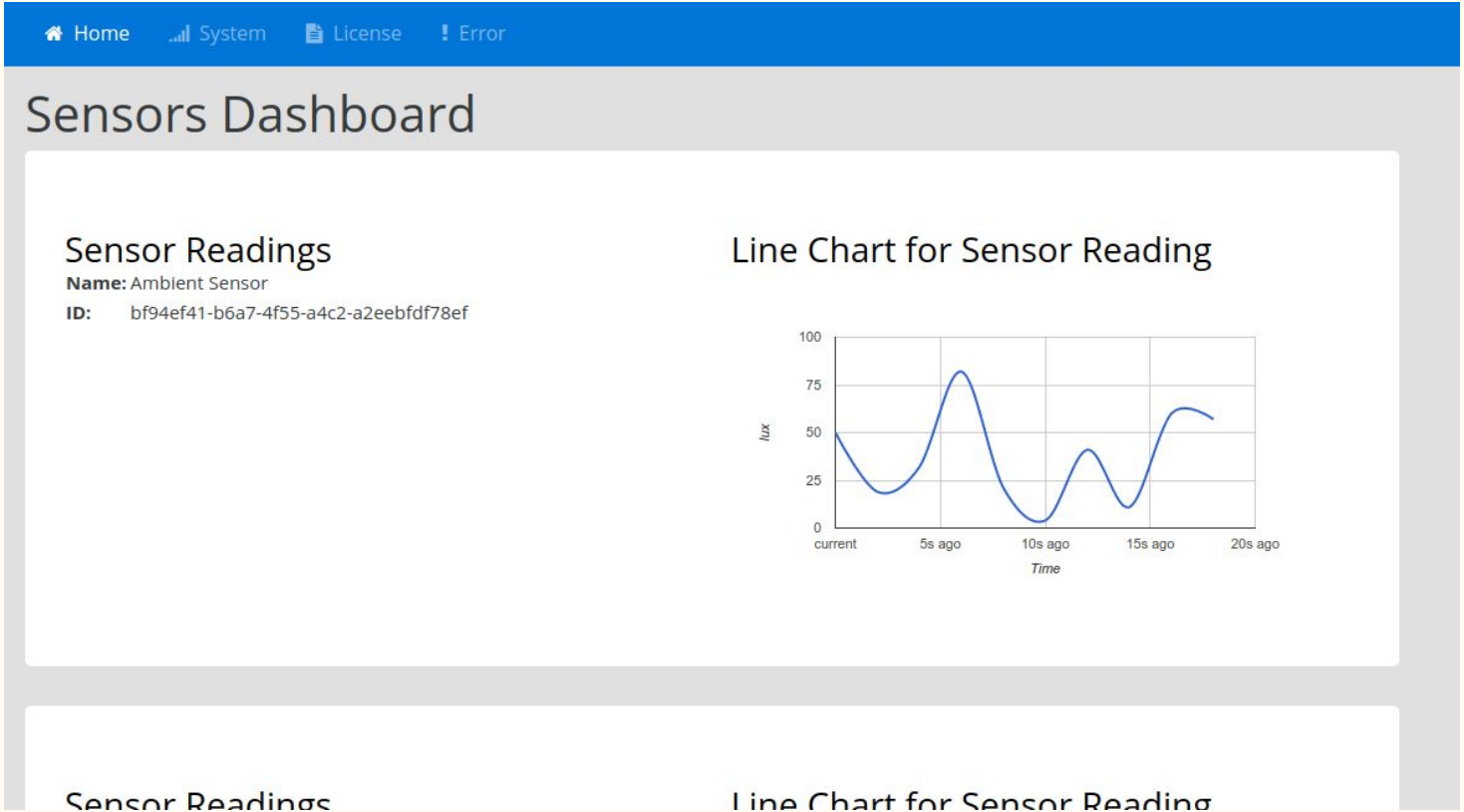
4. Displaying sensor readings on a dashboard.

Condition: Server is Running and App is running.

Flow:

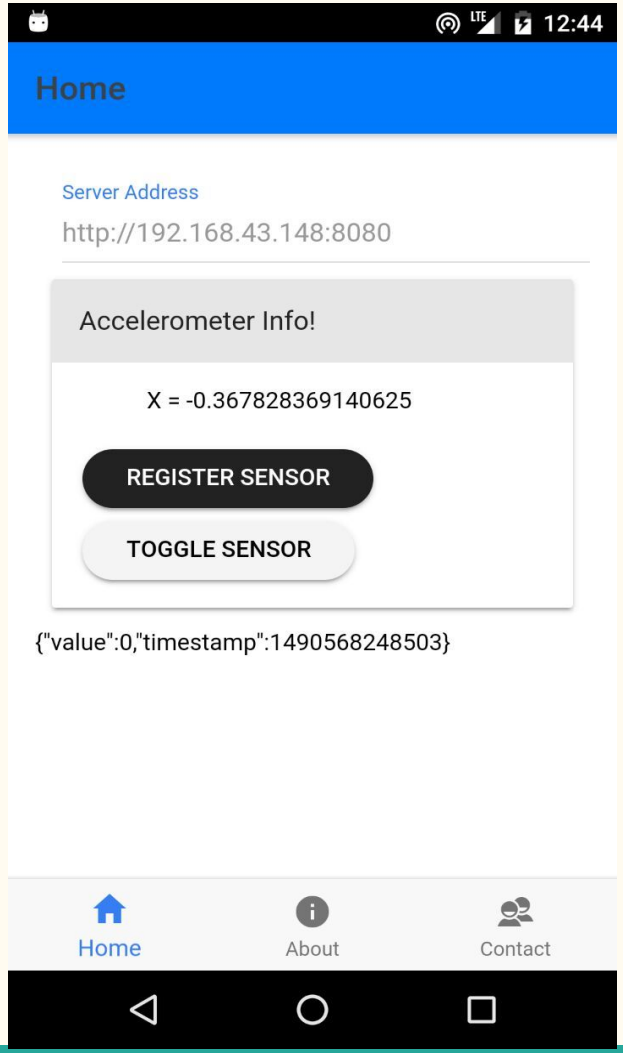
1. HTTP Get request is used to fetch sensor data from server.
2. Websocket receives the latest sensor readings and charts are updated.

User Interface



User Interface

Mobile Application



Lessons Learnt

- Working with Node.js and Javascript.
- How to build REST API.
- Websockets.
- Introduction to working with sensors.
- Creating cross-platform apps (Ionic).

Future Work

- Implementing with Sensors.
- Using different visualization techniques to represent sensor data.
- Accessing other sensors with mobile application and going in depth with Cordova/Ionic.
- Using sensor data and building useful applications.