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Biosensing 2.0

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Problem

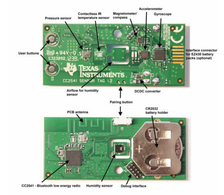
- Doctors would like to monitor their patient's health continuously and remotely.
- Doctors want to store and process their patient's data.
- Patients would like to see their health related data in a clear manner.

Solution

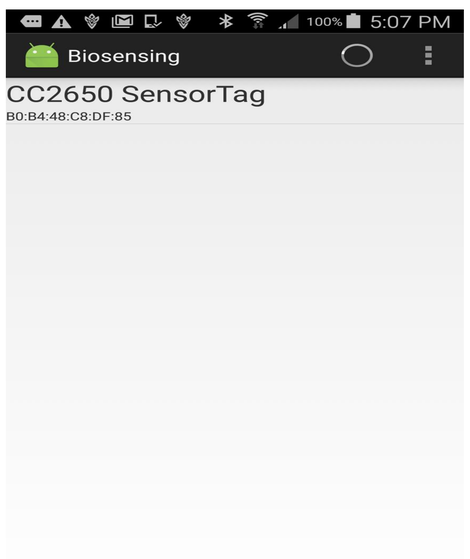
- Develop mobile and server applications for data retrieval.
- Data is retrieved from a biosensor device.
- Data is to be stored, analyzed; and displayed after processing.

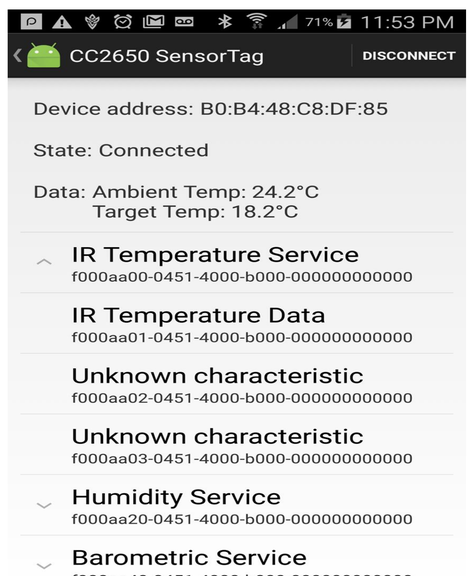
Current System

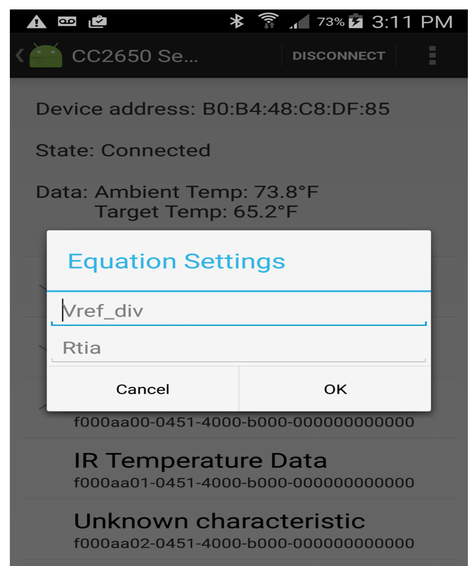
- There is currently no system that fulfills the requirements.
- There is an app from Texas Instruments that can gather data from a sensortag.

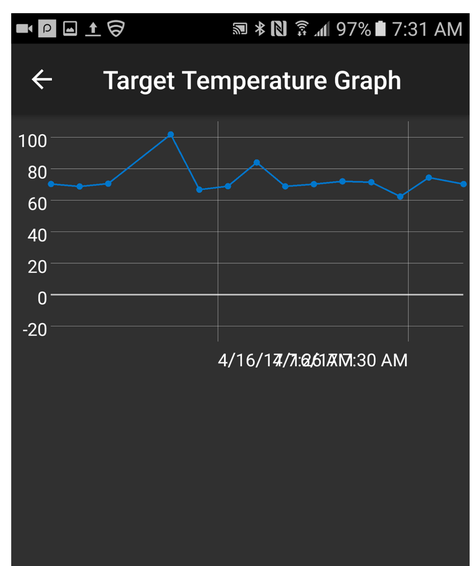


Screenshots







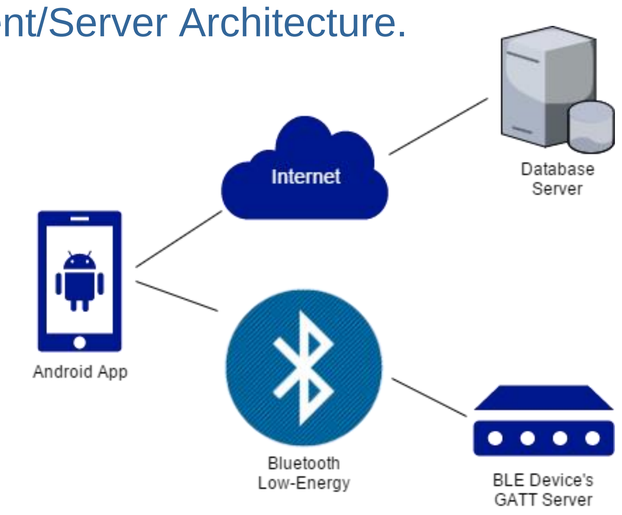


Requirements

- Android app must be able to scan for biosensor device.
- Android app must connect to a specific biosensor device.
- Android app must collect data from biosensor device.
- Android app must send data to a cloud server.
- Android app must display processed data from cloud server.

System Design

Client/Server Architecture.



Implementation

Used Android Studio for development of app.

Used Java for programming.

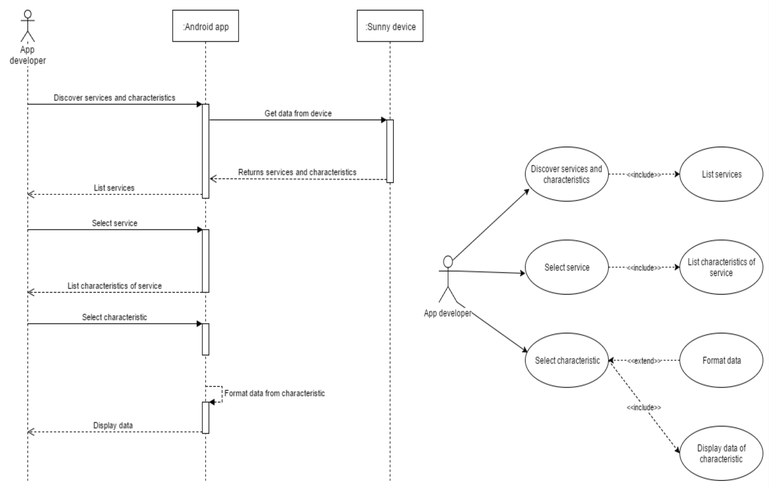
Used MS SQL Server for database implementation.

Verification

Test case ID: 185-001
Description/Summary of Test:
Test if Android app can connect to biosensor device.
Pre-conditions:
Android app is installed on mobile device, and mobile device has Bluetooth capability.
Expected Result:
The Android app connects to biosensor device.
Actual Result:
The Android app displays the device connected screen.

Test case ID: 199-001
Description/Summary of Test:
Test if Android app can retrieve data from biosensor device.
Pre-conditions:
Android app is installed on mobile device, and connected to biosensor device.
Expected Result:
The Android app displays services and characteristics from biosensor device.
Actual Result:
Services and characteristics are displayed.

Object Design



Summary

Developed an Android app with the following features:

- App can scan for biosensor devices and lists them.
- App can connect to a specific biosensor device.
- App can gather and send data to a cloud server.
- App can display formatted data from the cloud server.

Acknowledgement

The material presented in this poster is based upon the work supported by Dr. Shekhar Bhansali. I am thankful to the help that I received from my group member, Jordan Laing