

Project Midterm Evaluation

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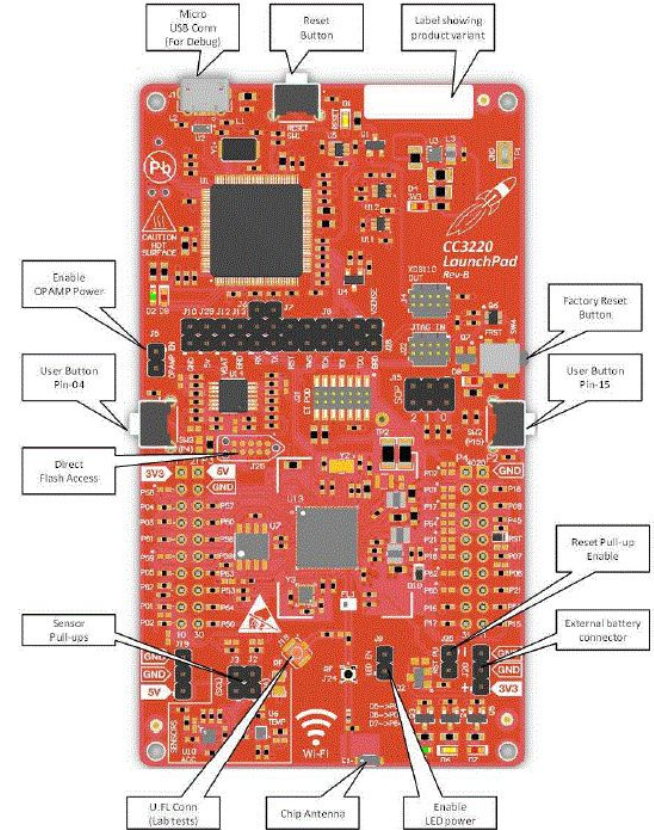
Smart Smoke Detector

- Mobile alerts
 - Faster response time
- Wifi connected (Network processor)
 - Our build for IoT
- Utilizes 3 wires
 - AC power source
 - Uses a wire as a signal when it detects smoke
- Smart interconnect system to connect multiple smoke detectors together



Existing Solutions

- Texas Instruments (CC3220SF-LAUNCHXL)
 - Smart thermostat guidelines to CC3220SF Board
 - Automatically door locked
 - SNS messages via MQTT broker to mobile devices
 - LED text showing on board
 - Motion camera detector
 - Commanding electronic devices turn on/off
 - Guidelines will help the implementation of the board



Required Components

- TI-CC3220SF LaunchPad
- AWS Account (student email requirement)
- Smoke Detector

AWS Management Console

AWS services

Find Services

You can enter names, keywords or acronyms.

Q Example: Relational Database Service, database, RDS

▼ Recently visited services

 IAM

 IoT Core

 Amazon MQ

 DynamoDB

 Lambda

▼ All services

Compute

EC2
Lightsail 
ECR
ECS
EKS
Lambda
Batch
Elastic Beanstalk
Serverless Application
Repository

Storage

S3
EFS
FSx
S3 Glacier
Storage Gateway
AWS Backup

Management & Governance

AWS Organizations
CloudWatch
AWS Auto Scaling
CloudFormation
CloudTrail
Config
OpsWorks
Service Catalog
Systems Manager
Trusted Advisor
Managed Services
Control Tower
AWS License Manager
AWS Well-Architected
Tool
Personal Health
Dashboard 

AWS Cost Management

AWS Cost Explorer
AWS Budgets
AWS Marketplace
Subscriptions

Mobile

AWS Amplify
Mobile Hub
AWS AppSync
Device Farm

AR & VR

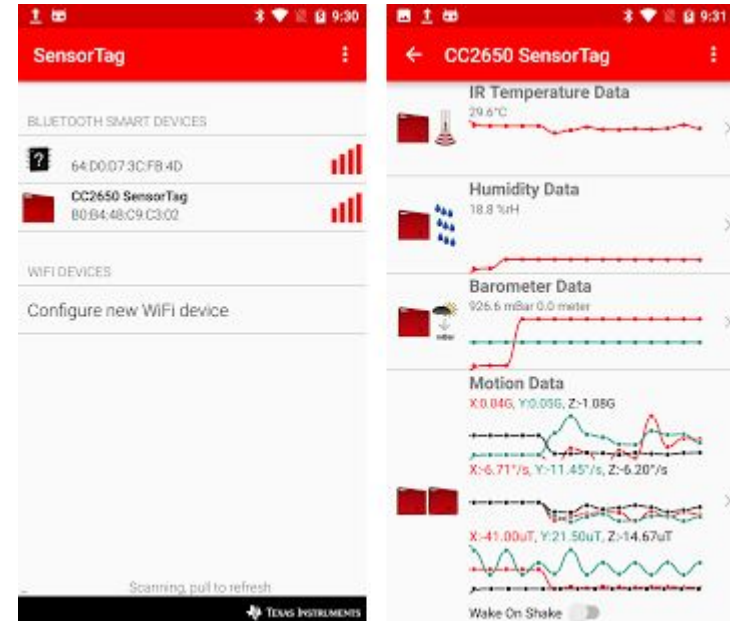
Amazon Sumerian

Application Integration

Step Functions

Software

- To implement CC3220 with Amazon FreeRTOS
 - Follow professor Liu's example
- Code Composer Studio IDE (CCS)
 - Implement wireless support
 - Wi-Fi (IEEE 802.11 b/g/n)
- SimpleLink CC3220 SDK v1.50.00.06
- Uniflash v4.2 or Later
- Network Terminal
- Terminal access (assuming Tera Term)



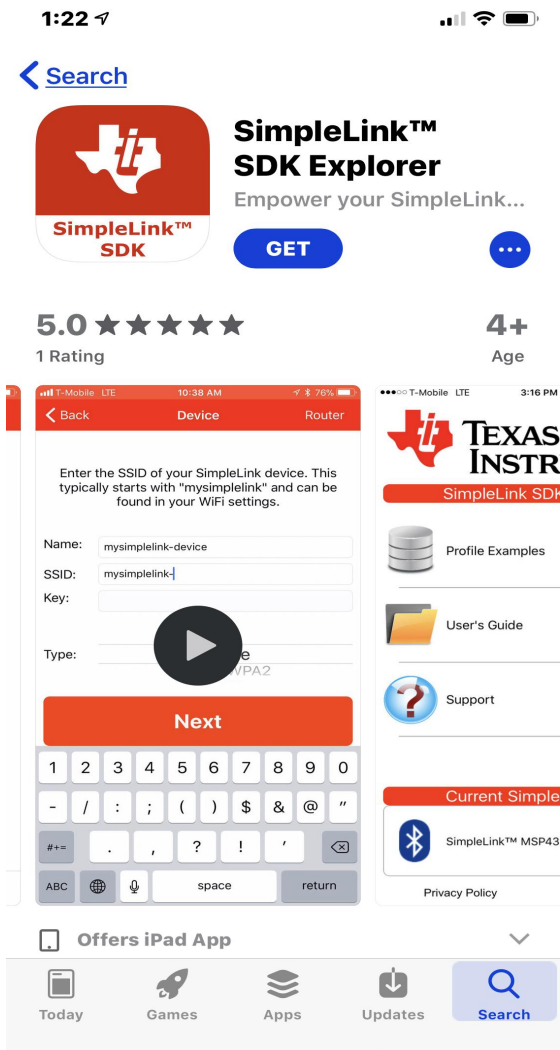
Hardware

- CC3320SF TI Board
- 1 micro USB cable (connected to CCS)
 - For programmer/debugger and terminal form
- 802.11 (2.4 GHz) wireless access point



Texas Instruments software

- Download the Texas Instrument connect app
- See how to connect <http://www.ti.com/tool/wifistarterpro>
- Allows connection
 - To the board
 - To mobile device

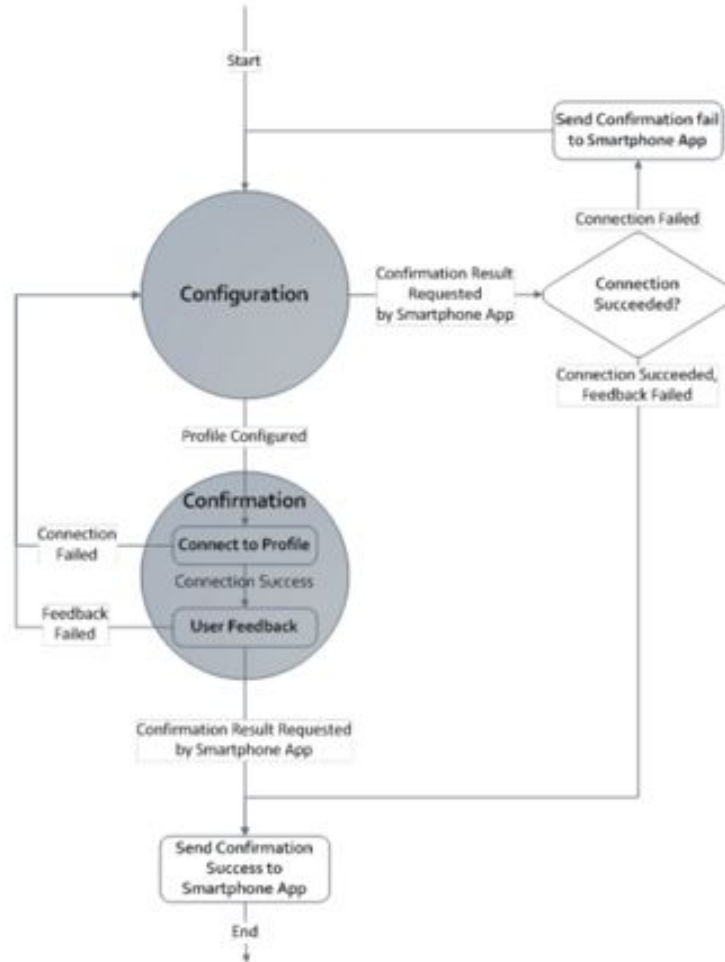


Current Status

- Group discussion on the first hand project
- We have Hardware portion
 - TI-CC3220SF LaunchPad
 - Smoke detector (on delivery) Kidde i12060 Hardwire with Front Load Battery Backup Smoke Alarm
- We have Software portion
 - Creating the pathway in Code Composer Studio
 - CC3220 SDK v1.50.00.06
 - Uniflash Applications
- AWS
 - Things/Rules
 - Certificates
 - Policies



Architecture



Our Plan

- Smoke detector (on route)
- Group meetings take place on Monday/Wednesday @ 1:15 pm
- Start implementing software for board week of 4/14
- Connect board to smoke detector week of 4/21
- Presentation week of 4/28



Resources

- <http://www.ti.com/lit/ug/tidudo1/tidudo1.pdf>
- <https://training.ti.com/webcast-building-your-security-system>
- <http://www.ti.com/tool/CC3220SF-LAUNCHXL>
- http://dev.ti.com/tirex/content/simplelink_academy_msp432sdk_1_15_00_00/modules/wifi_provisioning/wifi_provisioning.html
- <https://www.mouser.com/new/Texas-Instruments/ti-cc3220sf-launchxl-development-kit/>