**MICHIGAN STATE**
**U N I V E R S I T Y**

# Project Plan
## Connected Appliance SmartZones

### The Capstone Experience

**Team Whirlpool**

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*From Students…*
*…to Professionals*

# Project Overview

- Energy efficiency is important

- Appliances need to be smarter

- The mobile advantage

# Functional Specifications

- Detects user location

- Control user appliances based on location
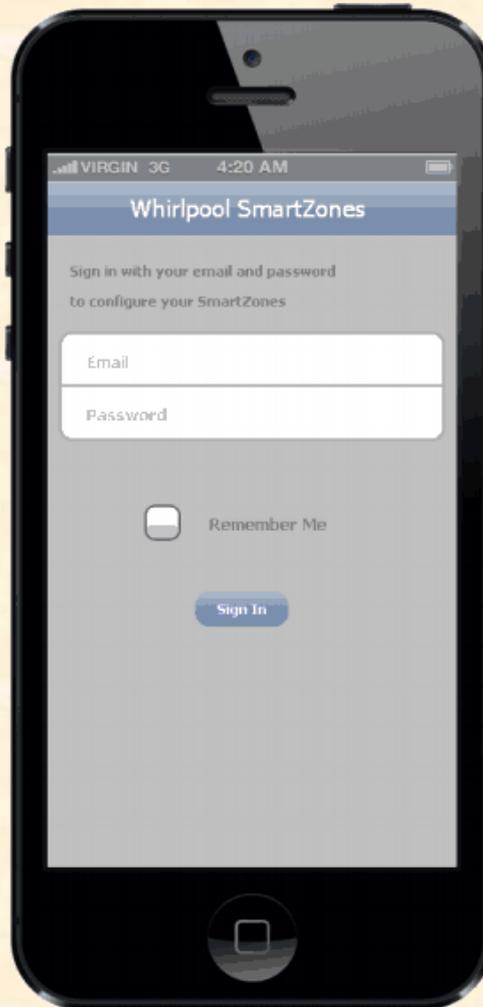
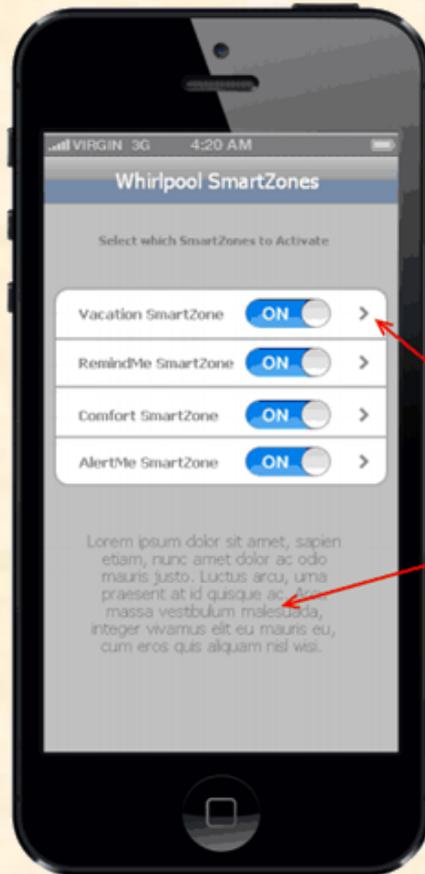- Alert user of appliance status

# Design Specifications

- Native Android application

- Uses geolocation and geofencing

- Defines SmartZones
  - Vacation
  - Comfort
  - AlertMe
  - RemindMe

# Screen Mockup: Login Screen

# Screen Mockup: Activate Screen
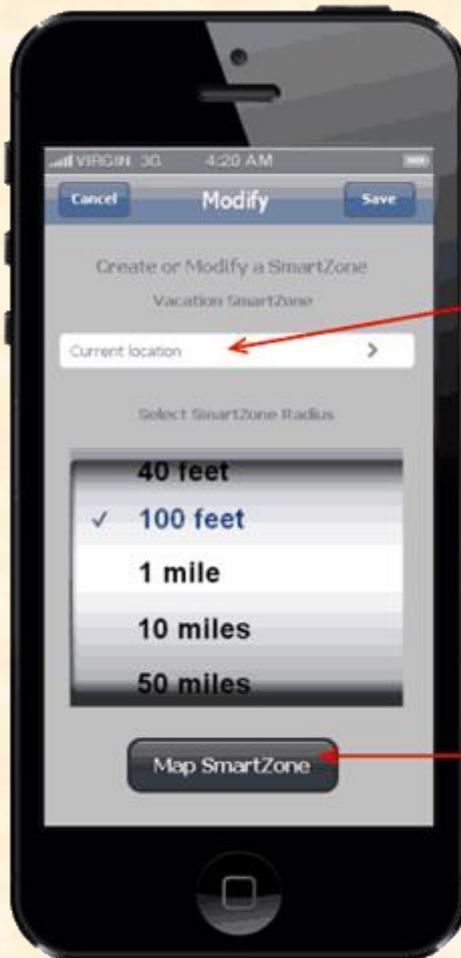


**Activate Screen**

With this screen you will turn the various SmartZones on and off.

Tapping on the right arrow will take you to the Create/Modify SmartZone screen.

Text details here are TDB.

# Screen Mockup: Add/Modify Screen

**Create/Modify Screen**

On this screen the consumer shall be able to enter a location representing the geo fence center point. Either by selecting 'current location' or selecting another location by lat/long or on a map. We can discuss best approach.

Additional screens are coming for creating the other SmartZones. The exception being the 'RemindMe' zone because that is the zone that will simulate a filter purchase.

If a consumer wants to see the location of the geo fence on a map, they shall tap here.
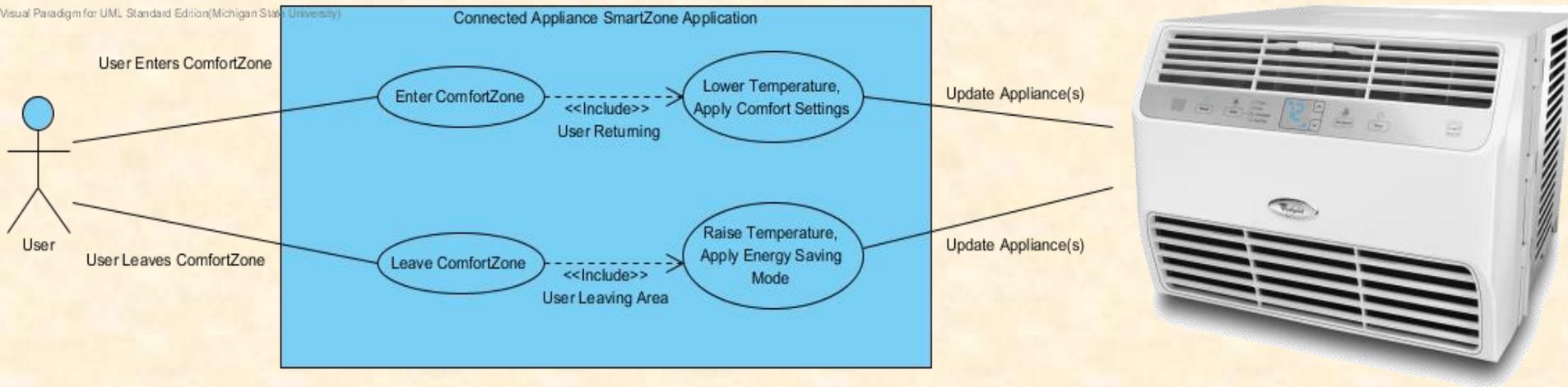
# Screen Mockup: Map It Screen
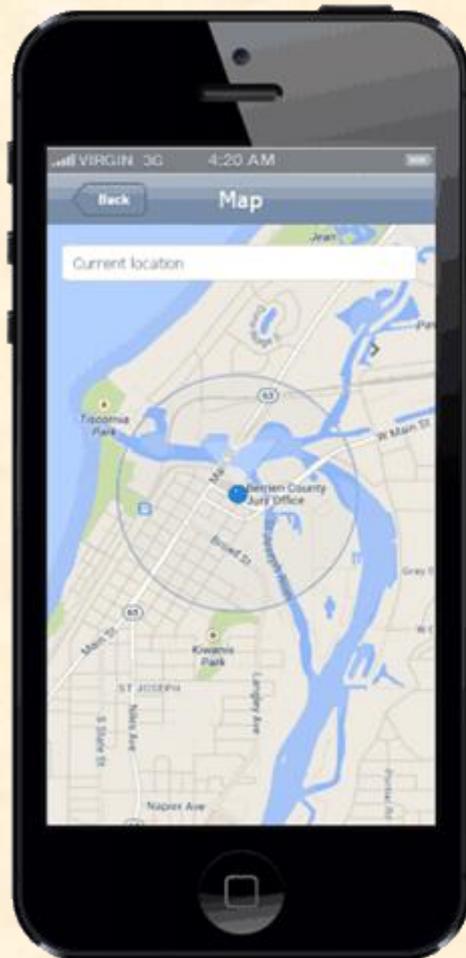
**Map It Screen**

On this screen the consumer shall be able to see the location of the geo fence they just created. I think we should be able to use the Google Map API for this. Let's research.
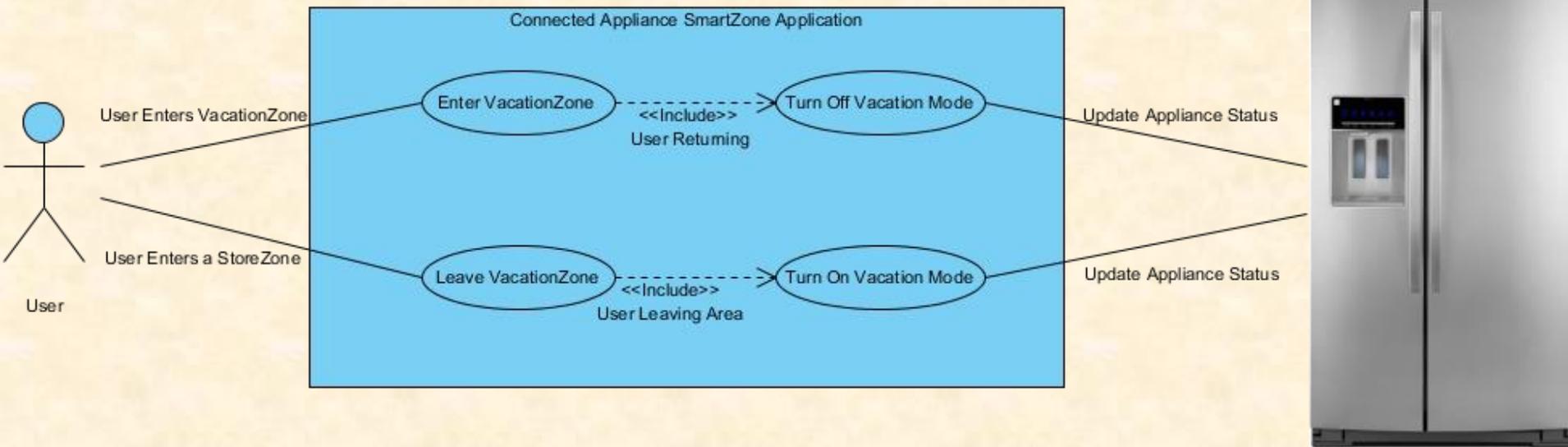
# Use Case Diagrams

## ComfortZone:  User interaction with a ComfortZone

# Use Case Diagrams
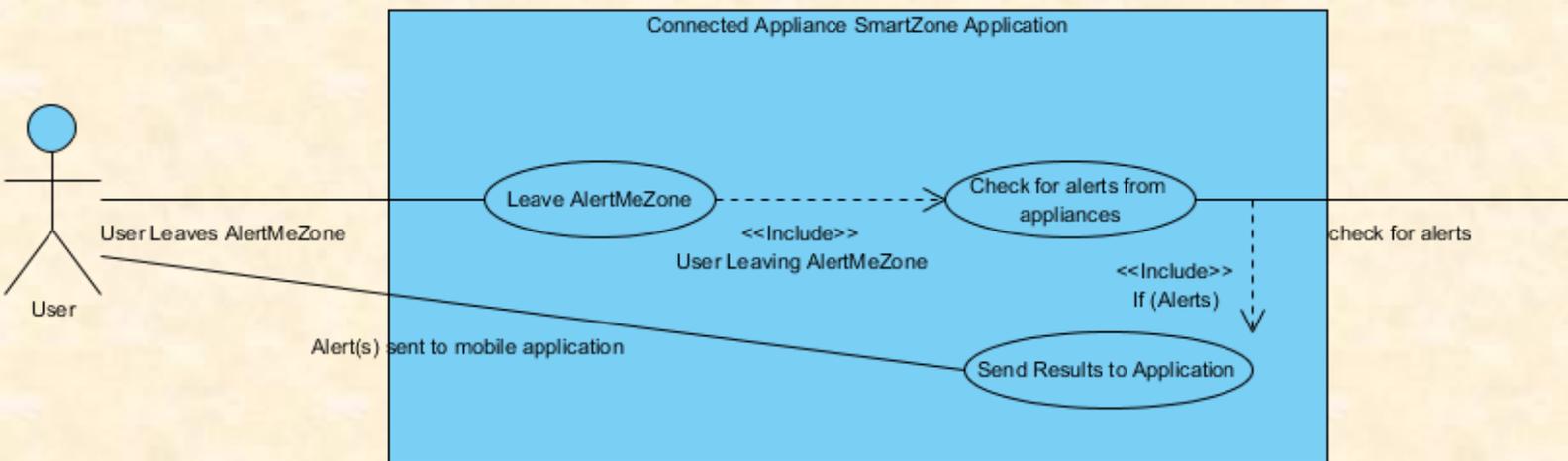
VacationZone:  User interaction with a VacationZone

# Use Case Diagrams

AlertMe:  User interaction with an AlertMeZone

# Use Case Diagrams

RemindMe:  User interaction with a RemindMeZone
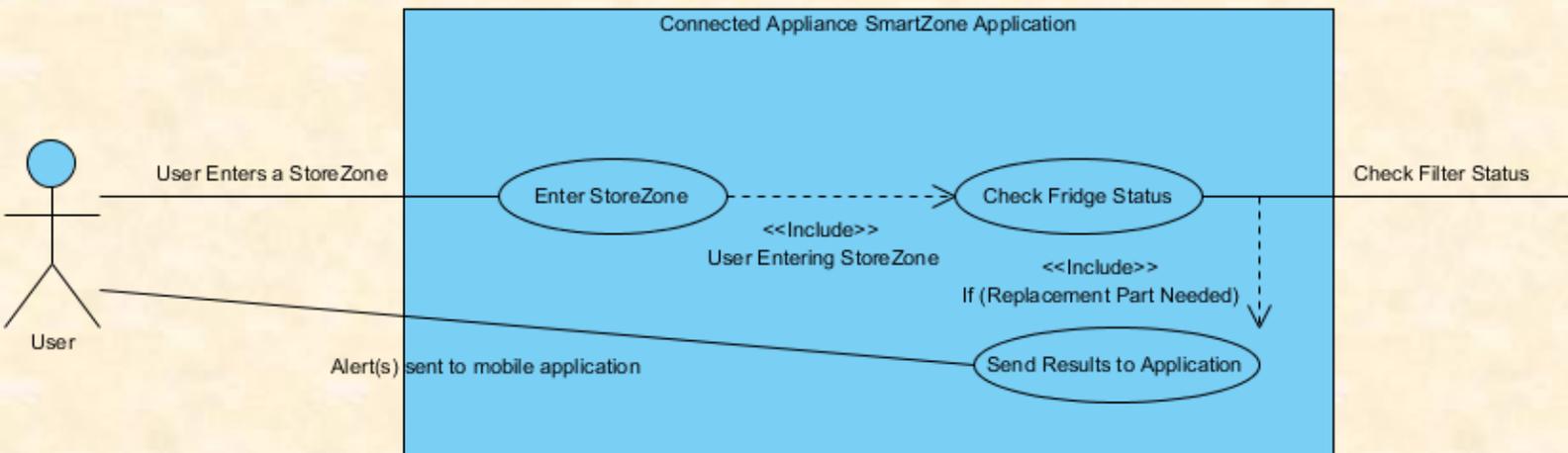
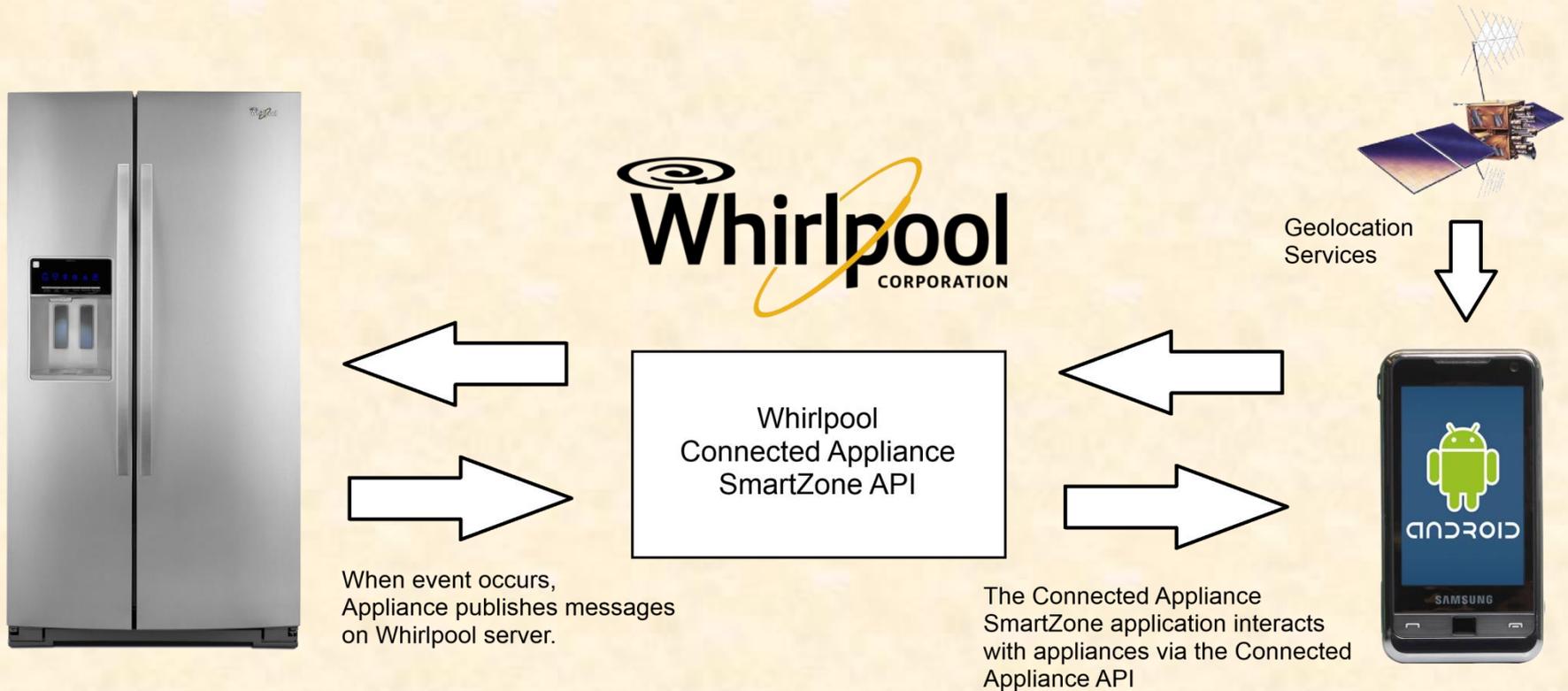# Technical Specifications

- Android application
  - Targets Android Jelly Bean 4.2 or higher
  - Written in Eclipse using Java
- Refrigerator
  - Communicates status with Whirlpool API
- Mapping API
  - Uses mobile geolocation services to set SmartZones

# System Architecture



Whirlpool CORPORATION

Whirlpool
Connected Appliance
SmartZone API

Geolocation
Services

When event occurs,
Appliance publishes messages
on Whirlpool server.

The Connected Appliance
SmartZone application interacts
with appliances via the Connected
Appliance API

# System Components

- Hardware Platforms
  - Android Mobile Device
  - Whirlpool Refrigerator
- Software Platforms / Technologies
  - Eclipse IDE
  - Git-hub
  - Whirlpool Connected Appliance API

# Testing

- 4 Prototypes
  - UI
  - Whirlpool API interaction
  - User alerts
  - Geofencing
- Integrated build
  - Ensure components work together
- Final build
  - Polish and feature complete

# Risks

- Whirlpool API
  - Client documentation and communication

- Geofencing
  - Research and testing

- General
  - Feature based prototyping