

# To Online Shop, Or to Not Online Shop

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## Overall Scope

- **Purpose:** Utilize online shopping and at-home experiences to enhance the shopping capabilities of customers.
- **What is it?:** An IOT based solution that combines mobile app development, communication with hardware sensors, and data management.
- **Expected Outcome:** A proof of concept for a single location (ex: cabinet or cupboard) with hopes of expanding to other places in the home.



## Two Halves

### HOME IOT HARDWARE

- A signal generator communicates with an IOT device of items that need replenished.
- IOT device sends data to application for analysis.

### APPLICATION

- Retrieves items that need to be bought from home device.
- Determines if it is cheaper to buy item online or in-store.
- Uses geolocation in consideration of finding best deal for a product.



# Functional Requirements

- **Generation of data – the state of items in a cupboard**
- **Signal generator – trigger to update in data**
- **Geolocation – showing stores nearby & deals**
- **Mobile application – receives notifications**
- **Signal from interface an item has been purchased**



# Constraints and Additional Features

## Constraints

- Budget of \$200
- Tolerance threshold for price
  - Quantify cost/travel difference
- Only view a few stores within a 5-mile radius

## Possible Additional Features

- Data Security
- Application Security
- Triggering signal when an item amount is getting low (ex. Weight, Image Sensor)
- Choosing between brands of items
- Expanding to other items (ex. Closet, Fridge)



# Cost and Environmental Requirements

## ■ **Cost**

- \$200
  - Signal generator
  - Transmitter
  - Microcontroller


## ■ **Environmental Requirements:**


- No intrusive behavior (No personal data saved)
- Should be simulated in a test environment




Project Assignments

**Home IOT**

Sensors/Circuit Components 


Base communication device 


Physical environment 


Team Members: Amiah & Smruthi




**Application**

Mobile Application 

Database 

APIs 

Geolocation 

Team Members: Yana, Travis, Matthew, & Max

