# Cpts 484: Phase II Presentation

# Moderamen

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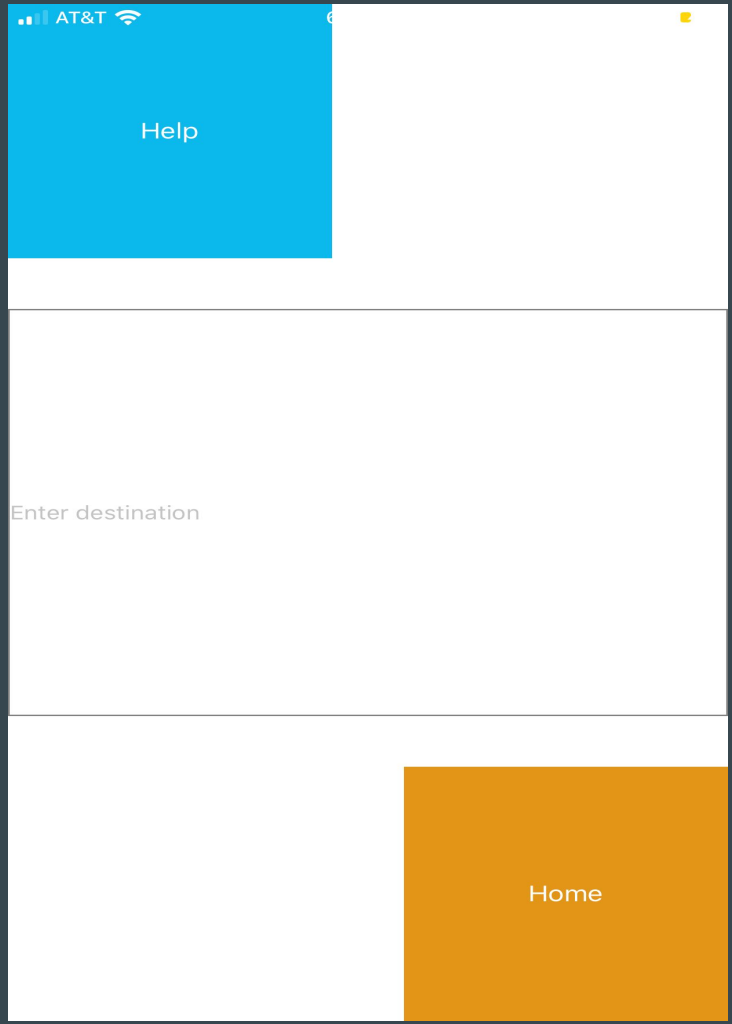
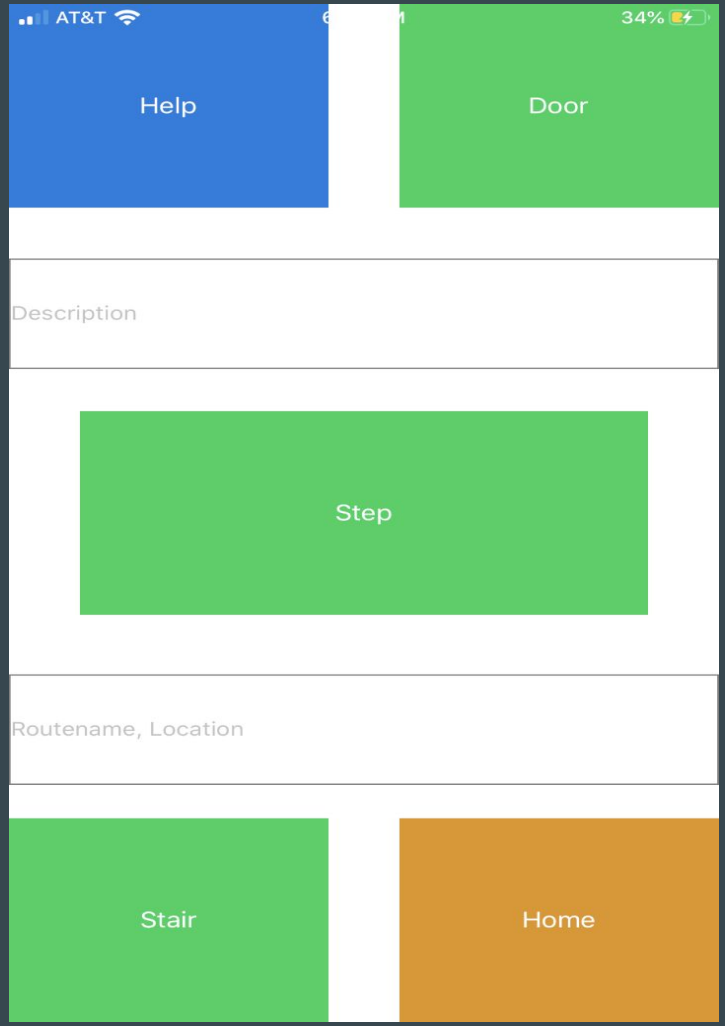
# Search Route View

- This view allows users to search for a route and start a navigation session to the end destination.
- The “Enter destination” text field is primarily intended for caretakers to fill out. Voice commands are a second method of input for the visually impaired to search for a route.
- Once a route is selected, the system will check to see if it is in the system and relay the information to the user, if a route is found it can now be started on home screen. If not it is added to requests.



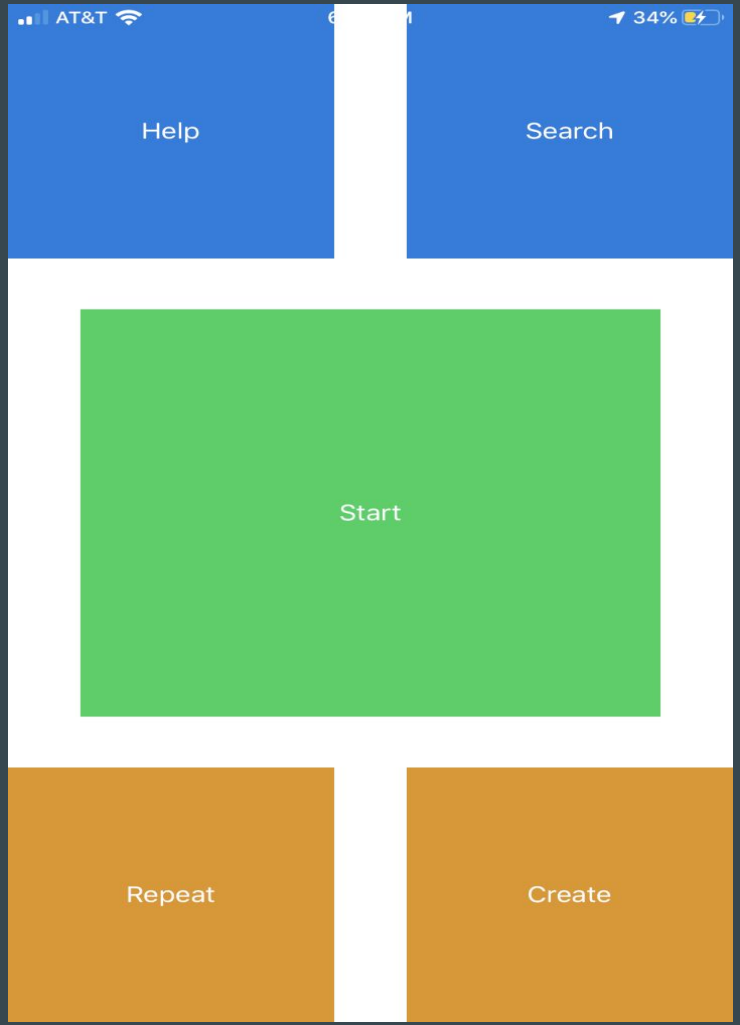
# Create Route View

- This view allows users to create a new route which will be shown in search results on the *Home View*.
- Primarily intended for caretakers or building owners, however  the enlarged buttons and layout allow for the visually impaired to create routes as well.
- The user can also add an optional description for a step to indicate an obstacle exists at that position.
- Requests can be viewed in help.



# Active Navigation View/Home View

- Home Screen for the application.
- Top left gives help, right goes to search screen, create goes to *Create Route View*.
- Start can be done after a route was searched.
- Repeat goes backwards a step.
- Search become Stop once a route starts, Start becomes the step button.
- Voice feedback will be continually played to the user to give step and orientation commands along with optional descriptions.



# Prototype Demonstration: As-Is Scenario One

**Situation:** Stevie has a vision imparity and needs to navigate to his next class. He is new to the school and thus doesn't know the layout of the building.

**Decision:** Stevie ends up asking a classmate for help but they inform him they have somewhere else to be and just give Stevie some vague directions that he tries to follow.

**Result:** He proceeds to to his next class slowly but ends up getting lost and doesn't know where he is or what to do next. He ends up getting help from another student a few minutes later and arrives at his next class late and embarrassed.

# Prototype Demonstration: To-Be Scenario One

**Situation:** Stevie has a vision imparity and needs to navigate to his next class. He is new to the school and thus doesn't know the layout of the building.

**Decision:** Stevie ends up asking a classmate for help but they inform him they have somewhere else to be and just give him some vague directions. Stevie then decides to use the Moderamen app to help him reach his next class safley.

**Result:** The Moderamen app calculates the route from Stevie's current location to his next class. The app then directs stevie how to proceed to his destination through vocal directions. Stevie is able to easily follow the route and safely makes it to his class on time.

# Prototype Demonstration: As-Is Scenario Two

**Situation:** Jane gets dropped off, by an Uber, at the County Hospital for her doctor's appointment.

**Decision:** She has navigated the building before and thus feels comfortable proceeding with just the help of her cane.

**Result:** While walking through the hallway, her cane narrowly misses hitting some toys that have been left out on the ground by children. She ends up stepping on the toys which results in her losing her balance and falling to the floor.

# Prototype Demonstration: To-Be Scenario Two

**Situation:** Jane gets dropped off, by an Uber, at the County Hospital for her doctor's appointment.

**Decision:** She has navigated the building before and thus feels pretty comfortable doing it again with just her cane; but, ultimately decides to pull out her phone and load the Moderamen app as a secondary assistant.

**Result:** While walking through the hallway her cane narrowly misses hitting some toys that have been left out on the ground by children. Luckily, another Moderamen user had logged the toys as an obstacle into the app and Jane is provided a vocal warning by the app and safely continues her route around the toys.

# Prototype Demonstration: As-Is Scenario Three

**Situation:** Peter is a caretaker for a visually impaired woman named Jan inside a retirement community. Peter is taking a week off from work but Jan still wants to get around while he is gone and doesn't want a temporary caretaker.

**Decision:** Peter tells Jan to try and not move around too much while he is away and to simply ask for help when she needs it.

**Result:** While Peter is away Jan begins to get restless and wants to leave her apartment and go down the hall to the indoor sauna. She wants to be independant and tries to make her way to the sauna alone since she remembers the path quite well. Unfortunately she forget there is a small stairway in the path and trips once she gets to them.

# Prototype Demonstration: To-Be Scenario Three

**Situation:** Peter is a caretaker for a visually impaired woman named Jan inside a retirement community. Peter is taking a week off from work but Jan still wants to get around while he is gone and doesn't want a temporary caretaker.

**Decision:** Peter decides to download and use the Moderamen app on Jan's phone to create routes for all the places he knows Jan would want to go while he is away.

**Result:** While Peter is away, Jan frequently opens the Moderamen application on her phone and uses the routes Peter created for her to navigate around her retirement community and frequently visits the sauna.

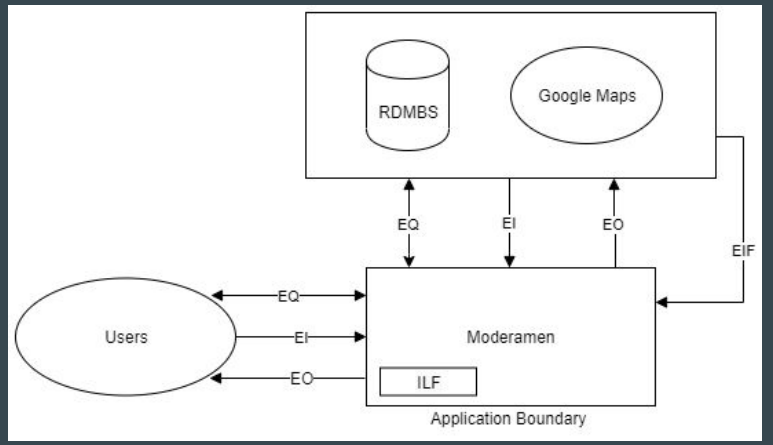
# Phase I Creeping Rate

Phase I Final Submission Development Function Point Count (DFP1): 58

Creep Rate (estimated rate we can handle):

(((DFP2 - DFP1) / DFP1) * 100) / 3 months = ((100 - 58) / 58) * 100 = **24.1% per month**

| Direct Measure | Count Simple | Count Average | Count Complex | Weighted Measure |
|---|---|---|---|---|
| External Inputs (EIs) | 1 | 1 | 1 | 13 |
| External Outputs (EOs) | 0 | 1 | 0 | 5 |
| External Inquiries (EQs) | 0 | 2 | 0 | 8 |
| Internal Logical Files (ILFs) | 0 | 1 | 1 | 25 |
| External Interface Files (EIFs) | 0 | 3 | 0 | 21 |



# Was our Creeping Rate estimation reasonable?

Our creep rate estimation of 24% so far has been reasonable as we have been able to complete the significant ILFs, EIs, and EOs necessary for the prototype to function, and have set up the structure so our EIFs could be implemented in the future:

- We have successfully created ILFs for maintaining created routes inside of our application.
- EIs have been implemented through our accessible user-interface by using a corner-based layout with large buttons.
- EOs have been implemented by having voice output and feedback to the user in all aspects of the application.
- EIFs such as a remote database, remote map file storage, and Google maps public data API access are out of the scope of the final deliverable, but each can be easily implemented based on our initial prototype.

# *How Moderamen Compares to Alternatives (Part 1)*

| | Cane | Guide Dog | Moderamen | Cane + Moderamen | Cane + Guide Dog | Guide Dog + Moderamen | Cane + Guide Dog + Moderamen |
|---|---|---|---|---|---|---|---|
| See | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Feel | Yes | Yes | No | Yes | Yes | Yes | Yes |
| Hear | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Talk | No | Yes (Bark) | Yes | Yes | Yes | Yes | Yes |
| Think | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Smell | No | Yes | No | No | Yes | Yes | Yes |

# *How Moderamen Compares to Alternatives (Part 2)*

| | Cane | Guide Dog | Moderamen |
|---|---|---|---|
| Ease of Usability | High | Low | Very High |
| Cost | Low | Very High | Low |
| Reliability | High | Medium | High |
| Functionality | Low | Very High | High |

# Analysis

- A dog in perfect conditions is the best option, it provides a full array of senses and abilities that can really only be matched by having a human iterate the details. That said a dog can have multiple scenarios where it ends up failing(let's say get agitated by another animal) along with a high or impossible barrier to entry in cost and allergies. While Moderamen can not compete with all functionality that a dog can provide, it can provide a stable/free(if they already have a compatible phone) alternative.
- The current stable/free alternative is a cane, which is what our application is currently aiming to compete or replace with. Our application offers similar reliability as it takes account of the orientation and of added descriptions to make sure the user is aware of the environment as much as needed along with added functionality like saving route and requesting. It is also much easier to use then the cane as it requires simply holding a phone, touching easy buttons that are always told to you and listening. Both are virtually free in the right scenarios.

# Conclusion - *Why Moderamen is the Best Solution in the Market*

By functionality:

Cane < Moderamen < [Cane + Moderamen] < Guide Dog < [Cane + Guide Dog] < [Moderamen + Guide Dog] < [Moderamen + Guide dog + Cane]

By functionality alone - guide dogs are the most useful to clients. However, taking into consideration the high cost of $40,598 for a trained guide dog [1], Moderamen would have a much larger client attainability with similar functionality.

[1] https://www.cdc.gov/visionhealth/pdf/dog_guides.pdf