

# Visually Impaired Assistant App (Cyclops)

...

CPTS 484 -Team Cyclops

# Cyclops Scenarios

1. Initial Setup
2. Navigation
  - a. Input
  - b. Static Collision Detection
3. Emergency
4. Customization

---

# Initial Setup

- Barbra is a visually impaired student at WSU Everett.
- She needs get around the building because she has 3 different agricultural classes at different room locations.
- She would like to use Cyclops to navigate indoor, so she asked her caretaker to configure her Cyclops by adding her primary emergency contact to her mom and also toggle into `Blind Mode` which she could then use on her own.

# Navigation: Input

- At 9:30 AM Barbra has a Plant Anatomy class but she is located in the lobby at the coffee stand, right across Room 105.
- Her class is on the 3rd floor, Room 340.
- Barbra then pulls out her phone and says “Hey Cyclops, navigate from Room 105 to Room 340”.
- Cyclops then provides a list of step-by-step directions for her to get to her class, such as
  - “Turn right”
  - “Proceed for 3ft toward an Elevator”
  - “Get in and Press level 3”
  - ... Directions continues until she reaches her class.

# Navigation: Static Collision Detection

- When Barbra gets off the elevator walking towards her class, Cyclops has notified her that there are chairs before the entrance door.
  - “Be aware, there are static object on the route”
  - “Turn right and proceed for 2 ft”
  - “Turn left and proceed for 2ft”
  - “Turn left and proceed for 1 ft”
  - “You are now at your destination entrance”

# Emergency

- On her way out of the restroom, Barbra slipped on some spilled water on the floor.
- Cyclops has detected a fall, and triggered an emergency mode where her mom is on the speed dial on a 30 seconds countdown timer.
- Thankfully, Barbra is conscious but she cannot get up. Thus, she hits the call button to bypass the timer.

# Customization

- On her way to class, Barbara noticed that the app gave out instructions more frequently than she would like. Since she didn't want to disturb bystanders around her, she wanted Cyclops to give less alerts.
- Why it is important: This customization allows the user to be given directions at a comfortable pace.
- How it works: User voices or inputs option menu and selects Direction Frequency.

# AS-IS

- VIP must request help to get directions from one place to another everytime, if they are not familiar with the building.
- VIP must use either a cane, a service animal, or a caregiver to avoid obstacles.
- VIP cannot use common smartphone app for directions.
- In a case where accident occurred, a VIP would not be able to request for emergency assistance for themselves.



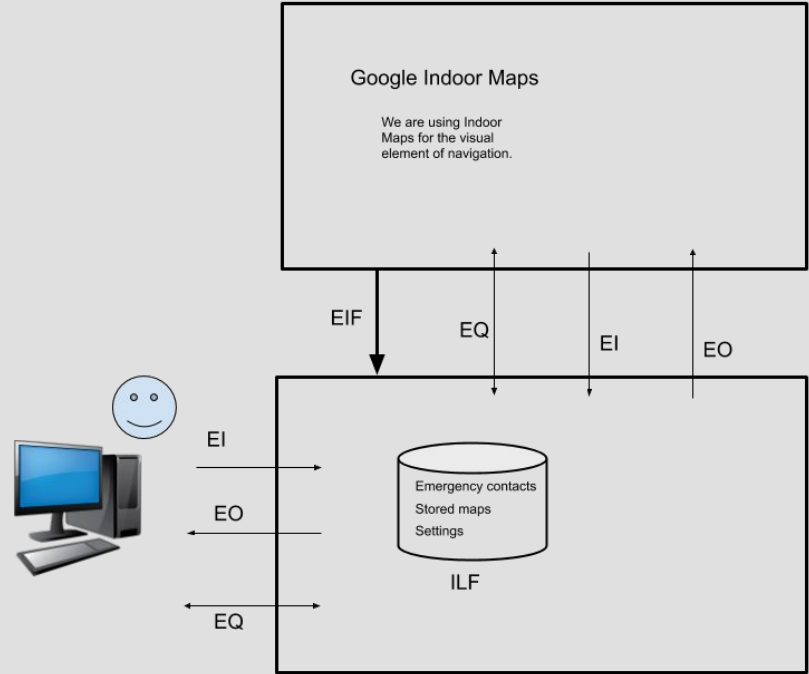
# TO-BE

- VIP can navigate to places without the need of an assistant in a building.
- VIP can get directions to avoid obstacles.
- VIP can contact assistance in case of emergency.
- VIP can easily use the app to listen to directions.

# Overview App Features

- Generate a route from a given starting location to a given destination location.
- Provide step by step directions for generated route in plain text.
- Provide step by step directions for generated route using Speech synthesis.
- Avoid obstacles on generated routes.
- Place an emergency call/text upon danger detection.
- Customizable speech synthesis speed setting.

# App Boundary



# Creeping Rate Control

- Monthly creep rate %: 10
- Calculated starting FP: 207
- Expected FP after 3 months: 227

# VIA app Vs. Other Existing Tools

	VIA App	Cane	Dog	Assistant	VIA App + Cane	VIA App + Dog	VIA App + Assistant	VIA App + Cane + Dog + Assistant
See	Yes	No - -	Yes + +	Yes + + +	Yes	Yes + +	Yes + + +	Yes + + +
Feel	No - - -	Yes +	Yes +	Yes + + +	Yes +	Yes +	Yes + + +	Yes + + +
Hear	Yes	No - -	Yes +	Yes + + +	Yes	Yes +	Yes + + +	Yes + + +
Talk	Yes +	No - -	No - - -	Yes + + +	Yes +	Yes	Yes + + +	Yes + + +
Think	Yes + + +	No - -	No	Yes + +	Yes + + +	Yes + + +	Yes + + +	Yes + + +
Smell	No - - -	No - -	Yes	Yes + + +	No - - -	Yes	Yes + + +	Yes + + +