Phase 1 Presentation

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#	AS-IS OLD	TO-BE OLD
1	Blind and visually impaired people currently have to rely on canes, animals, or human assistance to navigate buildings. This can be slow and dangerous	With our app, users can receive notifications and feedback in real time while they are walking around indoors so that users can be more independent
2	A blind student enters a building and has to rely on asking others, trial-and-error, or memorized paths. Obstacles (temporary furniture, construction, doors left open) may surprise them. Navigation is slow, stressful, and sometimes unsafe.	User selects destination by voice, app determines indoor location, calculates shortest safe route, gives voice and/or haptic directions. Real-time obstacle alerts are given using phone cameras and computer vision.
3	While walking down a hallway, a blind person encounters an unexpected obstacle, like a cleaning cart or boxes. They are able to detect it using their cane, but they are unsure of how to navigate around it safely. They then must use their cane to sort of probe the area, which may be embarrassing to some, and it may even pose a safety risk.	Our uses the phone's camera and sensors to detect the obstacle that lies ahead. It provides them with an alert (audibly as well as a vibration). It instructs them on how to navigate the situation in a safe manner. It would also confirm when the new path is clear.

Analysis of AS-IS/TO-BE #3

What-if?	Who?	What-kinds-of?	When?	How-to?
What if the user doesn't point the camera forward?	**Who uses the object detector feature?**	**What kinds of objects can it detect?**	**When the app can't determine the object, what should happen?**	**How to resolve unidentifiable objects?**
(i) The user eventually points the camera on its own	(i) A blind user	(i) Large objects and stairs/escalators/el-evators	(i) The app should alert the user of an unidentifiable object, and to use caution	(i) Tell user to use caution in area
(ii) The app will audibly alert the user	(ii) A blind user or a seeing user	(ii) People/animals		(ii) Reroute to avoid the obstacle entirely
(iii) The phone will vibrate	(iii) A seeing user	(iii) Smaller objects or ground imperfections		

Comparison vs traditional methods

Our app	Traditional
App alerts user of turns	User must memorize turns
App will alert user of new obstructions	User needs cane know of obstructions
App identifies objects	User is notified by aid what the objects are
App explains path alternatives around objects	User must feel around for openings around objects