Team Presentation

ENGR 110/112 - B04 #16
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NEED

Barrier 1: Heavy bathroom doors in order buildings.

Barrier 2: Lack of noise assistance and pedestrian crosswalk lights to ross between Ring Road.

Barrier 3: Lack of signage for disability accessibility.

PROBLEM DEFINITION STATEMENT

Our goal in this project is to make traversing crosswalks safer and less of an obstacle for all pedestrians and improve visibility for everyone on University Campus.

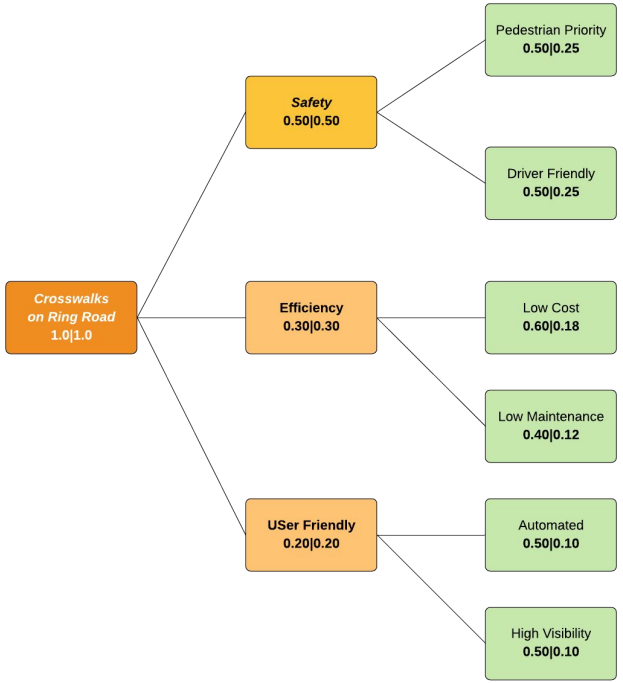
DESIGN CRITERIA & CONSTRAINTS

Design Criteria:

- Safe to use
- Efficiency
- User Friendly

Constraints:

- Implementation possible on main crosswalks



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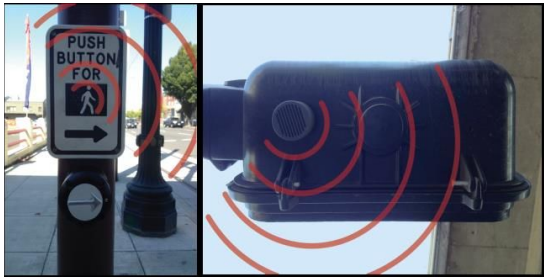
MORPHOLOGICAL CHARTS

Means / **Functions**	**1**	**2**	**3**
Visual Alert	Vehicle Radar	Flashing Beacon System	In-pavement Warning Light System
Sound Alert	Pedestrian Sound Warning System	Accessible Pedestrian Signals	
Directional Cues	Tactile Walking Surface Indicators	**Audible Pedestrian Signals**	
Reflective Signage	**Overhead Flashing Beacon System**	**In-pavement Warning Light System**	High-intensity Activated CrossWalk Beacon
Traffic Input	Proximity Sensors	Ultrasonic Motion Sensors	Thermal Sensors
Stop Traffic	**Pedestrian Countdown Timer**	Vehicle Motion Detection Signal	Overhead Flashing Beacon System

CONCEPTUAL DESIGNS

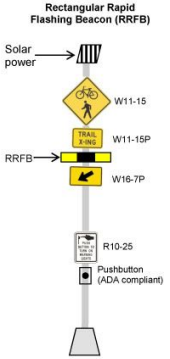
Design 1

Overhead Flashing Beacon System, Type A



Pedestrian Audible Signal System, Type A

Design 2

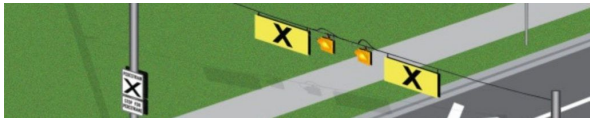


2-A
Overhead Flashing Beacon System,
Type B: Rectangular Rapid Flashing Beacon (RRFB)
Most commonly used rapid flashing beacon

2-B
In-pavement Warning System
Visible at all speeds, even when drivers' peripheral vision narrows with speed.

2-C
Pedestrian Audible Signal System,
Type B
Provides auditory, visual and tactile information so that anyone with vision and/or hearing loss will know when it's safe to cross at a set of traffic signals.

Design 3



3-A
Overhead Flashing Beacon System, Type C

3-B
Pedestrian Countdown Timer
Notify pedestrians of the remaining time available for crossing so they can make decisions on when to leave the curb.

3-C
Pedestrian Audible Signal System,
Type C

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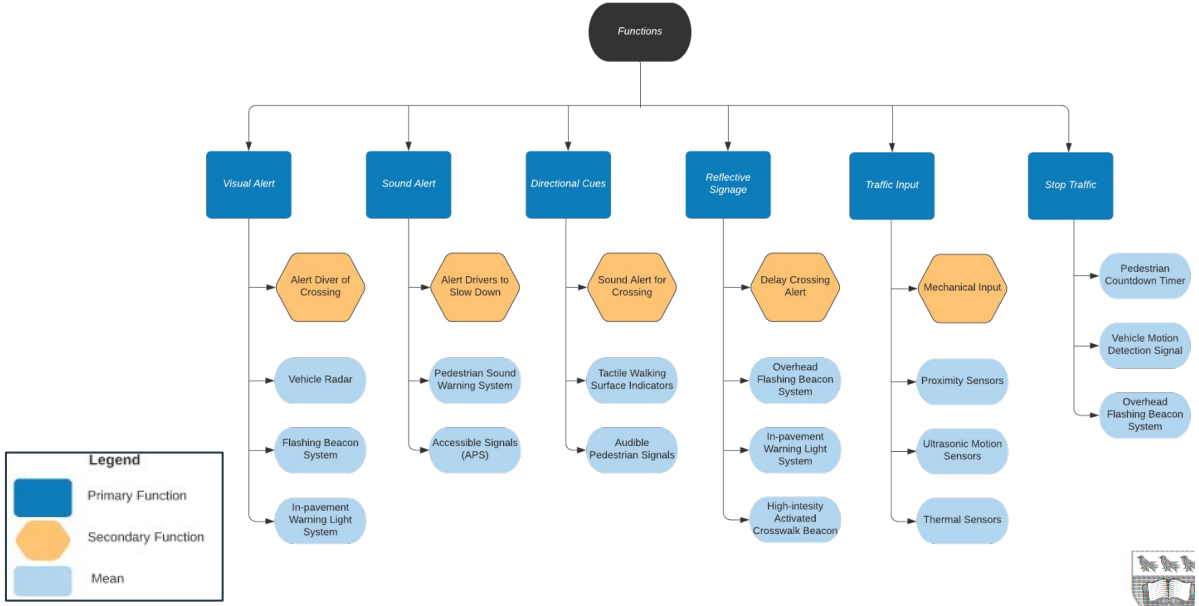
FUNCTION ANALYSIS

Functions:

- Visual Alert
- Noise Alert
- Directional Cues
- Reflective Signage
- Traffic Input
- Stop Traffic



DESIGN SELECTION

Design 2-B:
In Pavement Warning System

Design 2-C Type B:
Pedestrian Audible Signal System

Design 2-A Type B:
Overhead Flashing Beacon System

Our final design concept will include visual and audible alerts, directional cues, reflective signage and traffic input. This solution will warn vehicles to slow down when pedestrians are crossing Ring Road. Our design concept will create an inclusive, safe, and accessible campus for a diversity of disabilities and individuals.

Concepts / Functions	Design 1	Design 2	Design 3
Visual Alert	+	+	+
Auditable Alert	+	+	+
Directional Cues	0	+	+
Reflective Signage	-	+	-
Traffic Input	+	+	+
Stop Traffic	0	0	0
Total	+2	+5	+3

DESIGN SOLUTION

The overall design solution creates a successful system to protect the safety of the interaction between a pedestrian and driver on a crosswalk with warning lights and audible signaling.

Characteristics:

- Overhead Flashing Beacon System
- In-pavement Warning Light System
- Pedestrian Audible Signal System

Functionalities:

- Visual and Audible Alerts
- Directional Cues
- Reflective signage
- Traffic Input

Task Description	Start date	End date
Design Project		
1.1 Project proposal	October 15. 2021	October 19. 2021
1.2 Define project goals	October 15. 2021	October 19. 2021
1.3 Requirements gathering	October 15. 2021	October 19. 2021
1.3.1 Generating solutions	November 2, 2021	November 15, 2021
2.1 Criteria Tree	October 15. 2021	October 19. 2021
2.2 Objectives and Constraints	October 15. 2021	October 19. 2021
2.2.1 Research available solutions	October 15. 2021	October 19. 2021
2.3 Goal Statement	October 15. 2021	October 19. 2021
3.1 Set budget	October 22, 2021	October 26, 2021
3.2 Create task and schedule plan	October 29, 2021	November 2, 2021
4.1 Status update	November 16, 2021	November 16, 2021
4.2 Initial documentation	November 9, 2021	November 16, 2021
4.2.1 Presentation Review	November 15, 2021	November 19, 2021
5.1 Lesson learned	November 15, 2021	November 19, 2021
5.1.1 Project report	November 15, 2021	November 20, 2021
5.2 Final documentation	November 15, 2021	November 21, 2021
5.2.1 Final Presentation	November 15, 2021	November 22, 2021