# Project Perceiving the World through Technology: Development Proposal &

# Project Plan

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1. **Description**

Functional:

The project aims to develop a portable sensor system that can assist visually impaired individuals in navigating their surroundings with greater ease and safety.

The system consists of three input sensors, two IR Obstacle Avoidance Sensor, two Tilt-Switch sensors along with two buzzers and two alarm bells that provides a quick audible output.

The IR sensor detects obstacles in the path of the user and provides a warning through the buzzer, which helps the user to avoid collisions. The tilt sensor detects changes in the orientation of the user, which can help the user to maintain balance and avoid falls. The alarm bell can alert the user to stop and avoid any sort of disbalancing or any sort of discomfort while walking or doing any sort of stuff.

The system is designed to be easy to carry and use, with the sensors mounted on a fanny pack that can be worn around the waist. The user can activate the system with a simple button press, and the audio feedback from the buzzer helps to guide the user through their environment.

Non-functional (performance and constraints):

As far as the functionality and performance of the design is considered, we can only find one constraint with that and that is we cannot find a way to alert the user like how far the obstacle is and how big the obstacle is.

**State Diagram**

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Input:

* The Infrared Obstacle Avoidance Sensor has a pair of infrared transmitting and receiving sensors. The infrared LED emits Infrared signals at a certain frequency and when an obstacle appears on the line of infrared light, it is reflected back by the obstacle which is sensed by the receiver.
* A tilt sensor, or tilt switch, is a device used for measuring the tilt of an object in multiple axes with reference to an absolute level plane.

Output:

* Buzzer once received with an input by the other sensors it will start buzzing alerting the user.

**Gantt chart**

<https://docs.google.com/spreadsheets/d/1E2CVyL6LVln2Qf_wk-1L9I8cOXddJHwlKc8YBaGxvWg/edit?usp=sharing>

**Inventory**

| Item | No. of item |
| --- | --- |
| Fanny pack | 1 |
| IR Obstacle Avoidance Sensor | 2 |
| Tilt-Switch Sensor | 2 |
| Buzzer | 2 |
| Alarm Bell | 2 |