Design Doc Template

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# Introduction

## Summary

We know that blind people face lot of problems while navigating .And it is very difficult for them while

walking. They come across lot of obstacles along their path. This H-KELLER KIT helps them navigating

and also helps them to detect any obstacles which come across their way. The user receives instructions

from the app in the form of voice messages.

## Background

This device measure the distance between the user and the obstacle to navigate and guide

them, also the user can compare two directions and walk accordingly. It also alerts fire threat. The

user can also send a sms to their guardian to locate them. The device works with the help of an app

which dos the assisting work for the user. This app should be installed in the Smartphone of the user

it and can run over other apps and work in the background. The app is paired to the device with a

Bluetooth module.

It contains two buttons, red and green. The green button is to compare two directions and the

red button is to send an alert message of the user’s location with its coordinates through the

app to the trusted contact of the guardian.

## Definitions, Acronyms, and Abbreviations

GSM-Global system for mobile

MIT-Massachusetts institute of technology

# 

# Design Overview

## Requirements

* Arduino (UNO/NANO)
* Sensors- ultrasound, flame
* Bluetooth module (HC05)
* Buttons
* Jumper wires
* Power supply (5-12v)
* App making tool (MIT)
* GSM facility in app

## 

## Future work

More developments could be done around it by adding specific sensors and pair it with mechanical

stick.

Stick which can be use full for self-defense can be developed.

# User Interface

MIT application is used as interface for audio(listening) purpose between kit and earphones.

Service Operability

## Key Performance Indicators

Communication can be achieved only when connectivity with the Bluetooth is positive.

Direction of travel can be heard over ear phones.

One Button can be used to compare the distances, to detect the obstacles and to guide which path is

Clear.

## Service Level Objectives

The alert messages sent by the product holder to any of the trusted contacts using SMS.

These SMS contain latitude and longitude values(location) of the product holder.

# Project Overview

## Communication and Tracking

The user can send a sms to their guardian to locate them.

The device works with the help of an app it and can run over other apps and work in the

background. The app is paired to the device with a Bluetooth module.

## Risks

The user can detect the obstacles with in the specified range.

Durability of Bluetooth should be checked.

## Milestones

Experimenting the product through NGO’S to check the efficiency and finishing the final product by

2020.

Project Phases

Communication can be through Wi-fi.

Emergency protocols(like she team, ambulance , police etc contacts ) can be added.

## Cost

This device is user friendly and cost effective.

Cost can be 1500 to 2000.

# Frequently Asked Question

Was is economically feasible?

Will blind people be able to handle the device ?

How is it different from other devises that already exist?

# References

Links to any supporting documentation, other projects, or reference material