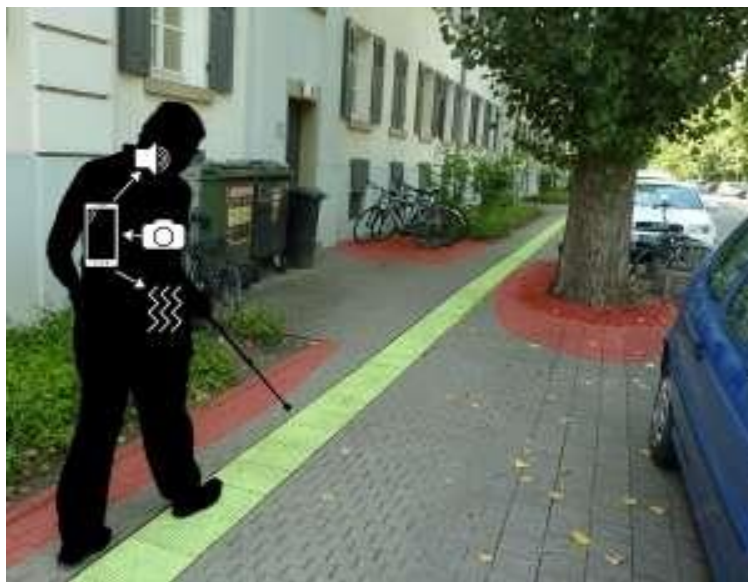


# ENVISAGER: SIGHT FOR BLIND AND VISUALLY IMPAIRED

## Project Proposal



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By **Group 7**

Nandanamudi, Jyothi kiran (27)

Gatiganti, Sai Venkatesh (9)

Gumma, Madhuri (13)

Nallamotu, Naveena (26)

## **I. Introduction:**

In this document, we intend to provide our proposal for the project for the partial fulfillment of the course CS5542 Big Data Analytics and applications. In this proposal, we also discussed our goals and objectives for the application named “Envisager” and what motivated us for choosing this application. We aim to incorporate some added features to make this application notable.

## **II. Project goal and objectives:**

### **1. Motivation and Significance:**

In this hustle and bustle of modern life, even people with no disabilities find many things as a hindrance for completing their activities and daily routines. However, people who are visually disabled are facing many difficulties than the normal people without any disability. As we know, the social constructs are not always designed by keeping them people in mind. They do need support in crossing roads, detecting the object nearby and other obstacles. Even though they use canes, they cannot identify objects above their waists, which is why there is a need a smart way of identifying the object they come across.

With the same motivation, companies like Siemens started building application that would help visually impaired people to navigate through busy roads by considering the GPS and identifying the persons location and help them to reach their location. For the past, few years there are many inventions like smart canes that detect object impact and electronic glass (eSight) that lets the people see but, these items costs a lot and not all can afford to have one.

However, with an android app like ours, people with smartphone can have it and we could help most of them to perform their daily activities without running into any trouble. Our main goal is to develop an application which would allow the blind people to take the pictures through camera and then our system would detect the image captured and identify the object and give them the audio reply describing the object or the naming the object etc.,. Moreover, all the features can be used without spending a dime and all they required is to install the application.

### **2. Objectives:**

- a.** To develop a user-friendly application.
- b.** To provide a smart application that would detect the object accurately.
- c.** To notify the user about the object with the voice that the person can understand.
- d.** To test the time taken by the process in different methods (using Clarify API, Spark Machine Learning, Deep Learning) and choose the best method for our application.
- e.** To develop an application that can be operated with a minimal cost.
- f.** To develop a scalable project

### 3. System Features:

- a. **Reliability:** The application should detect the image accurately so that the object can be differentiated from same kind of objects.
- b. **Storage:** The storage of required by the application would be less.
- c. **Open-Source:** Once this application is fully developed it will be open sourced.
- d. **Scalable:** This application can be run on any operating system.

### III. Related Work:

Aipoly is one of the application build with the same motivation. It has been open sources and being operated as a IOS application and the android version is not available yet. Other information related to this project can be gathered from <http://aipoly.com/> and <https://techcrunch.com/2015/08/17/aipoly-puts-machine-vision-in-the-hands-of-the-visually-impaired/>

### IV. Backup Project:

#### Emotion Recommendation

1. **Project goal:** The goal of the project is to build a Strong and Robust self-learning system that can determine the emotion of a person by face recognition and recommendation of movie or music.

#### Objectives:

- a. Build a huge distributed data storage system that has the capacity to hold the data that is collected
  - b. Use API (Spark, Scala) on it to analyze the data collected and infer results according to the mood and suggest some movies or music results to provide to front end system
  - c. Develop an interactive and responsive application for mobile that can provide these suggestions to the user
2. **Motivation:** The motivation behind this project is to provide a less expensive and quick therapy to get over the occasional blues that humans experience and music and entertainment are the best way to come out of it.
  3. **Significance/Uniqueness:** It has much greater significance because it will help users in coming over emotional breakage through oral or through “No medicine” therapy

### V. Bibliography:

<https://www.scribd.com/document/293386896/Smart-Android-Application-for-Blind-People-Based-on-Object-Detection>

<https://www.cs.nyu.edu/media/publications/nektariosp.pdf>

<https://github.com/aka001/VirtualBraille>