

ANDROID APPLICATION FOR VISUALLY IMPAIRED



Submitted by-
Eashan Adhikarla

I. Introduction:

In this document, I intend to provide our proposal for the project for the partial fulfillment of the courses Big Data Analytics and Machine Learning. In this proposal I had also discussed our goals and objectives for the application named “Android Application for Visually Impaired” and what motivated me for choosing this application. I 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 I 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:

1. To develop a user-friendly application.
2. To provide a smart application that would detect the object accurately.
3. To notify the user about the object with the voice that the person can understand.
4. 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.
5. To develop an application that can be operated with a minimal cost.
6. To develop a scalable project.

3. System Features:

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

III. 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>