

## Travel Aid For Blind Using Android Application

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### Abstract

People who are visually impaired face many problems in their daily lives. For them, external navigation is a big problem. The objective of this paper is to break down the technological barrier, and propose a system by developing an Android application to help people with visual impairments travel on public transport such as bus or a train. In this proposed system GPS tracker of smart phone will be used to track the user's location. User uses Google speech which converts speech to text to enter location. The recommendation of this system is to install the GPS unit in public transport for tracking on time. This application will also help senior citizens.

**Keywords:** Android Application, Blind Aid, GPS, Smart travelling guide, Speech to Text converter.

### 1. Introduction

Recent Studies estimated that more than 217 million people are visually impaired and 36 million are blind worldwide [6]. We use buses to go from one place to another, but it will be difficult to find the right bus if we travel in unfamiliar surroundings. Now, imagine a visually impaired person. The task of finding a suitable method for a person with visual impairment in such an environment becomes almost impossible. Navigation gets really difficult because all the environments seem to be the same. This navigation problem has long been unsolved.

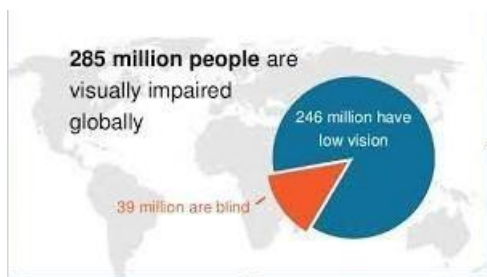


Figure No. 1 [source:google]



Figure No. 2 [source:google]

So, The purpose of the paper is to propose a system and development of Mobile App, that can help blind or partially sighted people to move around in outdoor areas through public places. This Application will act as a bridge between people with visual disabilities and society. This application will first track the user's location using GPS and using the Google speech to enter the destination. On Base of entered destination, The application instructs the user to reach the destination. At the time of emergency, the application will

send the user's location and an automatically generated message to the emergency contact number.

## 2. Problem Definition

### A. Statement of Problem

*To be able to commute a visual impaired person via the public transport without any difficulties. And also to feel secure and comfortable in an unfamiliar environment.*

### B. Existing System

*In the current system for the blind, they face many problems while travelling on public transport. The biggest problem for them is to navigate around places.[5] They are unable to read the bus number and are not sure of the physical location. Despite constantly asking for help from fellow travellers, the blind often miss the bus / train, and unable to reach the destination, causing anxiety and fear in them. Visually impaired people also feel unsecure while travelling in unfamiliar environment. So this android application helps them while travelling through public transport through some extent. Android application help them while travelling to find correct bus number or train which help them to reach their destination without any difficulties.*

## 3. Literature Survey

**Table No. 1**

Sr. No.	Paper title	Author	Year	Advantages	Limitations
1	<b>Blind Navigation: Technologies for Visually Impaired[1]</b>	Madhushree M, Sushmitha M, Manjunath C R, Soumya K N	2018	Proper explanation of problems faced by visually impaired	Lacking in proper idea about implementation of model
2	<b>Smart Guide for Blind People[2]</b>	Mohamed Manoufali, Ahmed Aladwani, Saif Alseraidy, Ali Alabdouli	2011	Given idea about the proper flow of guide model	Not focusing on emergency situations
3	<b>GPS/GSM Based Bus Tracking System (BTS)[3]</b>	Christeena Joseph , A.D.Ayyappan , A.R.Aswini, B.Dhivya Bharathy	2013	Proper explanation of Bus Tracking System model	Not providing the current location name

4	<b>Public Transport Information System for Visually Impaired and Blind People[4]</b>	Michak Markiewicz, Marek Skomorowski	2010	Given the proper idea about problems faced by blind people during travelling and purposed the model to help them	This model functionality only limited to road transport system.
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As shown in Table No. 1, Madhushree M, Sushmitha M, Manjunath C R, Soumya K N in **“Blind Navigation: Technologies for Visually Impaired”** mentioned problem faced by visually impaired person during travelling, from that we got inspired for adding essential modules in the system and to solve there most of the problems[1]. Mohamed Manoufali, Ahmed Aladwani, SaifAlseraidy, Ali Alabdouli in **“Smart Guide for Blind People”** mentioned flow for the guide model which is giving the brief idea for the implementation of the system [2]. Christeena Joseph, A.D.Ayyappan, A.R.Aswini, B.DhivyaBharathy in **“GPS/GSM Based Bus Tracking System (BTS)”** mentioned flow of tracking model gives the brief idea to add this functionality[3]. MichakMarkiewicz, Marek Skomorowski in **“Public Transport Information System for Visually Impaired and Blind People”** provide the brief idea on working and implementation of this model. We can use these functionalities in various system [4].

#### 4. Proposed System

The android application help visually impaired people while travelling. This Application automatically captures the current location of the user and provide the correct route for reaching their destination. So for implementing application we will have to follow some steps. Those steps are as follow:

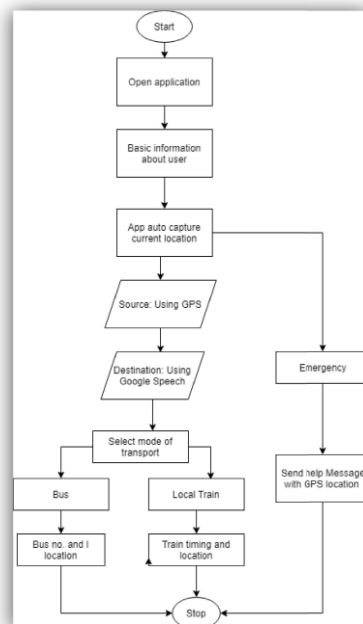


Figure No. 3

Step1: The user will opens this application by tapping on the application icon. After that, user needs to fill basic information.

Step2: Application automatically captures the current location of the user using GPS.

Step3: After selecting any option in an application, Application asks for the destination address of the user.

Step4: User can enter destination address through voice command.

Step5: Destination address is then converted to text, and user module forward query to the admin module to track the details of bus or train according to user selection depicts the particular details retrieved from the database.

Step6: When user wants to get details of any particular bus number or train timing there will be one option in application that provide information about the bus or that particular train.

Step7: By using voice command user can enter a particular bus number or train which they want to track.

Step8: User gets the current location of that bus or train which they select and that location represented as latitude and longitude.

Step9: In case of any emergency auto-message option will be there, this can be used for sending message to emergency contacts. The message includes location of the user.

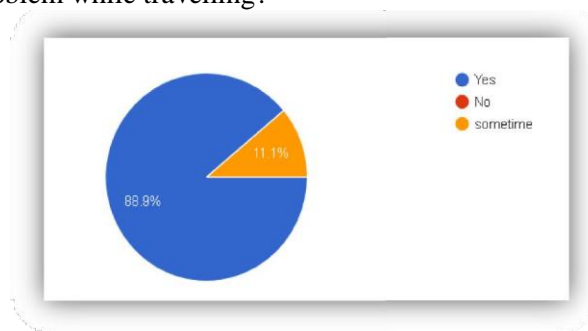
## 5. Survey Analysis

The survey was designed specifically to gather data based on the different views of visually impaired people while travelling through public transport. This survey was conducted using Google form. In Google form, different questions were asked.

More than 30 people participate in the survey. In

this survey following questions were asked:-

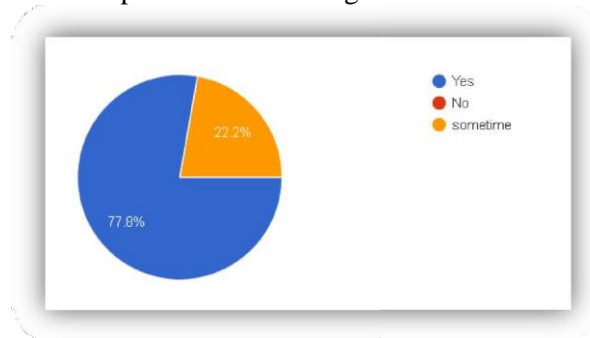
Q. Do you face any problem while travelling?



**Figure No. 4**

As shown in figure 4, when the question was asked, 88 people regularly face problems while traveling and 11 people face problems sometimes.

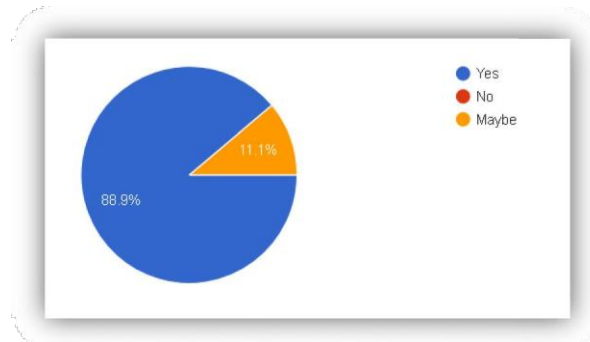
Q. Would you prefer public transport while travelling?



**Figure No. 5**

As shown in figure 5, when this question was asked, 77.8% people answered that they use public transport while travelling, whereas 22.2% people answered that they prefer public transport sometime while travelling.

Q. Would you prefer android application which will help you while travelling through public transport?



**Figure No. 6**

As shown in figure 6, when they were asked about android application 88.9% people were in favor of the application.

## 6. Conclusion

The main purpose of this paper is to provide the android application for visually impaired people that is extremely useful while travelling through public transport. As we know that visually impaired people facing many problem while travelling. When they have android application like this it become easier to travel from one place to another. Whenever they want to travel they just have to use this application and then it will become easier to travel even in an unfamiliar environment.

## 7. Acknowledgment

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