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Blind Travelling Assistant

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Abstract*—In today's world the human population is increasing day by day. In that the count of the visually impaired people is also increasing. Traveling is a major task for visually impaired people. They usually take help from other people to reach a particular location. It is not always easy to seek help from unknown people. So to overcomes this problem a system is proposed here for Traveling Assistant for the Blind. In this system the user will be specified with the different paths that can be chosen. The user can book a cab for himself/herself or even find out the nearest railway stations, and the timings also the time taken to reach that particular location. Basically the system act as a guide for the blind people to travel any new and unknown places. The system works on GPS (Global Positioning System) by using the source location of the user. For voice it uses the text to speech. The system would help in making with audio and visually impaired to be more self-sufficient. Thus easing their life.*

Keywords—Basic4Android, Cab System, GPS (Global Positioning System), Speech to Text, Text to Speech.

I. INTRODUCTION

The most difficult task for any blind or visually impaired person is to travel to any location. Traveling is a major issue for visually impaired people. They sometimes need to take help from other people to reach a particular location. It is not always easy to seek help from unknown people. So to overcome this problem a system is proposed here for traveling assistant for the blind. In this system the user will be guided to how he/she can reach their desired destination without seeking help. The user just needs to open the application and the current location of the user will be detected using GPS (Global Positioning System) [6]. Once the location is detected the user will give a voice command as to which place the user wants to reach. This will be done using the mobile phone mic and further all communication between the user and system will take place similarly. Once the user specifies the destination the system will specified with the different paths that can be chosen. The user can book a cab for himself/herself or even find out the nearest railway stations, and the timings also the time taken to reach that particular location. Basically the system act as a guide for the blind people to travel any new and unknown places. The system works on GPS by using the source location of user. For voice it uses the text to speech. The system would help in making with audio and visually impaired to be more self- sufficient [1].

II. LITERATURE REVIEW

An electronic based travel aid for the blind is presented in the paper. It consists of the two features a mobile and a remote assistant module. The device is capable of receiving and dispatching text message, handling phone calls and browsing a contact book. Text message, menu, contact book and so on are read by a speech synthesizer which was developed from scratch. The focus of the project is supporting the visually impaired in outdoor environment. The terminal shows the location of blind traveler on the map and the video sequence captured by the camera. The operator guides the blind with the path ta the destination provided by the blind. The system comprises two interlinked terminals a mobile of the blind user and a terminal of the remote assistant. The mobile terminal is equipped with a small device housing a camera, headset and a GPS receiver [1].

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In this paper it has use the GPS and the GSM module [2]. The only thing to be done with this device is to enter the destination through mobile application which gives user to get the desired path between source location and destination location. The novel interface for the disturbance and the free navigation is proposed to support the navigation system which is easy to handle and the aim in a less disturbing and obtrusive way using the turning algorithm. The android based Personal Travelling Assistant (PTA) basically on touch without encountering any disturbances. The PTA frees the user from requiring their eyes in the navigation system. This device is designed to provide a way of navigating without interaction with any handheld devices. It has been found that vibrotactile communication is very useful effect in improving situational awareness and navigations.

In this paper it monitors people on the move, evaluates their position against the path and alerts caretakers or coaches when unexpected events when unexpected event occur. The smart phone is only used for GPS location. It is used to provide a path. Text message or notification will be send to the coach or caretakers whenever an unexpected situation occurs to allow them to take the appropriate action and resolve the situation. This is composed of the applications that monitors people on the move, evaluates their position against the expected path and alters caretakers or coaches when the user gets in to emergence or in any unconditional situations [3].

In this paper a hybrid model is been developed for high-quality, concatenation based text-to-speech convertor [4]. The speech signal is submitted to analysis and decomposed into a proportioned component with a maximum frequency, plus a noise component. The proportioned component is sum of the sinusoids with frequencies multiple of the pitch. The hybrid model enables and work independent and the continuous control of the duration and pitch of the converted speech. The hybrid text to speech model gives the better performance. The hybrid model proposed in operates pitch synchronously. It separates the speech signals into proportioned components and a noise component and uses a fixed maximum frequency for the harmonic component. The model handles continuous and independent duration and pitch modifications [5].

In this paper the author has explained the Google Maps API and A-GPS (Assisted Global Positioning System). This provides the highest accuracy in positioning in a location based service. In this paper the mobile navigation is used on the basis of Google map browses the query, bus line search, the local position on your phone. Assisted GPS is a system where an outside source such as the assistance which serve and the reference network that help the GPS receiver to perform the specific tasks that is required [6]. In this system the Google Maps API allows users to embed Google Maps in their own Web pages. The development of mobile communication and the popularity of mobile phone users, mobile phone has become one of the main means of obtaining information. This makes it possible it possible to combine the mobile communication technology and google map and GPS.

The author has introduced to information completeness of a navigation system and the broadcasting timings. This paper consists of the use of information completeness and broadcasting time to influence the performance with respect to the walking time required, any missed routes. This was introduced to solve the problem of blind people as it's difficult for them to navigate in a new surroundings. The broadcasting timing at 7 meters requires more time and attention for a blond person, were as the 5 meters is more easy and helpful for broadcasting time. It has explained the new broadcasting pattern of voice information regarding the surrounding area in a very efficient way. Therefore, there are different types of navigation systems for blind is been available in the market, which of them have meet with little success by the in-tended users so far. There is been lack of adoption of this devices because of the cost, usability and performance. However, most of existing GPS navigation systems with blindness people use navigation information is designed for common people [7].

In this paper the author has introduced to a mobile system architecture for blind people. Recently, developing of the Intelligent Electronic Travelling Aid has been came closer to the disable, especially the blinds however, several issues have been brought or came when using it in the real-world, such as non-visual presentation, real-time interaction, and easy-to-use mobile equipment. There a four major units which are voice, speech recognition, GPS and image processing service. These system work on web service interaction. For straight line detections they have used the Hough Transform to reduce the lower and average response time. Radio-Frequency Identification (RFID) which provides the location and the information of location to users. GPRS (General Packet Radio Service) networks is used to calculate the shortest path towards the destination [8]. This uses voice

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commands to guide the blind person and will send a voice stream to Microsoft Speech API (MS API) server for speech recognition. Two operations are performed namely Sonar Thread and Beep Thread.

In this paper the author has proposed a blind adaptive beam which is forming algorithm for Global Positioning System (GPS) which combines the cyclic adaptive beam forming (CAB) algorithm with division technique. As it is compare with CAB algorithms and the new algorithm that can be generated and highly gain towards the satellite directions and forms the null in the direction of jammers by constrain including the weight vector and control vector of the CAB algorithm to the orthogonal space of the steering vectors of jammers. The algorithm has the advantages that there is not any requirement of knowledge of the transmitting signals and the locations of the satellite, fast converting speed, and low estimation complexity. The Cab algorithm and Novel algorithm is used. Simulation results are provided to demonstrate the performance of proposed algorithm. The GPS is the satellite-based navigation system which could provide the position, velocity and precise time for users. It is been widely applied and use in both civilian and military fields. While the interferences are strong enough compared with GPS signal, the receiver is unable to recover the navigation information conveyed in GPS signals [9].

TABLE 1

Analysis Table:

Sr.No.	Paper Name	Advantages	Disadvantages
1	Mobile Travel AID for Blind [1].	The device has the two features the mobile phone and the remote assistant module. The device is capable of receiving and dispatching text messages.	Costly Another issue is a camera with is (horizontal 30 degree) which is not sufficient for better guiding.
2	Android Based Personal Travelling Assistant using Turning Algorithm [2].	It uses the GPS and GSM module. It provides the specified path between the source and destination	The major problem is that the user has to use his continuously to judge the map.
3	Viamigo: A Digital Travel Assistant for People with Intellectual Disabilities [3].	It provides path and sends the alert text message or notification in unexpected situation.	Support communication between the coach and the end user Make more robust.
4	Design and Implementation of Text To Speech Conversion for Impaired People [4].	It converts text into speech using the Natural Language processing. And then using digital signal processing (DSP) technology to convert this processed text into synthesized speech.	Make text to speech technology more accessible to a wider range.

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5	A Hybrid Model for Text to Speech Synthesis [5].	In this paper a hybrid model developed for high-quality, concatenation based text-to-speech synthesis.	To increase the range of the text to speech accuracy.
6	The Study and Implementation of Mobile GPS Navigation System Based on Google Maps [6].	Basic Google map and query. In this paper the author has explained the Google Maps API and Assisted global positioning system (A-GPS).	To improve the end user and system navigation.
7	The Design and Evaluation of an Auditory Navigation System for Blind [7].	WLAN security, WEP, WPA	Indecipherable under limited computation capability.
8	A New Mobile Phone System Architecture for the Navigational Travelling Blind [8].	Voice Speech Recognition GPS Image Processing	RFID can be replaced with google maps as it's more precise
9	A Novel Blind GPS Anti-Jamming Algorithm Based on Subspace Technique [9].	In this paper the author has proposed a blind adaptive beam forming algorithm for Global Positioning System (GPS) is proposed, which combines the cyclic adaptive beam forming (CAB) algorithm with subspace technique.	To improve the blind adaptive algorithm.
10	Using GPS and Google Maps for Mapping Digital Land Certificates [10].	Information regarding the google maps, many features for manipulating maps and adding content to the map.	Precision of this application is still the problem.

III. CONCLUSION

The blind people face major problems while traveling from one place to another and it's not always possible to ask for help, so to solve this problem a system is proposed to help blind and visually impaired people travel to their desired destination. This system will guide the user to reach their destination by communicating through audio commands. The user's location will be detected once the user access the system. The location will be detected using the GPS. Then the system will ask the user for destination where the user wants to reach, and once the destination is provided the system will calculate the distance from the source location

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to destination location and provide path to reach there. The system will also give information regarding the time and distance from

their present location and according suggest a cab or railway route. The system provides all the details with the audio messages and the user responds back with a voice command. The user can select any option either a cab or railway according to his/her preference and the system will guide them further. The cab system will allow booking of cabs with the voice commands and also the minimum time required to reach the destination.

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