My assist

My assist is an android application which supports the physically disabled during travel. It provides a complete guidance for them by passing the information which are necessary for them to be independent and safe while travelling.

Many people use smart phones and their application is also in wide range. Even the blind and arm disabled could access the android mobile fully through voice. It also supports the communication with external devices using BLUETOOTH or WIFI.

Physically disabled assist tools like blind stick, wheeler chair, etc, can also be connected with this application in future and make their travel even more easier and comfortable.

It is designed with a graphical user interface in which even the normal people could use it for their travel too. A dynamic scheduling can be done using the real time tracking of the bus.

Functions

The primary functions of the my assist application includes:

1. User’s destination
2. User’s location
3. Retrieving the bus information
4. Nearest bus
5. Real-time bus tracking
6. Additional information

User’s destination

The destination of the user has to be known to know which bus the blind has to board. The input method varies for different type of disabled people. Blind and arm disabled uses voice to access the application.

While others can use the normal interface and touch input to access the mobile phone. Blind people could also use the grid mode system and access the touch and control the application.

User’s location

The location of the user is required to find the source location of the travel. So this information has it is the key process for the remaining functions. The location is identified by obtaining the users latitude and longitude.

The latitude and longitude is obtained using the GPS that is embedded in the smart phone hardware itself. This GPS hardware is used by the application by using the GPS services API provided by the android studio

Even if GPS services is used the accuracy of the process is less. So internet services is also used along with the GPS service to produce more accuracy. And by matching the results of GPS and Internet services this latitude and longitude of the user’s location is obtained.

Retrieving the bus information

In order to find the nearest bus, it is required to know the real time location of the bus. This information is present in the fire-base real-time cloud database. This is retrieved by linking the HTML link of the real-time database

The information that are retrieved from the cloud are,

1. Latitude of the bus
2. Longitude of the bus
3. Seat count
4. Next Stage
5. No of passengers
6. Ticket wending machine address

Nearest bus

The nearest bus has to identified to make a faster travel. At first the nearest stage is identified by matching the user’s location and stage’s location. By using the GOOGLE maps API the distance between them is identified.

Once the nearest stage is identified the next stage of the buses are compared with the nearest stage of the user. And all the matched next stage buses are listed to the user to select the respective bus.

This process of finding the nearest bus would save the time and memory that has to fetched from all the available buses.

Real Time bus tracking

The real time bus tracking has to be done for the user to know where the bus is present and where he is traveling along with the bus. This tracking is done using continuous retrieving of the data from the FIREBASE each and every time the latitude and longitude of the bus is changed.

The update of the latitude and longitude to the FIREBASE is done thorough the ticket wending machine. The retrieving of the data is done by FIREBASE REALTIME DATABASE and AUTH commands while programming the applications itself.

All the updated information are displayed in graphical user interface in which a map shows the location of the bus and the location of the user and the destination location with respective icons

The voice output is also done in parallel other activities. All the information has to be updated regularly to the user every second

Additional information

Whenever more information are provided, the confidence among the people is increased. To make them feel comfortable and confident the user has to be informed about the location of the bus and the time it would take to reach his / her location and the time it could take them to reach the final destination.

Has the distance between the bus and the user is known the time to reach the user can be known by knowing the speed of the bus. The speed of the bus can be identified by the the variation of latitude and longitude difference that is being updated every second.

Once the user is boarded in the bus, the time to reach the destination and the next stages has to be informed to the user by similar process.