Blind Navigator

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Development of a voice controlled navigation system integrated with smart stick sensor for visually impared persons using A* Algorithm

Introduction

This software design specification is made with the purpose of outlining the software architecture and design of Navigational System in detail. The document will provide developers an insight in meeting client's needs efficiently and effectively. Moreover the document facilitates communication and understanding of the system by providing several views of the system design.

Objectives :

1. Availability of nearest destination:

This will enable the user to locate the nearest store (destination) for which the user wishes for.
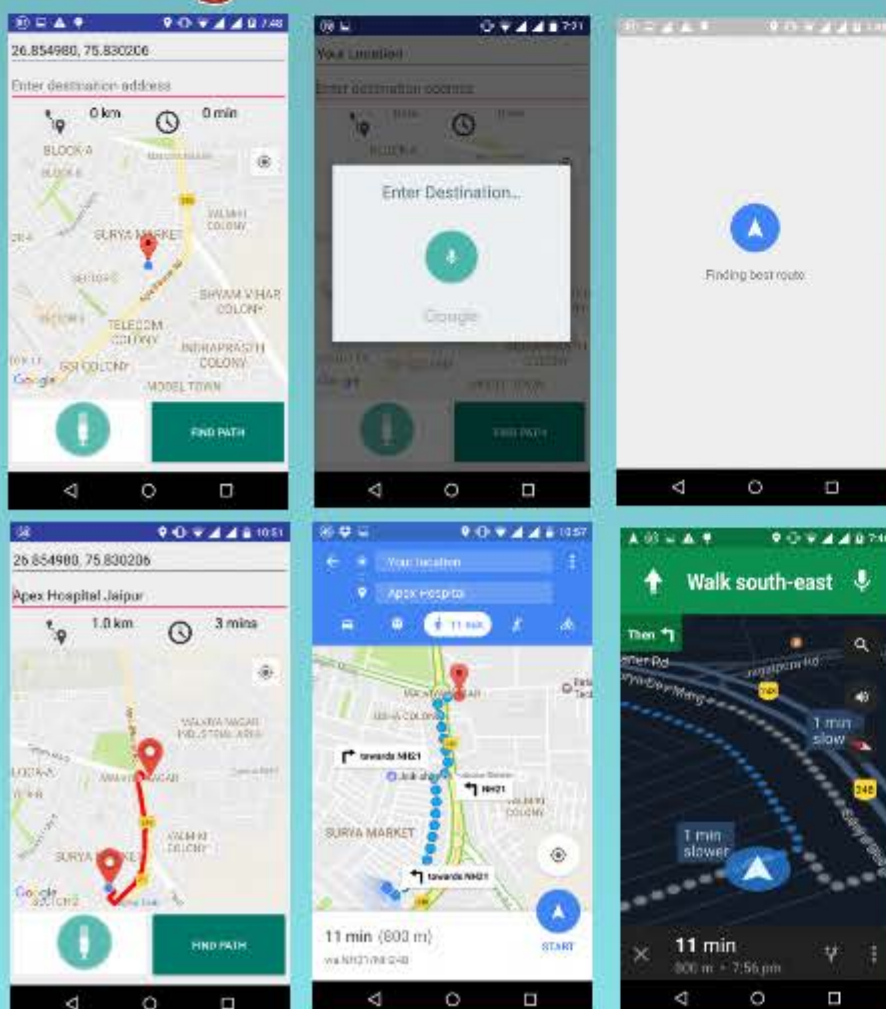
2.Tracing the shortest and feasible path to destination:

This will enable the user to know the shortest path available to the destination where he/she wants to reach.

3. Navigating till the destination:

The voice guided navigation system will facilitate the end user to navigate to the desired place and will notify them on upcoming turns, circles, etc. with a precise distance.
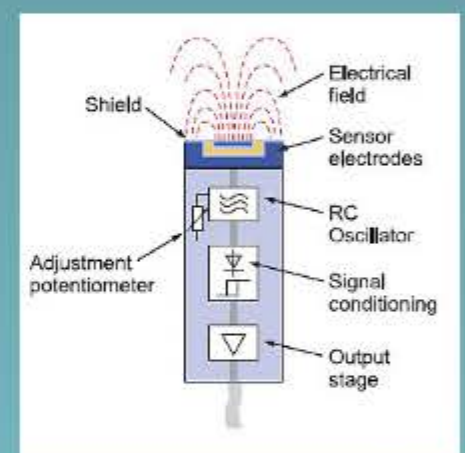
Design

Algorithm :

```
LatLng hcmus = new LatLng(lati, longi);
mMap.animateCamera(CameraUpdateFactory.newLatLngZoom(hcmus, 15));
originMarkers.add(mMap.addMarker(new MarkerOptions()
        .title("Jaipur")
        .position(hcmus)));
GoogleMapOptions options = new GoogleMapOptions();
options.mapType(GoogleMap.MAP_TYPE_SATELLITE)
        .compassEnabled(false)
        .rotateGesturesEnabled(false)
        .tiltGesturesEnabled(false);
```

Hardware Module

The smart stick is the blind stick used by visually impaired people. The stick is equipped with a sensor and a buzzer and alerts the user whenever he/she approaches the obstacle.

It basically uses proximity sensor to sense upcoming obstacles and the frequency of buzzer depends upon the distance of obstacle with resepect to sensor.

Conclusion

Our project will be able to answer:
Where are the nearest destinations?
After how much distance I need to take a turn?
Can I operate this app by my voice or through some gestures?
Is there some obstacles in my way?

References

https://github.com/
https://developers.google.com/maps/