

Abstract

Global Positioning System (GPS) is a radio navigation system which is used to find a position of an object using a satellite. GPS can determine the object position on the globe surface by *latitude*, and *longitude*, and is able to continuously give some information about the device movement. GPS satellite has a constellation of 24 satellites in 6 orbits that are approaching a circle. Each orbit is occupied by 4 satellites with different interval.

With the presence of 24 satellites in space, 4 to 10 GPS satellites can always be observed from the earth at anytime. GPS satellite signal is transmitted by the GPS satellite continuously. By observing the satellite signal using GPS receiver, people can find their exact location (latitude, longitude) on the earth. GPS Receiver get signal fix position very base on weather, environmental (for example: building), and signal-signal giving influence to signal GPS Receiver. Position accuracy of GPS receiver used to have accurateness about radius 5 M on course keep quiet.

This final project is to build an application *Wayfinder Navigator* combining several technologies such as *Global Positioning System* (GPS) and *Personal Digital Assistant* (PDA) to run the application. Application making use parsing and translate data format from national marine electronic association (NMEA 0183) to longitude and latitude, so that the data become information in the form of point pixel displayed at PDA.

All of the application and data are stored in PDA memory. The user can request a map that is pre-stored in the PDA, after the map is displayed, the user can then find the desired location. Next the application in the PDA will search for the shortest route, The time for routing base on amount of joint streets, intersection, and also memory owned by PDA. And after that the PDA will guide the user during the trip.

The result from this system is a *Wayfinder Navigator* which can give information in the form of short route, then application give guidance in the form of road direction which must passed seen at colour track, instruct arrow of guide and voice, so that the user will be comfortable use application of this wayfinder navigator.

Keywords: latitude, longitude, *Wayfinder Navigator*, GPS receiver, PDA