

Brunel Navigation System (BNS)

A navigation system for visually impaired pedestrians is being under development at the Electronic Systems Research Center, School of Engineering and Design, Brunel University, UK. The Brunel Navigation System (BNS) integrates various facilities such as:

- A remote vision facility
- Global Positioning System (GPS)
- Geographical Information Systems (GIS)
- Wireless communication networks (WiFi/UMTS/HSDPA)

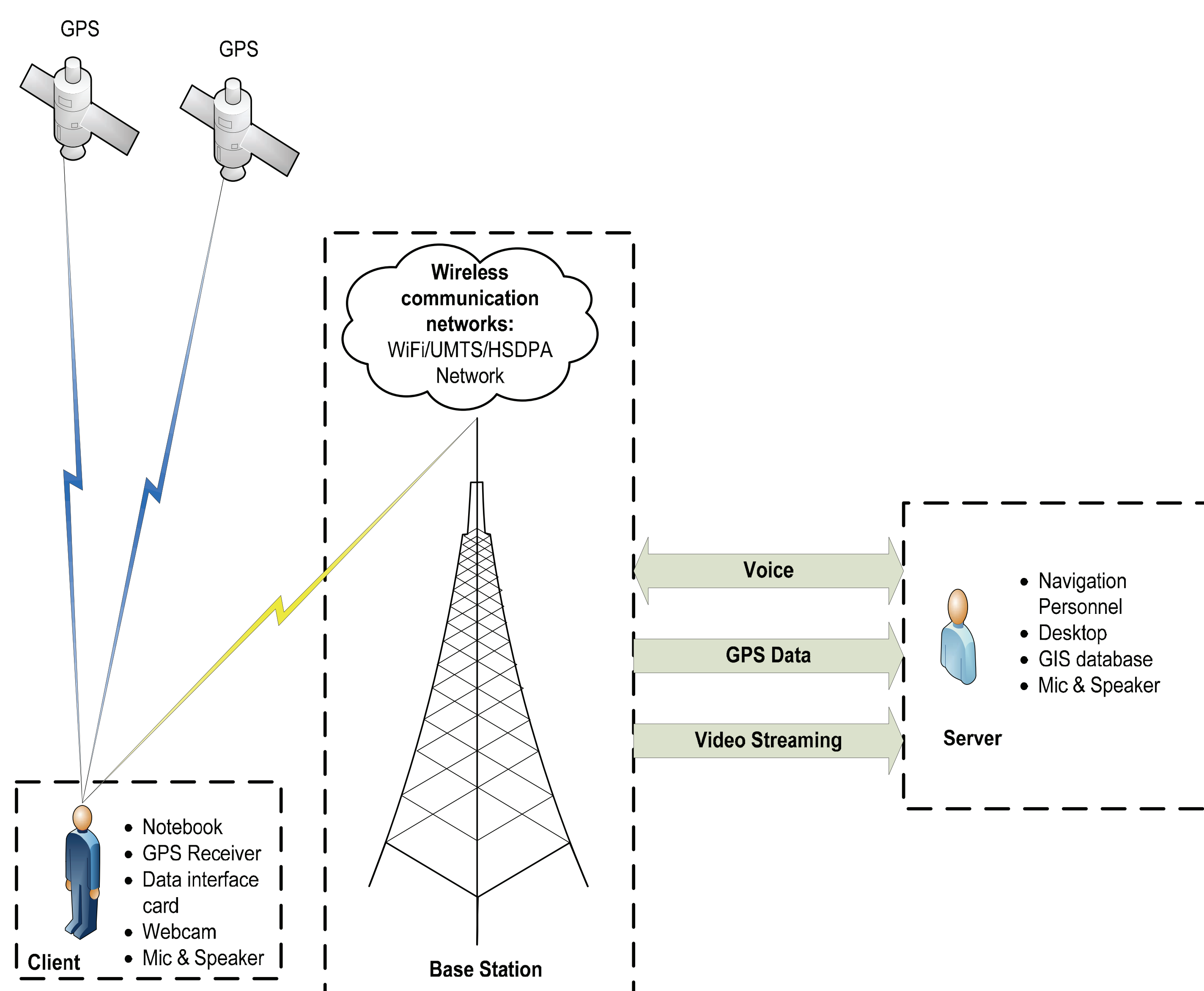


Figure 1: Schematic diagram of BNS

BNS consists of two main terminals as shown in figure 1: a client (mobile terminal), which is located at the site of the visually impaired user, and a server (stationary terminal), which is located at the site of the sighted guide who provides the user with location information and the routing to the destination.

Future System

- Galileo operational 2013
- GPS and Galileo up and running with 51 satellites in the space
- Different navigation services will be available
- More availability and a better accuracy
- Selection of frequencies with good performance and small tracking errors in the upper L-band frequencies for the purpose of ionospheric compensation in dual-frequency receiver
- Interoperability with GPS

BNS Hybrid System

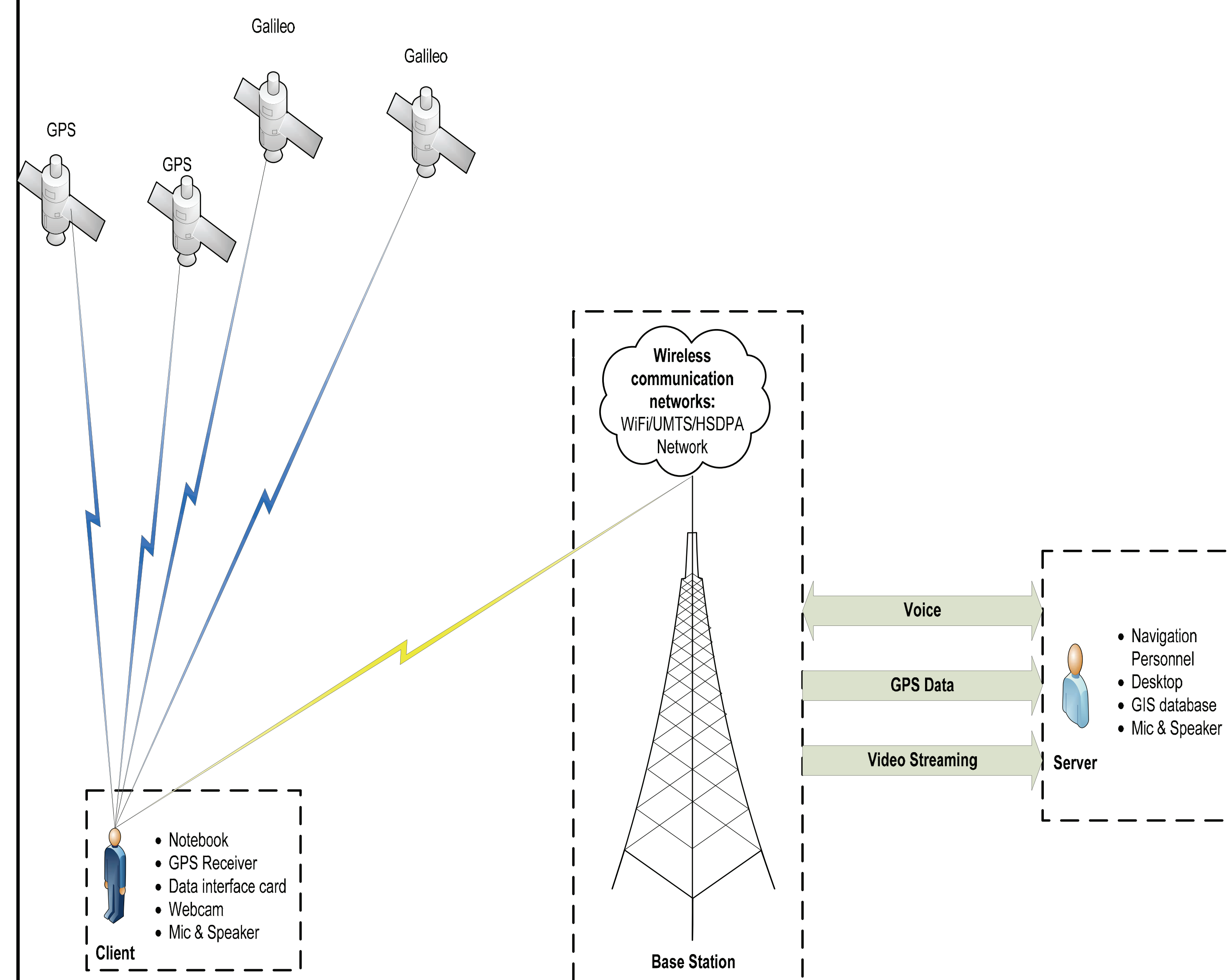


Figure 2: Schematic diagram of BNS Hybrid System

Benefits from receiving signals from GPS and Galileo as shown in figure 2: will increase the improvement of the accuracy, reliability and availability. These features have a significant impact on the overall performance of the navigation system particularly visually impaired pedestrians.