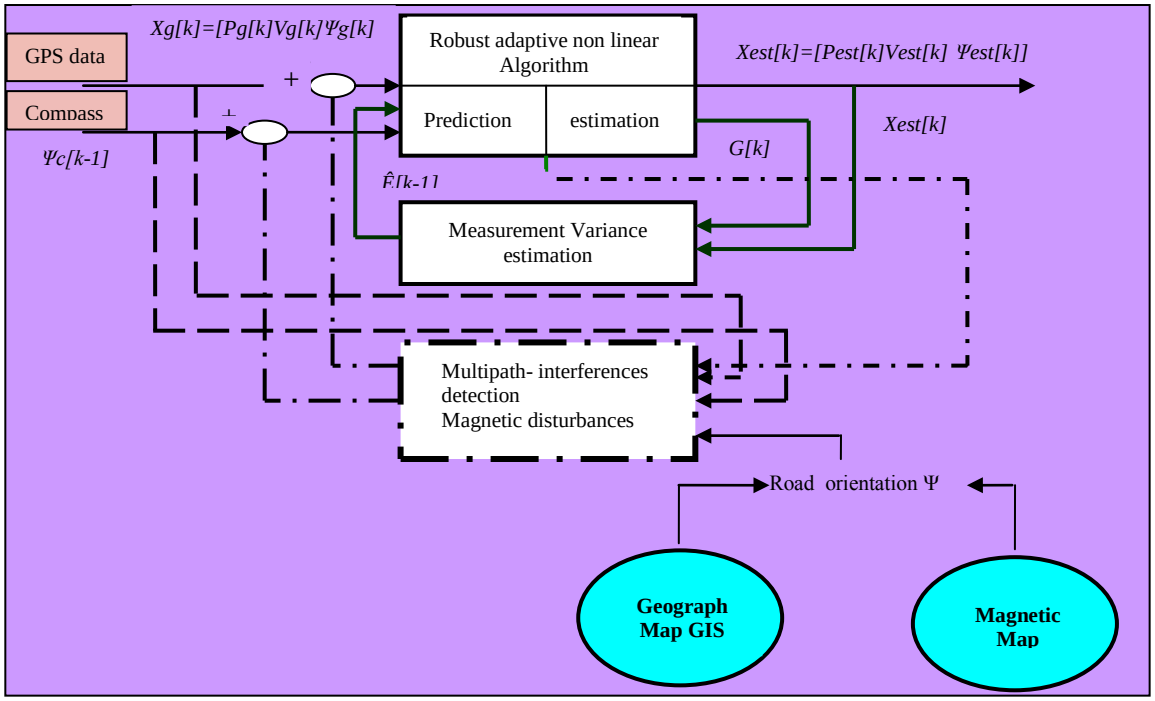
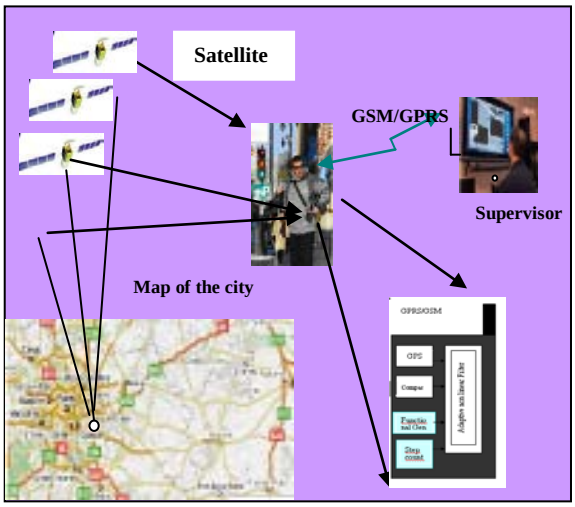
Project 7. INTEGRATED NAVIGATION SYSTEM FOR BLIND PEOPLES NAVIGATION IN THE CITY

Blind peoples are developing hearing day after day to recognize the environment where they are moving, and usually use dogs and stick for walking and displacement from one area to another; which is not an easy task. It is purposed a new solution to develop the life of blinds and make easier the displacement in the city which is based on GNSS (GPS+GLONASS) receiver and electronic compass integrated through integration adaptive non linear filter. Let us describe the original design for blind peoples navigation system

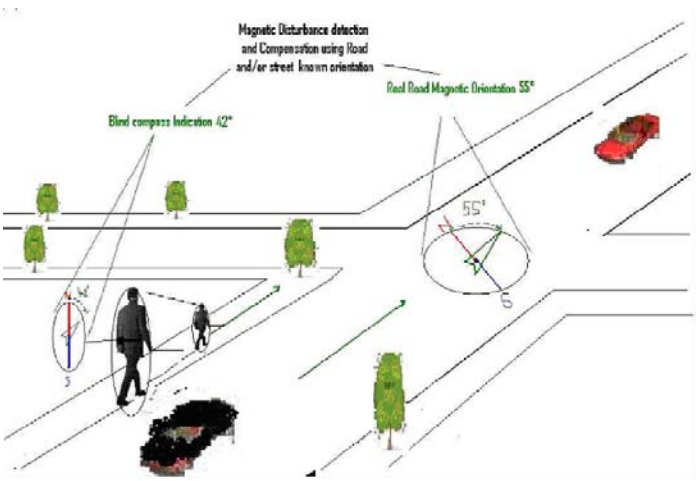


The system's components are: GPS tracker, Digital Compass and digital non linear filter such as described in the Fig.1. The non linear filter is adapted to measurement covariance variations, multipath and magnetic disturbances, all delivering the position and orientation of the mobile through GoogleMap interface.



2.a.1 Hitachi HM55B Compass + Basic stamp 2 board

2.a.2GPS/GSM/GPRS trackerAVL+personnel tracker TR102



References:

1. **Hamza Benzerrouk**, **Alexander Nebylov**; " Original Integrated Navigation System GNSS/Compass for Lacalization and Navigation of Blind peoples in the City", 17th International Conference on Integrated Navigation Systems, CSRI Elektropribor, Saint-Petersburg,Russia June 2010.

2. **Hamza Benzerrouk**, **Alexander Nebylov**; "Integrated Navigation System INS/GNSS Based on Joint Application of Robust Adaptive Linear and Nonlinear Filtering", 17th International Conference on Integrated Navigation Systems, CSRI Elektropribor, Saint-Petersburg,Russia June 2010.

3. **Benzerrouk.H, Nebylov.A, Yatsevitch. G**, Localization and Navigation System for Blinds Peoples in the City. Russian Patent N° 89221,issued on 08 November 2009, Moscow, Russia.