

Sensor fusion for UWB and Wifi indoor positioning systems

Frederic EVENNOU†, François MARX†, Simon NACIVET

† France Telecom Division R&D - Grenoble - France

Phone: +33 (0)4 76 76 40 90 - Fax: +33 (0)4 76 76 44 50

E-Mail: frederic.evennou@rd.francetelecom.com

Abstract

This paper advocates the application of sensor fusion for location. More and more sensors, like video, RFID, Wifi, are available in those environments. Fusing all those information is becoming a major task in indoor positioning as all the measurements coming from the sensors are noisy. This noise introduces positioning errors that may vary from one technological system to another. Besides, the coverage area of each single system may not be well adapted for all the application so a multi-scale coverage area system may be defined. This paper presents a reliable mobile positioning system taking advantage of the Wifi and the Ultra Wide Band positioning systems. The first may provide a rough position whereas the second is expected to achieve sub-centimeter position in restrained area. Fusing those two systems should lead to a more accurate system enabling to track a device in a building with different scales of accuracy along the path.