Steven Paustian

CSE 489

Term Project Proposal

Date Due: 2/19/14

Instructor: Dr. Jun Zheng

In today's digital world, mobile phone use is increasing at a rapid pace. As mobile devices become more sophisticated, the number of embedded sensors included in each device grow as well. These sensors can be used for a variety of sensing applications. (Korpipää p.1) For my term project I would like to complete a research survey of phone sensors including the accelerometer, digital compass, gyroscope, GPS, microphone, and camera.

As mobile phones sensors become more abundant, the applications of their use grows as well. A large percentage of mobile applications can benefit from sensor input. I would like to survey some of the existing sensor algorithms that are used to benefit mobile applications, including accelerometer positioning algorithms, audio recognization algorithms, and camera motion-sensing algorithms. (Liu p.3-5)

While mobile sensors grow in accuracy, there remain certain errors inherent in sensor measurements that make them inefficient for some tasks. I would like to survey some of these shortfalls including accelerometer double integration error for position tracking, (Liue p.1) gyroscope drift, and GPS inaccuracy.

References

Korpipää, Panu, and Jani Mäntyjärvi. "An ontology for mobile device sensor-based context awareness." Modeling and Using Context. Springer Berlin Heidelberg, 2003. 451-458.

Liu, Ting, et al. "Implementing software on resource-constrained mobile sensors: Experiences with Impala and ZebraNet." Proceedings of the 2nd international conference on Mobile systems, applications, and services. ACM, 2004.

Liue, Hugh HS, and Grantham KH Pang. "Accelerometer for mobile robot positioning." Industry Applications, IEEE Transactions on 37.3 (2001): 812-819.