

Localization in WiMAX Networks Based on Signal Strength Observations

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Why WiMAX networks?

1- Availability: WiMAX started to be widely adopted.

2- Accuracy:

- Network structure is similar to GSM.*
- Mesh networking capabilities (improve the accuracy).*

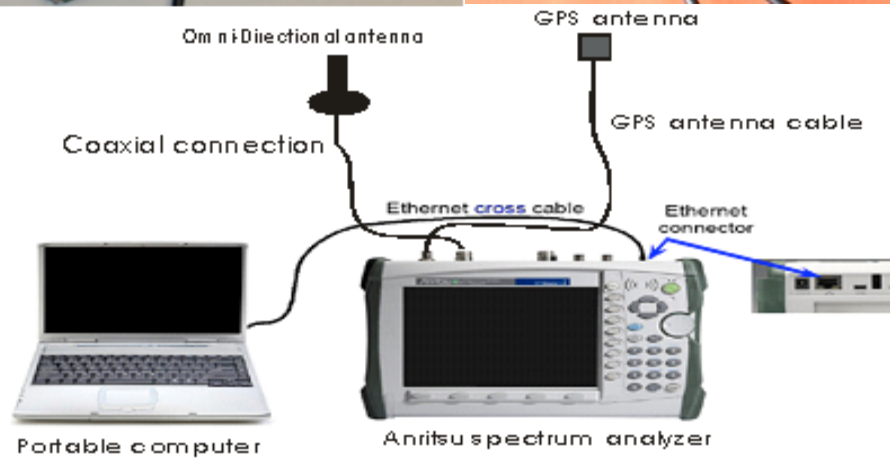
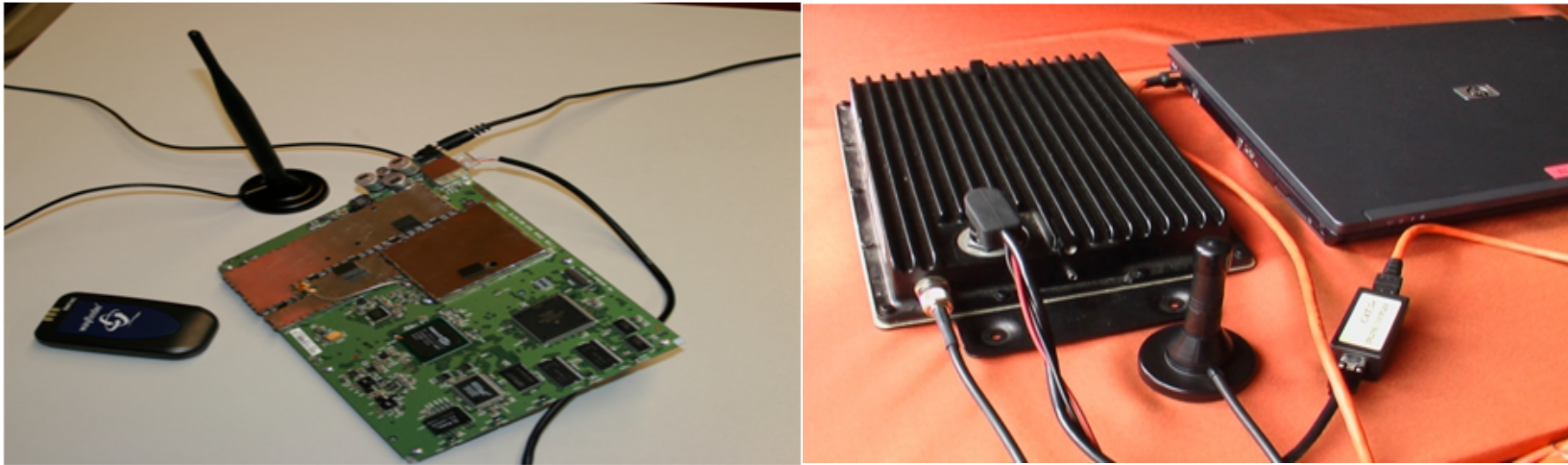
3- High data rates: New LBSs are on the horizon.

4- Power consumption: No extra power required to locate users; the power consumption is the same as the usual power used to connect and use WiMAX networks.

Research statement

Show that WiMAX networks are capable of providing the required accuracy for most LBSs, depending on terminal-based measurements.

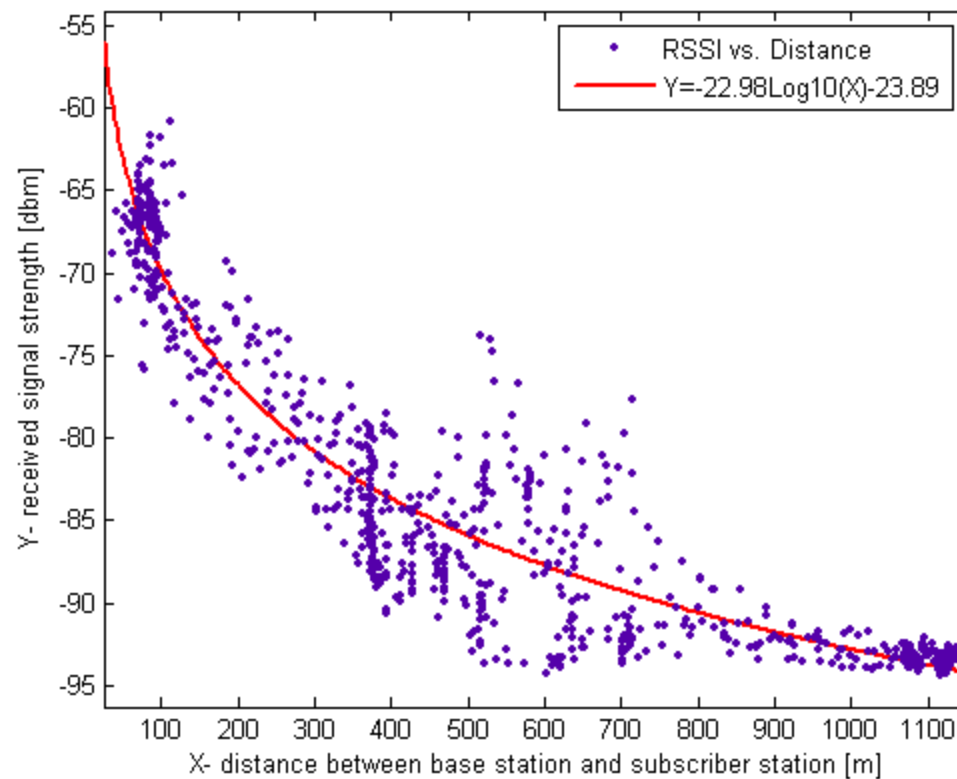
Measurement setup



Measurement area



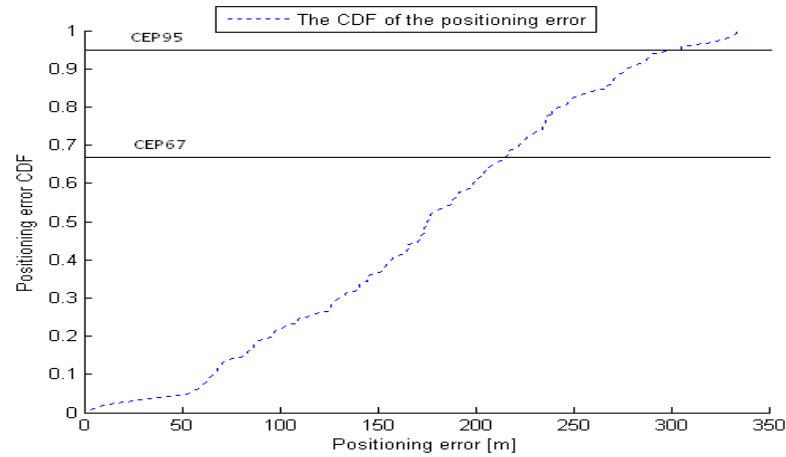
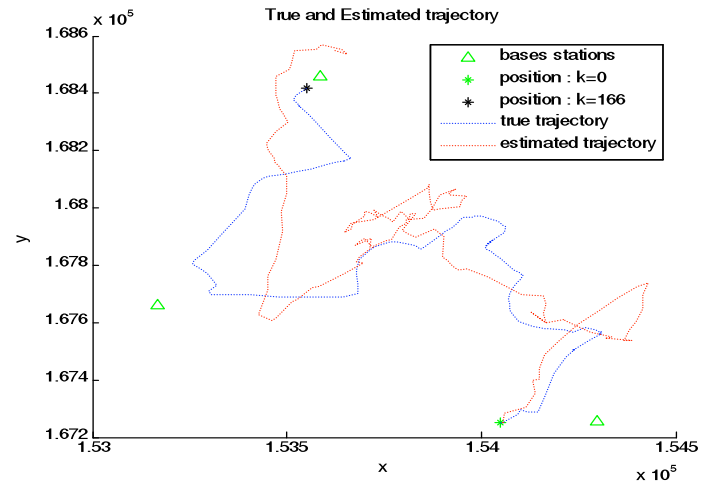
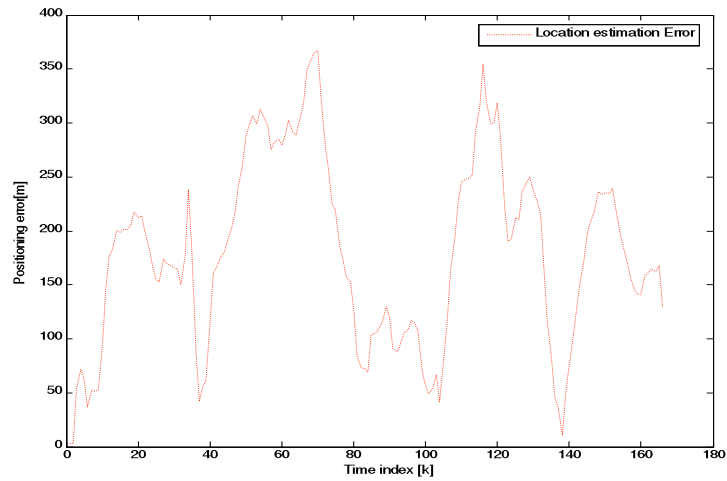
Localization path loss model



Target trajectory



Results



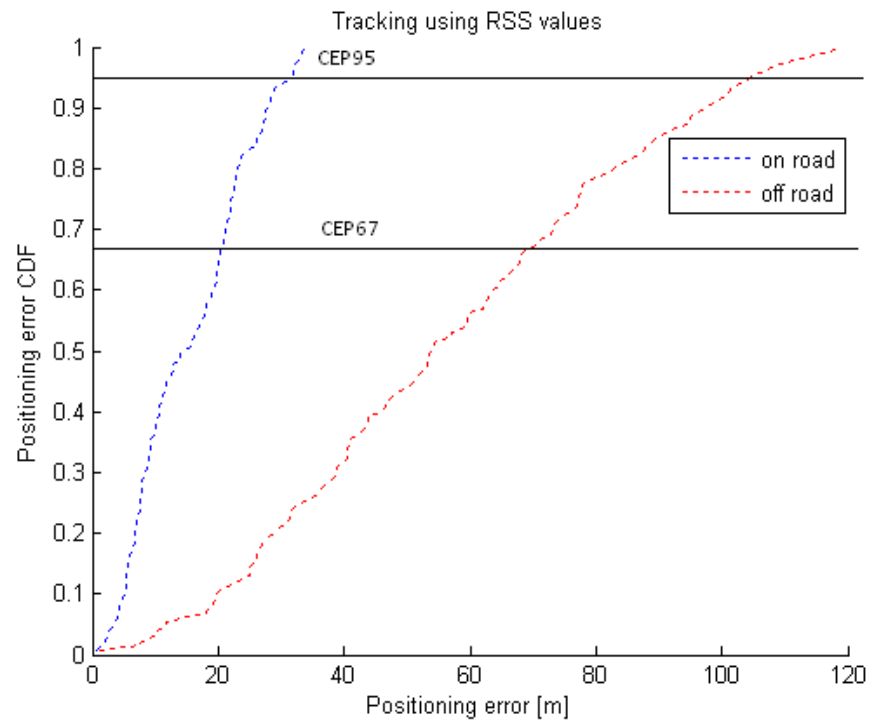
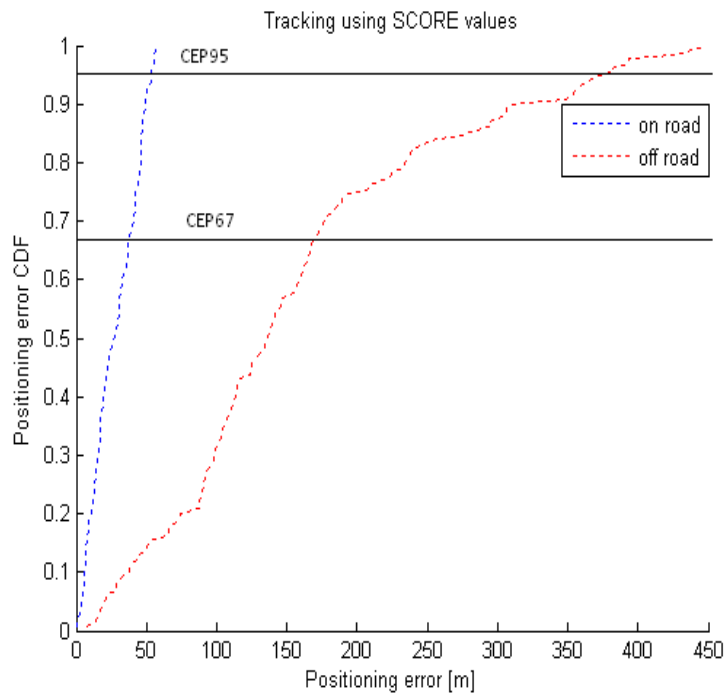
Conclusions & Future work

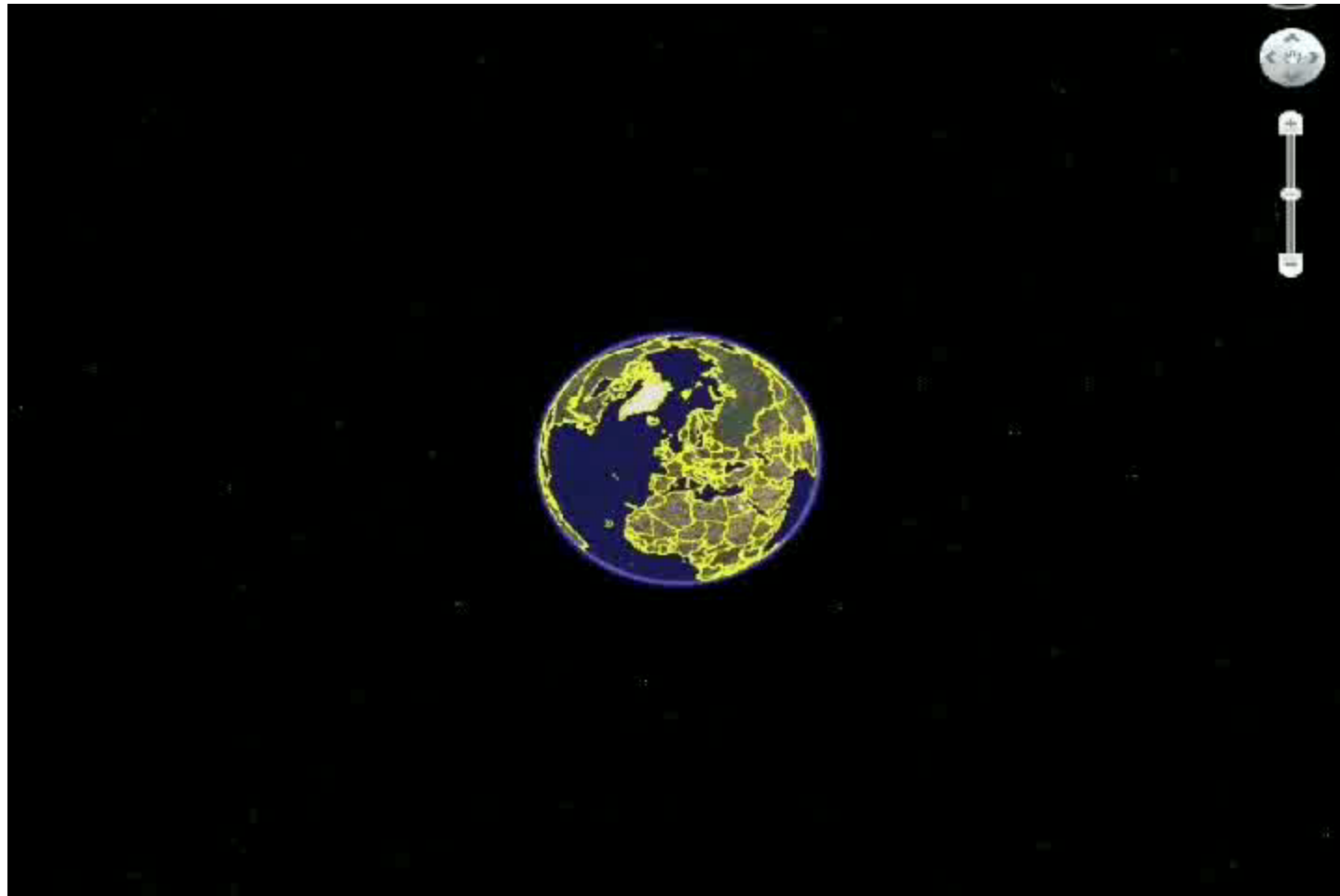
WiMAX networks are capable of locating and tracking users with sufficient accuracy for most LBSs.

The future work will focus on further improving the accuracy by:

- 1- Building maps of the received power.
- 2- Using the street maps information.
- 3- Using TA measurements together with RSS measurements.

Results





Q&A

Thanks!!!