

WIMXCL Project Status Report
Period: 10/26/2012-3/21/2013 (GEC16)

I. Major accomplishments

This project will plan and deploy a multi-cell/multi-sector WiMAX network (three sectors total) in Greenville, SC, with coverage of highways and commercial district, based on base station kits provided by Rutgers. It will deploy a vehicular mobile station with handover features, and demonstrate multi-cell/multi-sector operation. It will collaborate with commercial WiMAX carrier Digital Bridge Communications (DBC) to explore and demonstrate (if possible) roaming and interoperability between GENI and commercial WiMAX networks. It will demonstrate experiments in automotive research and engineering.

During this period, key achievements include:

- a) Debugged and confirmed two Airspan BS needing replacement, waiting for Airspan RMA and shipping instructions
- b) Debugged and resolved problem with active BS by replacing GPS unit
- c) Completed openflow based seamless handover implementation based on Floodlight running on Linux computer

A. Milestones achieved

Milestones inherited from previous period:

- Complete installation of WiMAX base stations, plus associated servers and services. (by GEC14)
 - Completed one, two more to go (two BSs, respectively, with RF and network faults).
- Configure the WiMAX base stations using OMF, and demonstrate connectivity to the GENI Internet 2 backbone. (by GEC14)
 - Waiting for OMF support for Airspan BS.
- Complete basic range and throughput tests of your WiMAX base stations using reference OMF/OML throughput experiment and a reference mobile station. (by GEC14)
 - Pending two remaining BS replacement

No other milestones are due this period.

B. Deliverables made

One installed BS. Tunnel and direct vlan to GENI WiMAX core.

II. Description of work performed during last quarter

A. Activities and findings

1. Completed one base station installation. Completed signal mapping
2. All installation preparation completed for remaining two BSs, simply waiting for Airspan resolution of RF fault problem

B. Project participants

The project team members are:

- PI: Kuang-Ching Wang (ECE Associate Professor)
- Co-PI: James Martin (CS Associate Professor), Jim Pepin (CTO)

GENI WiMAX at Clemson (1843C)

IT: Dan Schmiedt (Director of Network Services and Telecommunications), Joseph Bernard (Network Engineer)

ECE graduate research assistant: Reece Johnson (MS), Fan Yang (PhD), Ryan IZard (PhD)

C. Publications (individual and organizational)

Not available at this time.

D. Outreach activities

Not available at this time.

E. Collaborations

The project is conducted in collaboration with University of Wisconsin, Madison's GENI WiMAX project (PI: Parmesh Ramanathan) on support for mobility (handoff) on GENI WiMAX networks.

F. Other Contributions

None in this reporting period.