

WIMXCL Project Status Report
Period: 11/5/2011-3/15/2012 (GEC13)

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) Received three GENI WiMAX kits (Airspan) from Rutgers.
- b) Completed deployment plan for one base station in Clemson, SC and two base stations in Greenville, SC.
- c) Secured spectrum through Clearwire sublease agreement for project duration. Also acquired FCC experimental license.

A. Milestones achieved

One milestone was planned for this period. To our understanding, it is considered completed given the conditions specified below:

1. Complete installation plan for WiMAX base stations, including access facilities and switches, plus associated servers, and begin installation. (by GEC13)
Planning done. Starting installation after GEC13.

No other milestones are due this period.

B. Deliverables made

Not available at this time.

II. Description of work performed during last quarter

A. Activities and findings

- a) Complete installation plan for WiMAX base stations, including access facilities and switches, plus associated servers, and begin installation.
The Clemson base station will be deployed on Byrnes Hall's rooftop on an existing pole mount from a prior research project. Ethernet will be used to connect the base station to the top floor machine room very close to the pole mount through a weatherhead. The Greenville base stations are intended to be deployed on Campbell graduate student building on ICAR campus with the same type of pole mounts on the rooftop. Survey of rooftop setup and network connectivity plan is under way. The two base stations will form partially overlapped coverage, one facing interstate I-85 and one facing the ramp towards the Campbell graduate student building. The intention is for the ICAR shuttle to enter network coverage when approaching ICAR on I-85 and remain connected for the entire time it is on the ICAR campus until it departs again (back to Clemson).

B. Project participants

GENI WiMAX at Clemson (1843C)

The project team members are:

PI: Kuang-Ching Wang (ECE Associate Professor)

Co-PI: James Martin (CS Associate Professor), Jim Pepin (CTO)

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

ECE graduate research assistant: Reece Johnson (MS)

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.