CORNET Radio Test Bed at Virginia Tech

Experiment Purpose and Project Description

CORNET is an open cognitive radio network testbed which provides the infrastructure for researchers at Virginia Tech and partner institutions to evaluate independently developed cognitive radio engines, sensing techniques, applications, protocols, performance metrics, and algorithms in a real world wireless environment, in contrast to a computer simulation or single node-to-single node environment. The testbed will consist of 48 nodes mounted on the ceiling and distributed amongst 4 floors. This “real world” environment gives researchers, whose local resources may not allow for larger scale practical hardware testing, a platform to test their work in a real wireless network environment. Operation of the network is confined to the interior of the Virginia Tech ICTAS building at the Blacksburg campus.

Each system node consists of an Ettus Labs USRP2 or similar device with standard or custom RFIC based daughterboards which may be tuned to any licensed operating frequency. Innovative wide bandwidth antennas are provided at each node. The system nodes are connected to a central computer by way of a wired network in order to facilitate programming and control. “Mobile” units within the building are used to evaluate handoff and interference characteristics of the network. Radio nodes are SDR based so that operating modes and protocols may be set under software control.