

Military Integration & Utility Evaluation of Telemedicine Capabilities over 4G LTE Manpack Radios

TATRC's Medical Intelligent Systems Lab (MISL) entered into a Cooperative Research and Development Agreement (CRADA) with CORNET Technologies on 4 June. The purpose of the CRADA is to explore the possibilities of integration and utility of Virtual Health capabilities over a heterogeneous radio network consisting of CORNET Technology's STINN LTemp Manpack 4G LTE Deployable Base Station for local 4G LTE communications and longer range communications provided by other radio technologies, such as Mobile Ad Hoc Network (MANET) radio systems and Broadband Global Area Network (BGAN). In addition to supporting localized 4G LTE networks, the STINN LTE Manpack 4G LTE also provides a ruggedized server platform with Intel's Core 7 processors.

CORNET Technology has already successfully performed demonstrations of high bandwidth data transfers in a heterogeneous radio network consisting of 4G LTE Manpack radios providing bubbles of service locally with the nodes being connected through longer range MANET radio systems. CORNET Technology supported high definition video suitable for tele-surgical consultation from a distance of 5 miles in recent demonstrations through the use of the heterogeneous radio network. This CRADA will allow for the military to further validate the different medical use cases for this type of technology. The Principal Investigator for this CRADA, MISL's Mr. James Beach, stated that "employment of this [high bandwidth network]



CORNET Technology's STINN LTemp Manpack 4g LTE Deployable Base Station (Cell Tower in a Rucksack)

capability into simulated operational environments will allow for identification of unforeseen virtual health capabilities."

Current plans include incorporating the 4G LTE Manpack capability into TATRC's Research Evaluation Event taking place this August at Fort Detrick, to perform research into the military utility of the capability with a wide range of virtual health research projects, ranging from mobile healthcare documentation to simulated tele-surgical scenarios. TATRC has also engaged with other military partners to further evaluate use of heterogeneous networks with 4G LTE nodes to perform virtual health in remote isolated military medical scenarios.

Future plans under consideration would explore the use of the integrated processing power within the 4G LTE Manpack to support services for local users. The services would range from providing computing power for potential decision support algorithms for clinical purposes, or to host localized web-based services for applications requiring computing power not found in Android-based End User Devices. ■■■