Tactical MANET Project Requirements

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Abstract

This document lists details of the graduation project requirements and specifications.

Project Description

A communication system for military, used in areas with no internet infrastructure. The system connects the command center(s) with deployed units in two-way communications.

Nodes

Nodes include: - Fixed number of pre-known command Centers computers. - Devices with soldiers, connected with sensors, dashcam and audio input.

All nodes are provided with wireless communication modules that follow `IEEE 802.11` standards.

Functional Features

The system should let the soldiers devices:

- stream video from dash cams,
- stream audio from microphones,
- stream raw data from various sensors (e.g GPS, thermal sensors, health sensors, etc . . .),
- and send message codes (every code has its predefined meaning)

to all the command Centers.

The system should let the command Centers:

- send audio commands,
- and send command codes (every code has its predefined meaning)

to one (unicast), some (multicast) or all (boradcast) of the soldiers devices.

Non-functional Features

The system should allow the units to communicate securely, with low latency and high throughput.

The system have to use a complex routing protocol that utilizes redundancy in the topology to increase communication reliability.

The system should be ready to deploy to devices with low-power microprocessors running linux.

Deliverables

- Application source code.
- Routing protocol implementation.
- Instructions on how to:
  - Attach inputs.
  - Configure devices.
  - Install and run all software
- A paper that describes the modification(s) to the routing protocol, if any.
- Experiments' results about latency and throughput using different mobility models.