

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 centre(s) with deployed units in two-way communications.

Nodes

Nodes include: - Fixed number of pre-known command centres 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 pre-defined meaning)

to all the command centres.

The system should let the command centres:

- send audio commands,

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

to one (unicast), some (multicast) or all (broadcast) 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.