

Working Title

- A Hybrid Centralized and Distributed Time Slot and Channel Hopping Scheme for 6TiSCH Wireless Sensor Networks

Summary of 6TiSCH

Load-balanced Centralized Scheduling	<u>CoAP</u>
	UDP
Energy Aware load balanced Objective Function	RPL & IPv6 6LowPAN
<u>QoS Supervisor</u>	6top
	MAC
	PHY

Relevance to 6TiSCH

- RPL computes routes for scheduling
- CoAP – Application Layer protocol used for monitoring and Centralized scheduling
- 6TiSCH Operation Sublayer(6top): Provides set of commands for upper layers to set up schedules (Management of queues, buffer sizes, transmission failure behavior)

Main Objective

What is impact of a hybrid of a load-balanced centralized and distributed scheduling schemes on performance of 6TiSCH networks

Specific Objectives

Load-Balanced Objective Function for RPL to determine optimal routes

QoS Supervisor to monitor network Conditions and initiate switching between centralized and distributed scheduling

Minimal Idle-listening and Load-Balanced centralized Channel hopping and time slot scheduler

A hybrid of centralized and distributed scheduling schemes that outperforms both centralized and distributed scheduling schemes in 6TiSCH networks used in isolation.

Progress

- Submitted Paper on Generation one WIMEA-ICT AWS to Elsevier journal for development
- Implementing and simulating RPL Fair energy-aware load-balancing Objective function
- Started paper on paper for the RPL objective function
 - Selected Elsevier (Network and computer applications)
 - Introduction
- Others: Supporting procurement process

Plans for March

- Finish and submit paper on load-balancing RPL
- Resume working with students on
 - Free and Open-source sensor application
 - Scheduling algorithm