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Project ASTRA – Asset Tracking for hospitals

Kick-Off Presentation

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Motivation, State of the Art and Objective

An average hospital can lose $4,000 per day in lost wages due to time spent searching for mobile medical equipment, not to mention the over-procurement of assets to ensure availability - Versus [1]

- Motivation
  - To track mobile medical equipments in the hospitals
  - Increased patient volume, increased health care devices which are prone to misplacements by humans.
  - Misplacements, time to track, central inventory management(out of date, over ordering, needs maintenance or disposal).

- State of the Art
  - WSN to track the assets/devices – Zigbee, BLE, RFID etc
  - Lack of standardization, Expensive etc,.

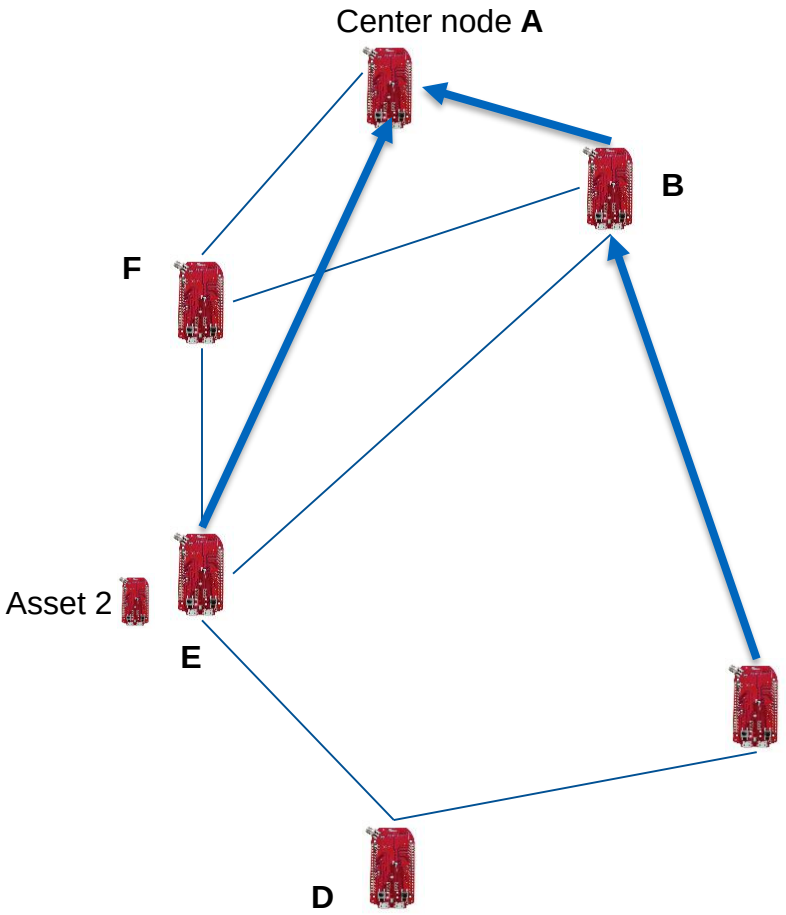
- Objective
  - The goal is to implement a homogenous, scalable real time asset tracking system for hospitals by constructing an efficient, energy aware Routing algorithm.

Approach and expected results

- Approach
  - 2 beacon motes and 6 tracking motes with one being the center mote.
  - Application has 2 modes of operation
    - Neighbour discovery – Controlled flooding to discover the neighbours for each node and stored in respective table
    - Asset tracking – Time driven beacon information to the center mote.

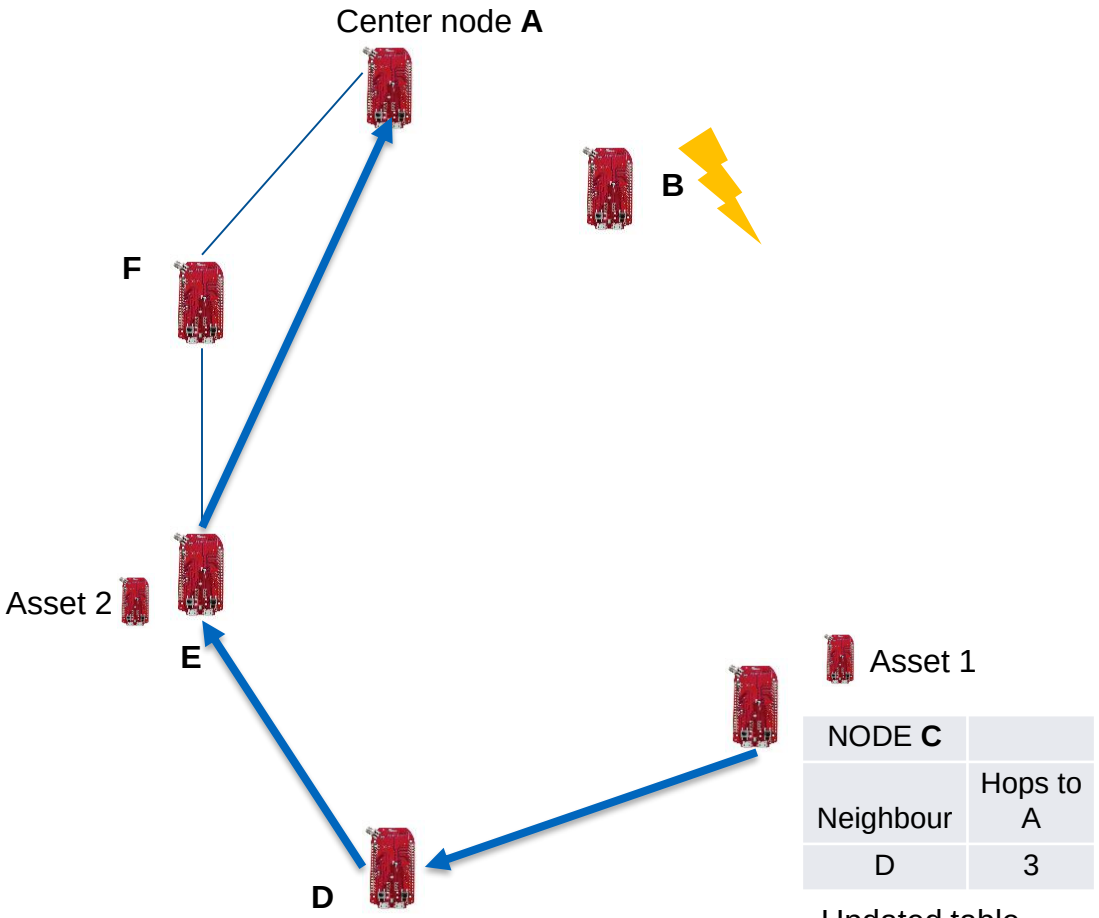
      Node failure in the path– Inform the neighbour. Table updated at all the nodes.
  - Sensors –
    - Battery monitoring for real time cost assignment(*energy aware*)
    - Buzzer for out of range(theft) alarm and isolated node alarm
    - LEDs and switches.
  - GUI – Real time asset location at the nodes.
- Expected result(s)
  - Successfully demonstrate the tracking of at least 2 assets with the established route and to re- route based on battery level of the nodes dynamically.

Architecture/ Working



NODE **C**	
Neighbour	Hops to A
B	2
D	3

Architecture



NODE **C**	
Neighbour	Hops to A
D	3

Updated table

Questions?

References

[1] http://www.versustech.com/rtls-solutions/asset-tracking-healthcare-hospital/

[2] Asset Management - Manage and protect valuable mobile medical equipment with the ultimate location platform by Centrak

[3] J.-E. Garcia et all - A Novel DSR-based Energy-efficient Routing Algorithm for Mobile Ad-hoc Networks.

- Gradually icrease the forwarding time in relation to the lifetime.
- In our network, gradually increase the HOP information relative to the lifetime.

Timeplan