
Ivy Equipment Inventory System

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Motivation

- Research centers have a number of shared equipment and they moving around.
- Equipment tracking can help better utilize the equipment.
- With wireless sensor nodes, the equipment can be monitored while they move around freely.

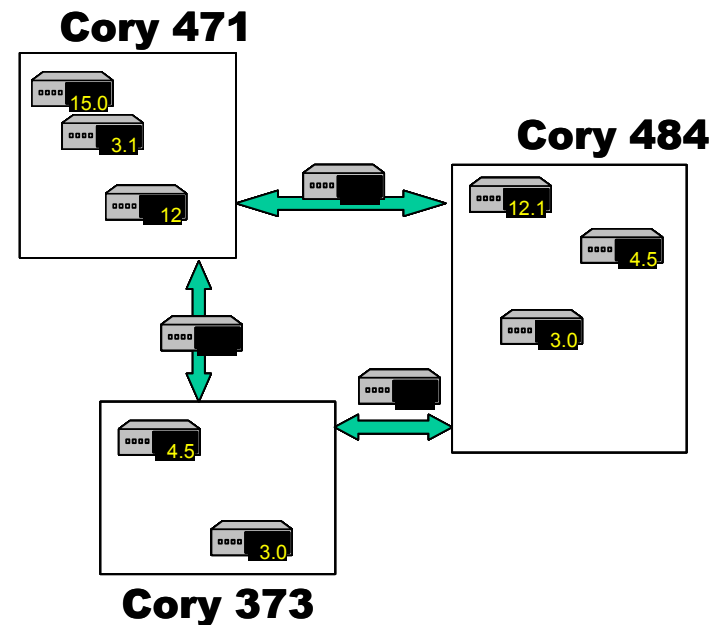
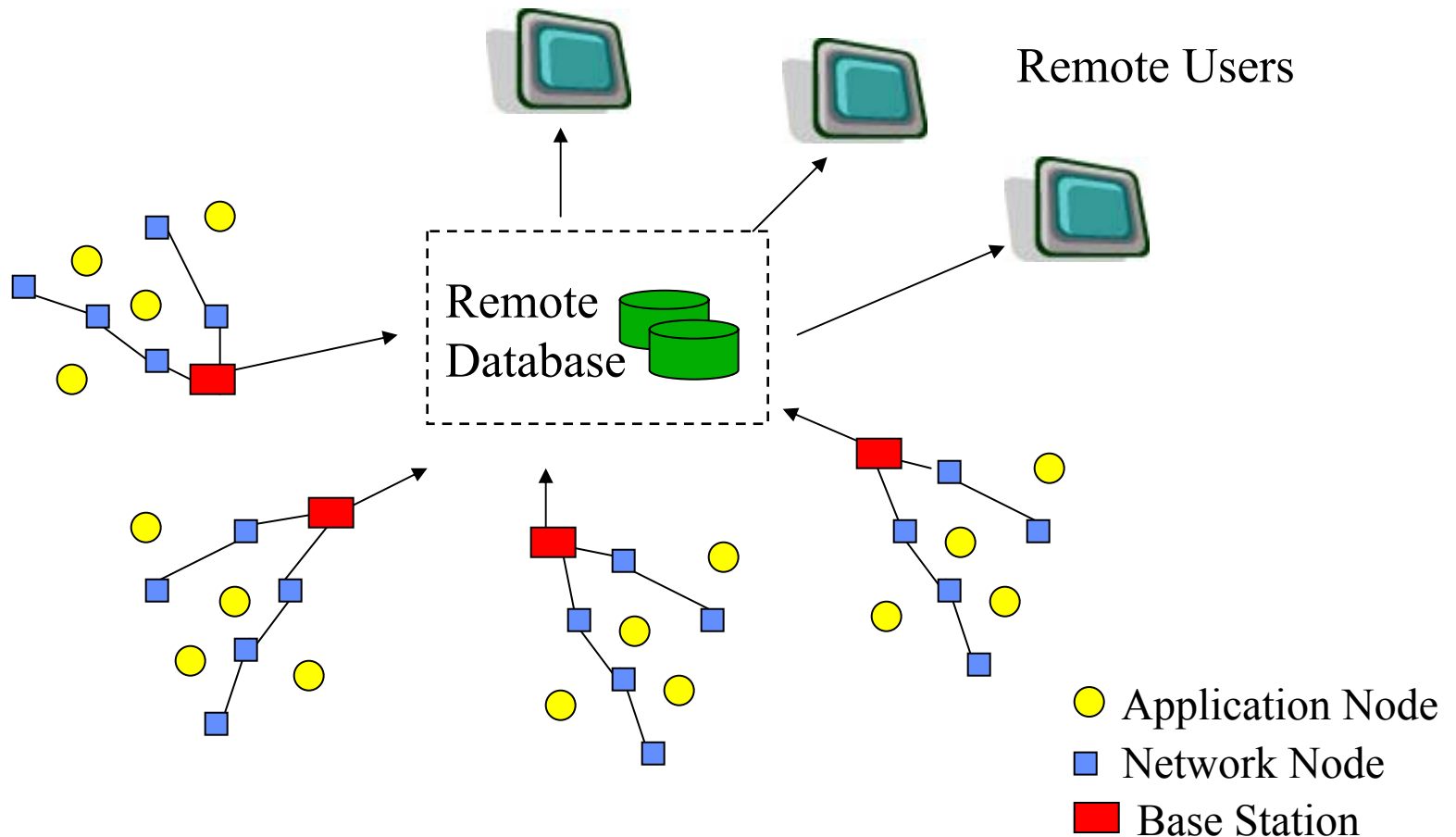


Fig1: Equipment that move around

System Architecture

- The system consists of app nodes (tracking nodes), network nodes, base station and remote database



Configuration

- Tracking nodes are mounted on the equipment and broadcast 'alive' messages.
- Network nodes relay the messages to the base station.
- The messages are logged to the database at the base station.



Fig2: Sensor node mounted on a function generator



Fig3: Sensor nodes on the base station

Web User Interface

- A web user interface gives a view of equipment activities.
- Equipment properties and network node locations are maintained.
- Equipment history and current status are displayed.

Equipment History | Equipment Locations

Fixed Mote Registration | Equipment Registration

Describe each application mote

Mote ID: 29 Category: Oscilloscope Make: HP Model: HP5644
Mote ID: 21 Category: Counter Make: HP Model: HP3453
Mote ID: 27 Category: Oscilloscope Make: HP Model: HP5644
Mote ID: 22 Category: Counter Make: HP Model: HP3453

App Mote ID: Category: Make: Model:

Update/Add Delete Clear Quit

Fig5: tracking nodes registration screen

Equipment Registration | Equipment History | Equipment Locations

Fixed Mote Registration

Watch the activities of an application mote

Ivy Mote ID: 25 Cory 484 App Mote ID: 21 2002-08-06 21:47:16
Ivy Mote ID: 25 Cory 484 App Mote ID: 21 2002-08-06 21:47:57
Ivy Mote ID: 25 Cory 484 App Mote ID: 21 2002-08-06 21:48:05
Ivy Mote ID: 24 Cory 471 App Mote ID: 21 2002-08-06 21:48:38
Ivy Mote ID: 24 Cory 471 App Mote ID: 21 2002-08-06 21:48:46

Cory 484 21:47:57 21:48:05
Cory 471 2002-08-06 21:48:38 21:48:46

Mote ID: 21 Category: Counter Make: HP Model: HP3453
Last Location: Cory 471 Last Time: 2002-08-23 11:52:38
Category: All Select App Mote: [21, Counter, HP, HP3453]
From: No constraints To: No constraints Query

Fig6: equipment history screen

Demonstration

- <http://www-bsac.eecs.berkeley.edu/projects/ivy/>