Considerations about the application on MANET

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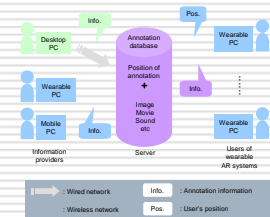## Agenda

- ☐ Background
- ☐ Objective
- ☐ Proposed System (COE Festival Demonstration System)
  - ■ Location Information
  - ■ MANET Configuration
  - ■ P2P Application
- ☐ Summary

Background (1)

- ☐ inet-lab
  Development of application on MANET
  - ■ Now : at the battle fields, for sensor networks.
  - ■ Our desirable future : Daily usage of MANET, like the Internet.
    - ☐ Internet : Web, Mail, Instant Messenger
    - ☐ MANET : ???
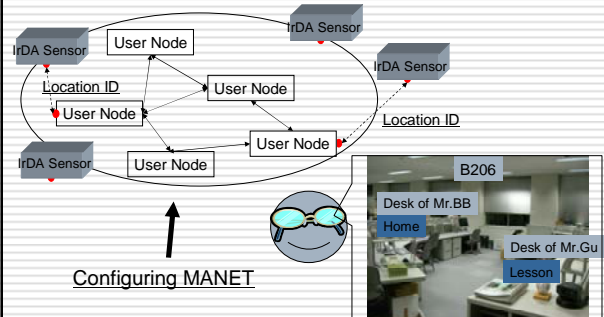

Background (2)

- ☐ Yokoya-Lab
  - ■ Shared annotation database for networked wearable augmented reality system
    - • Client-Server Model
    - • Internet Connectivity
  - ■ IrDA Positioning Infrastructures
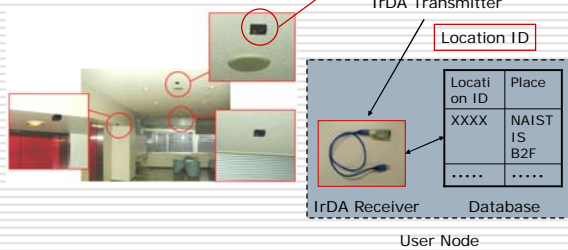

Objectives

- ☐ Location dependent information sharing system on MANET
  - ■ Collaboration between yokoya-lab and inet-lab
  - ■ Keyword
    - ☐ MANET (Mobile Ad-hoc Network)
    - ☐ Ubiquitous Environment
    - ☐ P2P Application
    - ☐ Positioning Infrastructure

Proposed System

Configuring MANET

注釈付加画像

1

Location Information

- ☐ Positioning Infrastructure
  - ■ IR-Beacon @ yokoya-lab

IrDA Transmitter

Location ID

Locati on ID	Place
XXXX	NAIST IS B2F
.....	.....

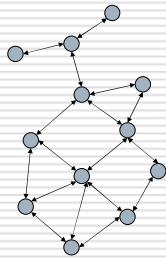IrDA Receiver   Database

User Node
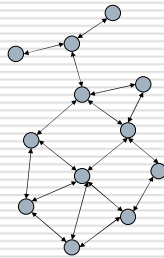

MANET Configuration

- ☐ Routing Protocol
  - ■ Proactive Type
    - ☐ **OLSR**[RFC3626], TBRPF[RFC3684]
  - ■ Reactive Type
    - ☐ AODV[RFC3561], DSR
- ☐ OLSR
  - ■ Optimized Link State Routing Protocol
  - ■ Table-driven, MPR(MultiPoint Relay)

OLSR (1)
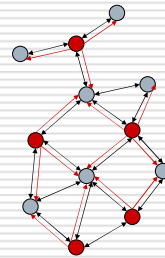
(1)Hello Message
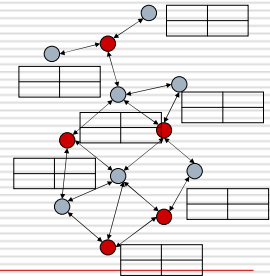sending / receiving

(2)MPR(Multipoint Relay)
Set Detection

OLSR (2)

(3)TC (Topology Control)
message sending

(4) Routing table creation

P2P Service

- ☐ MANET environment
  - ■ No network infrastructure
  - ■ No Conciliating Hosts
  - ■ All nodes have router function
- ☐ Client-Server Model
  - ■ MANET nodes have to search for objective servers.
- ☐ P2P Model
  - ■ All nodes act as both server and clients.
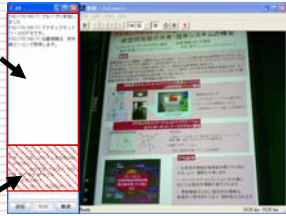 - ■ It is natural for MANET nodes to have fair role.

Location Dependent Information (1)

- ☐ The information that
  - ■ is peculiar to the place.
  - ■ can be acquired at the place.
  - ■ is changing with time.

- ☐ ex.
  - ■ Traffic information
  - ■ Weather information
  - ■ Local shop information

Location Dependent Information (2)

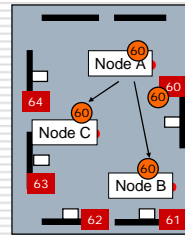**Dynamic** Location Dependent Information
- Nodes input the information at the place.
- This information exchange among MANET nodes.

Static Location Dependent Information
- All nodes manage this information in advance.

The Flow of COE Festival Demonstration

Node A
60
64
60
Node C
60
60
63
Node B
60
62
61

1. Node A (Location ID 60) creates the location dependent information of 60.
2. Node B and C that are at another places receive this information via MANET.
3. When Node B/C move to the location 60, Node B/C show this information that Node A creates.

☐ IrDA transmitter
XX Location ID

Summary

- ☐ We have developed the location dependent information sharing system on MANET.
  - MANET configuration
  - Positioning infrastructure
  - Location dependent information

- ☐ Future Work
  - Handling with augmented reality.
  - Cache mechanism for location dependent information.