EFFICIENT PARKING METER MANAGEMENT SYSTEM

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AGENDA

Project Overview   S. Dabideen
Tasks Completed   S. Dabideen
Tasks Planned for Next Two Weeks   Y. Mora
Schedule for Rest of the Year   Y. Mora
StarEast Features:

- IXP425@533MHz
- 256Mbytes SDRAM and 16Mbytes Flash
- Two Type III MiniPCI Slots
- RS-232 Interface and USB 1.1 (device only)
- Red Boot and Open Source Linux
MAJOR DESIGN ISSUES

- Initialization
- Block Delimitation
- Optimal Block Size
- Head Meter Selection & Rotation
- IP Address Assignment
- Data Collection Sequence
- Data Containment
- Security
- Energy Efficiency
- Fault Recovery
Background Research
- Similar Devices
- Wireless Drivers
- Embedded OSes
- Customizing Kernel
- Wireless Extensions
- Packet Transfer
- Power Management on Board

Hardware Selection and Acquisition
- Wireless Routers: D-Link DI 524
- Wireless Cards: Senao NL 2511 Prism2.5 mPCI
- Antennas: Hypergain RE05T-RSP
- Cables: CA-UFLRSBQC20
Hardware & Software Setup
- Install Redboot
- System Objectives
- Add a Program to Kernel
- Install Wireless Cards
- Set up Antennas

Mini Implementation
- Switch Modes & Channels
- Packet Transfer
MINI-IMPLEMENTATION

Demonstrates:
- Ability to Change Modes
- Send, Receive and Display Packets
TASKS PLANNED FOR NEXT TWO WEEKS

✦ Install and Test Camera Driver

✦ System Design
  • Initialization (Continued)
  • Packet format (Continued)
  • Head Meter Selection (Continued)
  • Selection Algorithm
  • Failure Recovery
  • Synchronization
  • Acknowledgment System
  • Other Protocol Features
  • System Statistics
SCHEDULE FOR REST OF THE YEAR

- System Design
  - From Present to Week of Dec. 4

- System Implementation
  - From Week of Jan. 8 to Week of Mar. 19

- Camera Sensing (tentative)
  - From Week of Jan. 29 to Week of Mar. 12

- System Testing and Improving
  - From Week of Mar. 19 to Week of Apr. 16