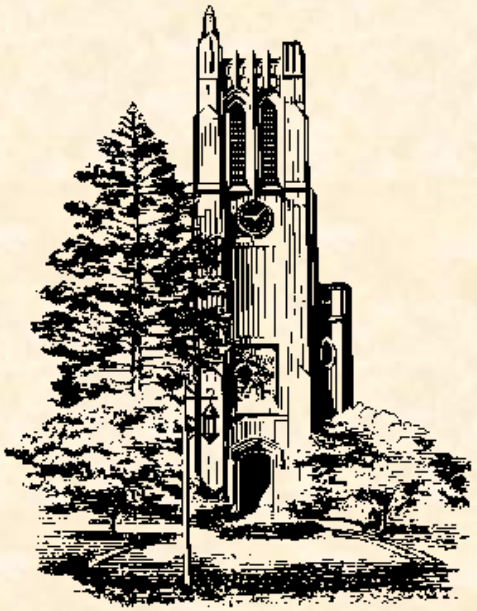
MICHIGAN STATE UNIVERSITY

Project Plan
Conference Room Monitor



Team 4: Ford

CSE 498, Collaborative Design

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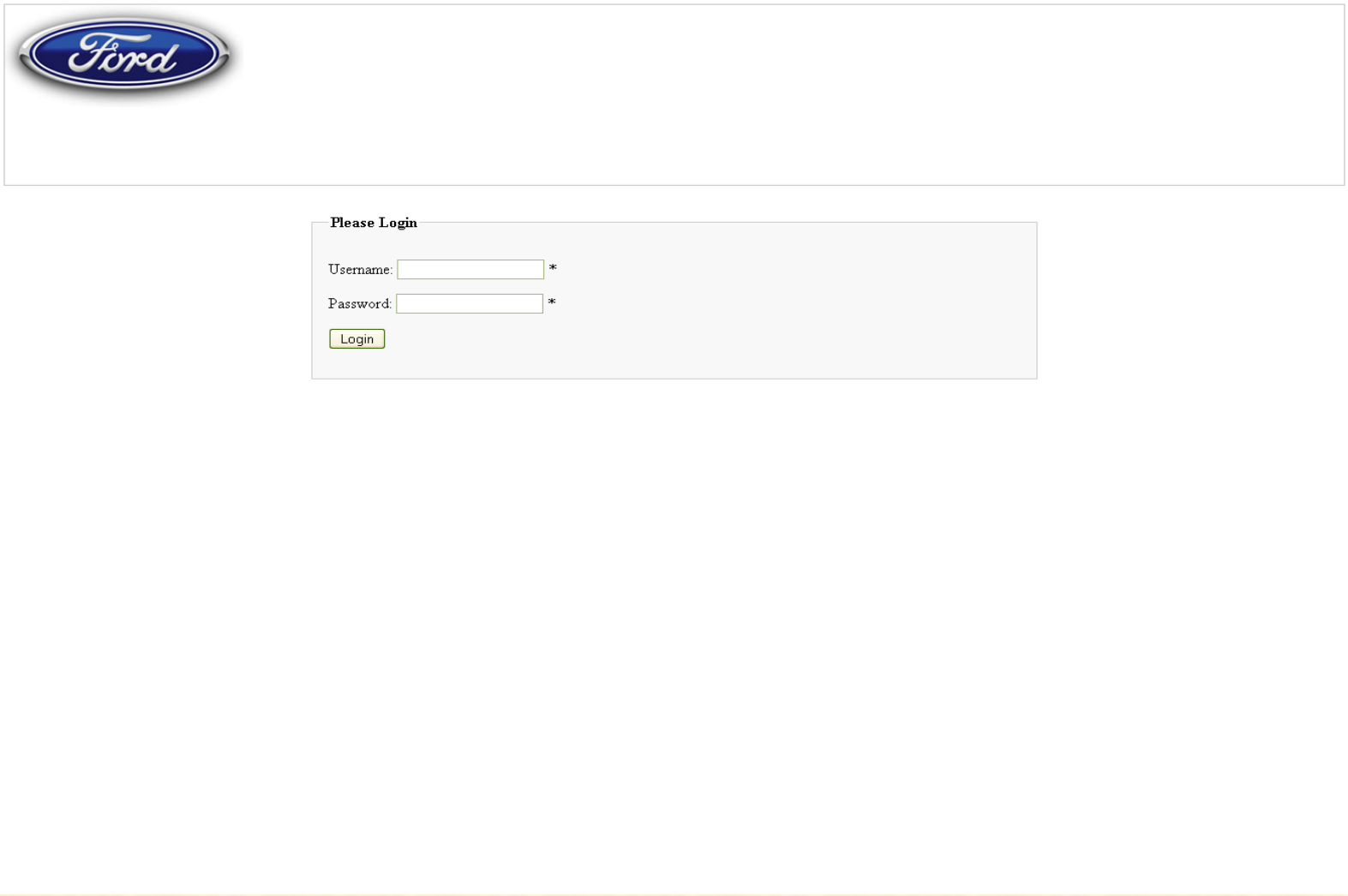
Functional Specifications

- Captures conference room usage information.
- The web application displays this information using color coded maps, allowing users to see if rooms are in use.
- View schedule as well as schedule conference rooms.
- Configure buildings, floors, and conference rooms in application.
- Report usage with graphs and statistics.

Design Specifications

- Sensors -> Mesh Network -> Access Point -> Workstation -> Server -> Database
- Server also pulls calendar data from MS Exchange server.
- The web application server allows users to view conference room information and allows building managers to create buildings/rooms/floors and view reports.
- Reports generated based on user specified attributes, stored data

Screen Mockups



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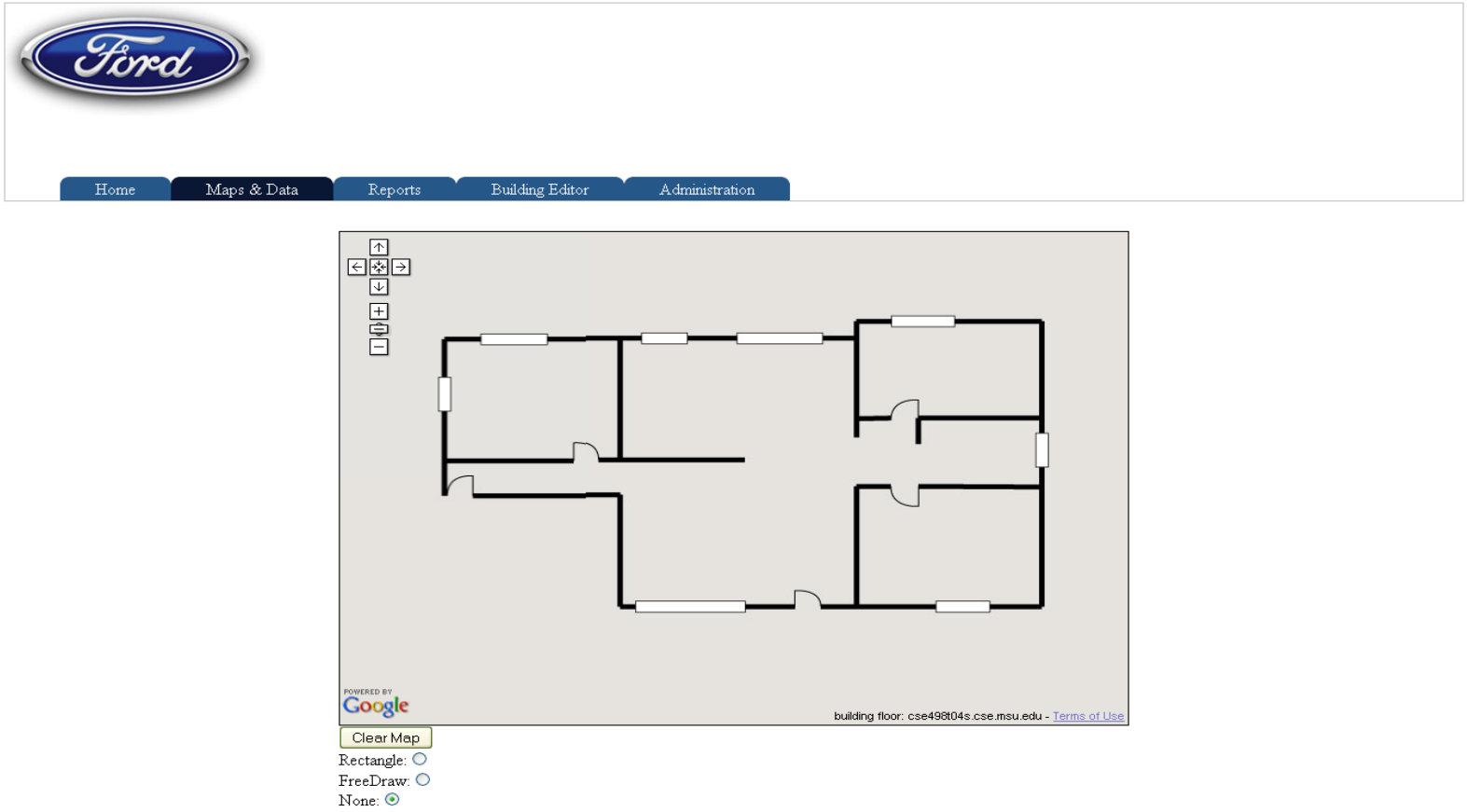
Home
Maps & Data
Reports
Building Editor
Administration
POWERED BY
Google
building floor: cse498t04s.cse.msu.edu - Terms of Use
Clear Map
Rectangle:
FreeDraw:
None:

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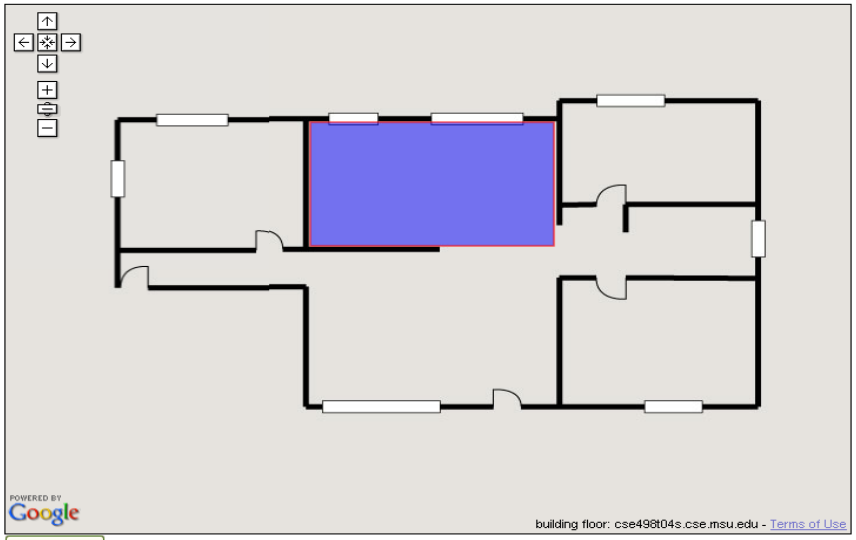
Home | Maps & Data | Reports | Building Editor | Administration



Clear Map

Rectangle:

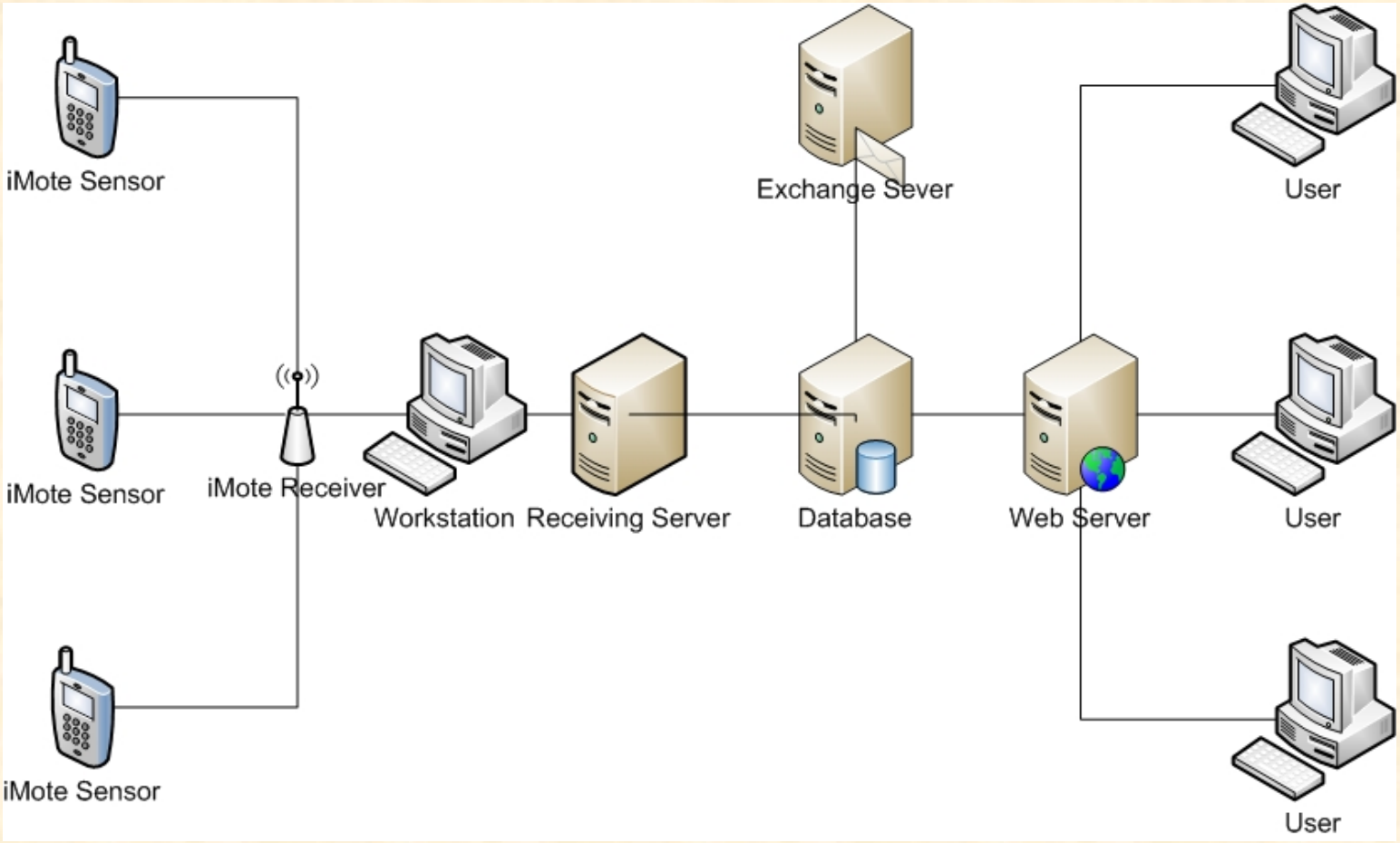
FreeDraw:

None:

Technical Specifications

- Crossbow iMote2 Sensors
  - .NET Micro Framework version 2.5
- Openchange.org libmapi to communicate with MS Exchange
- PostgreSQL Database
- Web Application
  - HTML and AJAX
  - PHP
  - Python 2.5.2 and Matplotlib
  - Google Maps API

Architecture Illustrated



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System Components

- Hardware Platforms
  - Crossbow iMote2 Wireless Sensors (2)
  - Crossbow iMote2 Wireless Base (1)
  - Workstation (1)
  - Servers (2)
- Software Platforms / Technologies
  - Windows XP Professional SP2+
  - Microsoft Server 2003 SP2 with Microsoft Exchange Server 2003 SP2
  - Debian Linux with Apache 2.2.11, PostgreSQL 8.3, PHP 5.2.8
  - Openchange libmapi 0.8

Risks

- iMote2 Sensor Source
  - Originally developed to collect data when sensors left the network and store it until the sensors return
  - Study code and documentation
- Image Processing
  - Uploading floor plans to Google Maps API requires images be sliced in 256x256 tiles
  - Looking into open source ImageMagik
- Interacting with MS Exchange
  - Interface with proprietary closed source software
  - Openchange's libmapi library
- Generating Reports
  - Visually representing data in graph form
  - Looking into Python's Matplotlib for real-time graph generation