Team 7

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Semester Final Design Presentation
Outline

I. Background
II. Idea
III. Design Norms
IV. Alternatives
V. Pursuit Angle
VI. Progress
VII. Questions
• Cell phones becoming predominate
• Existing landline systems going unused
• Bluetooth capabilities standard in most phones
• Cell Phone to Landline System
  • Basic cell phone operations from landline phone
    – Send/Receive calls from landline via cell phone
  • Potential to develop additional features
  • Replace or co-exist with landline system
Design Norms

- Integrity
  - Easy to use
  - Maintain standard handset
  - Integrate cell phone features
- Stewardship
  - Utilization of existing systems
  - Savings over multiple phone bills
  - Cost of device
- Trust
  - Quality of Product
- Caring
  - Secure phone calls
Alternatives

- Alternative 1: PBX
  - Asterisk/ AsteriskNow

- Alternative 2: Bluetooth Module
  - Arduino Bluetooth

- Alternative 3: Development Board
  - Altera DE2 Board

- Alternative 4: Open Source Phone
  - Google Phone (Android)
Dismissed Alternatives

- Development Board (Altera DE2 Board)
  - Development of wrapper
  - Bluetooth dev boards already available
  - Too time intensive for course schedule
  - Feasibility unrealistic

- Open Source Phone (Android)
  - Expensive
  - Limits phone compatibility
  - Hardware unavailable
Proposed Alternative 1

Asterisk: Open source PBX software

- Hardwired Handsets
- Landline Base Phone
- Wireless Handsets
- Cell Phone
- OS Linux running Asterisk software
- ZapMicro ZMA400P Telephone Interface Card
- Worlds Tiniest Bluetooth Dongle
PBX:
Asterisk: Open source PBX software

- Advantages
  - Most Feasible
    - Good Support
    - Highly Flexible

- Disadvantages
  - Marketability Issues
    - Linux based
    - Not standalone
  - Software based approach
Bluetooth module:

Arduino Bluetooth: Bluetooth Development Board

• Advantages
  – Hands-Free Protocol
  – Freely Available Source Code
  – Standalone potential
  – Hardware and Software based approach
  – Similar Devices Using Development Board

• Disadvantages
  – Potentially beyond scope of budget and time
  – Additional parts required
    • Power source, Ringer circuit

Proposed Alternative 2
• Primary Objective
  • Use Asterisk
  • Develop Telephone Network Interface Card
  • Good Proof-of-Concept

• Secondary Objective
  • Standalone Device
    • Use Arduino Bluetooth – Running Asterisk
  • Ring/Dial Tone Circuit
  • Power Supply
• Tasks Completed
  – Installed Linux OS with Asterisk software
  – Purchased Bluetooth dongle
  – Selected Bluetooth Development Kit

• Future Tasks
  – Telephone Network Interface Card
  – Asterisk / Asterisk Now
  – Bluetooth programming
  – Setup Phone Network