Team 7

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CellSync

Team 7

Senior Design Night Presentation
Outline

I. Project Definition
II. Design Elements
III. Design Process
IV. Block Diagram
V. Testing
VI. Prototype
VII. Conclusion
VIII. Acknowledgements
IX. Questions
Project Definition

• Background
  – Cell phone use becoming predominate
  – 1 in 5 homes without landline phone service
  – Bluetooth standard in cell phones

• Idea
  – Connect a cell phone to a landline phone
  – Convenience of home phone using cell phone
Design Elements

• Private Branch Exchange (PBX) = Phone service for a private network
• Asterisk = A telephony engine and toolkit that network the telephone system
• Chan-mobile = Asterisk channel driver that allows the use of a cell phone as an FXO port
• Bluetooth = Wireless communications protocol
• Dialplan = The set of instructions that control Asterisk operation
• Telephone Network Interface Card (TNIC) = Allows computers to connect with the phone network
• Foreign Exchange Office (FXO) = A device that receives phone service
• Foreign Exchange Station (FXS) = A device that delivers phone service
Design Process

- Investigate Alternatives
- Component Interfacing
  - Hardware Selection and Configuration
  - Software Configuration and Integration
- Software Development
- Prototype Development
Testing

• TNIC and Asterisk
  – Dial Tone Test

• Dialplan
  – The “Weasels” Test
  – Send/Receive Landline Calls
  – Send/Receive Cell Phone Calls

• User Interface Test
  – Add/Remove Phone

• Prototype
Screen Shots

Mobile Phones

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
</tr>
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<tbody>
<tr>
<td>Keith</td>
<td>08:00:7B:E5:9E:82</td>
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<tr>
<td>Phil</td>
<td>08:00:7b:f2:65:33</td>
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Press enter to go back to main menu.
Prototype

Barebones Computer

– Goal
  • Develop prototype that closely resembles minimum operating criteria for a marketable product

– Result
  • Barebones computer using CellSync method and the CellSync Menu text based user interface
    • $232.64 budget cost

– Marketable Product
  • Smaller size device
  • Proprietary OS and software
  • No I/O devices
  • $150 cost to consumer
Cell Phone to Landline system

- Basic cell phone operations from landline phone
- Send/Receive calls from landline via cell phone
  - Text Messaging (Feasible)
  - Voice Mail
  - Voice Activation (Feasible)
- Easy to use
  - Charge cell phone while in use
  - Full-Wireless capabilities
- Replace or co-exist with existing system
- Stand-Alone Device (Proof-of-Concept)
Conclusion

• Successful Project
  – Functional
  – Educational

• Lessons Learned
  – Using available resources
  – Rely on each other
  – Segway to entering industry
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