Cellular Home Automation:
The Home of the Future
Schedule Flow

- May 1st: Finish planning the details of project, get parts ordered.
- June 1st: Complete microcontroller software and power supply circuit
- July 1st: Interfacing with door and microcontroller completed
- August 1st: Communication with computer and microcontroller completed
Schedule Flow cont.

- September 1st: Web page completed with user database
- October 1st: Interfacing with light switch complete, telephone program implemented
- November 1st: Testing phase and finishing baseline project
- December 8th: Finishing touches and demonstration, Added extra features.
Tasks

• Web Interface – James, Mike
• Database design – James, Mike
• Phone interface – James, Mike
• Programming Microcontroller – Mike, Dave
• Formatting microcontroller packets – Dave, Mike
• Sending packets – James, Dave, Mike
• Receiving packets – James, Dave, Mike
• Executing packets – James, Dave, Mike
Tasks

- Powering microcontrollers – Dave, Mike
- Capacitor switch design – Dave, James
- Light switch status checking – Dave, Mike
- Door lock status checking – Dave, Mike
- Door lock switch – Dave, James
- Soldering – Dave, James
Interfaces
Interfaces
Cont.

**MC68HCS08**
- CPU: 40MHz
- 60K Flash memory
- 4K RAM
- 7 8-bit Ports

**Aerocomm AC4490-200M**
- Range: 4 miles @ 200mW
- Speed: 115Kbps
- Frequency: 900MHz

Diagram showing interfaces:
- DSP
- TTL
- FSK
- RS232
Brief description of operation: Gives out well regulated +5V output, output current capability of 100 mA
Circuit protection: Built-in overheating protection shuts down output when regulator IC gets too hot
Circuit complexity: Very simple and easy to build
Circuit performance: Very stable +5V output voltage, reliable operation
Availability of components: Easy to get, uses only very common basic components
Power supply voltage: Unregulated DC 8-18V power supply
Power supply current: Needed output current + 5 mA
Interface cont: Connecting it all together

Cold Heat Soldering Iron

Printed Circuit Board

HCS08 Demo Board
interface cont: door lock & light switch
A new signal has been found. This setup wizard will help you configure the new appliance.
Extras

• Setup Wizard will help the user to customize the web interface.
• Appliance name, type and status will be customizable.
• Option for user to select image for each appliance.
More Extras

- Thermostat control
- Vent open and close
- Stove/Oven control
- Garage Door
Risks

- Manual Overrides
- Wrong Parts
- Incompatibility of web pages to server
- Status Checking
- Packet Loss during transmission
- Power Surge problems
Bill Of Materials

• RD5200-ETH-U Universal Ethernet Wall Adapter
  • www.intellon.com
  • $12 each
  • 3, If Needed

• TAPIex license
  • www.plimus.com
  • $65 each
  • 1 Needed
Bill Of Materials

- **Motorola HCS08**
  - [www.freescale.com](http://www.freescale.com)
  - Free
  - 6 Needed

- **Metroworks CodeWarrior License**
  - [www.freescale.com](http://www.freescale.com)
  - Free
  - 1 needed

- **Touch Light Switch**
  - Lighting Design
  - $25 each
  - 2 Needed
Bill Of Materials

• Door Lock
  • www.keylesspro.com
  • $119 each
  • 2 Needed

• Stepper Motor
  • www.grainger.com
  • $25 each
  • 2 Needed
Questions