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.

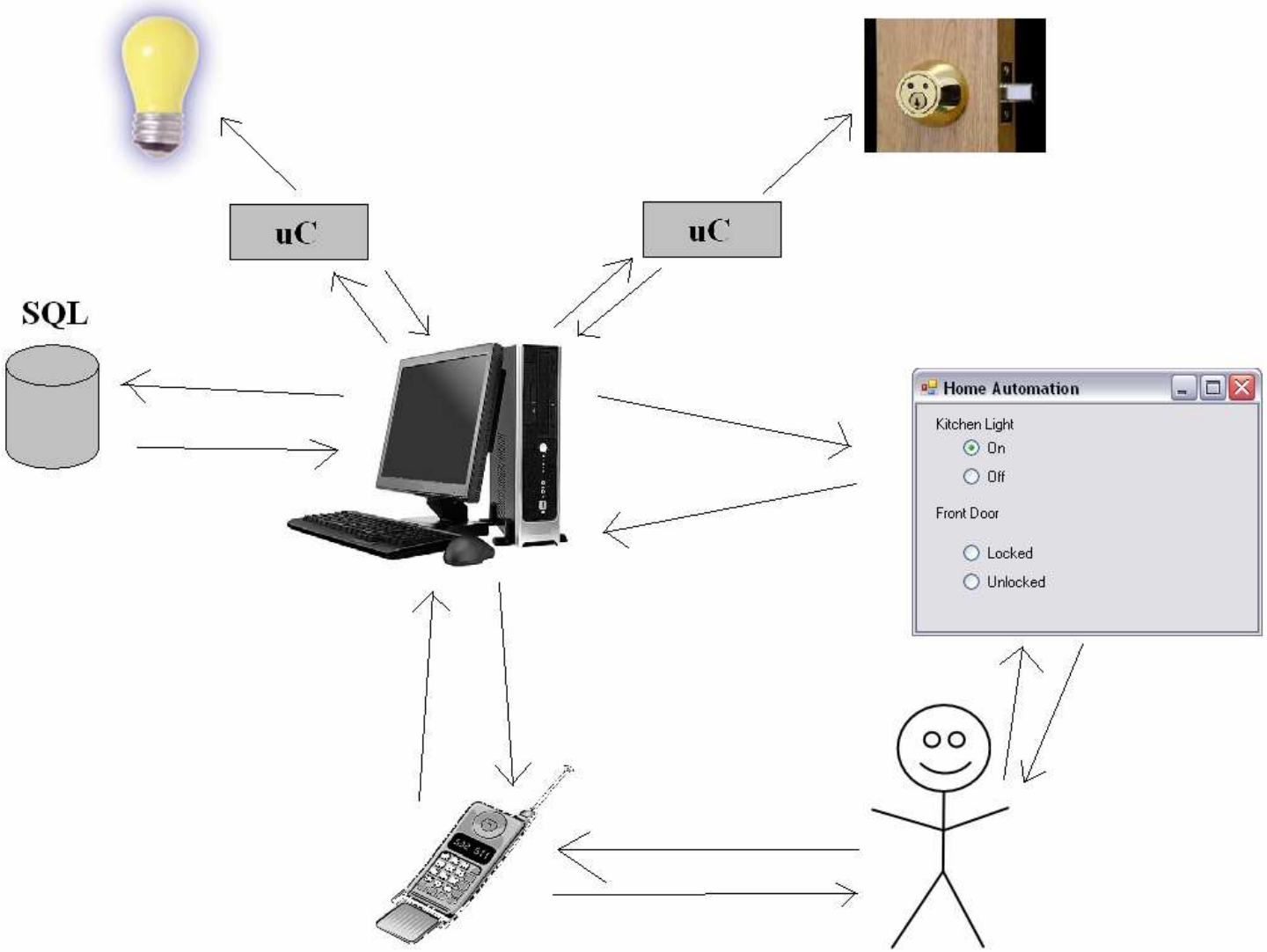
Tasks

- 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


uC
uC
SQL
Home Automation
Kitchen Light
On
Off
Front Door
Locked
Unlocked

Interfaces Cont.

MC68HCS08

CPU: 40MHz

60K Flash memory

4K RAM

7 8-bit Ports

Aerocomm

AC4490-200M

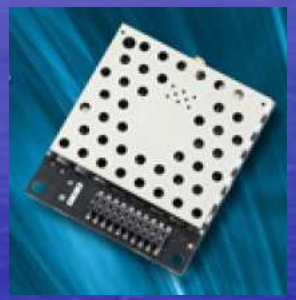
Range:4 miles @ 200mW

Speed: 115Kbps

Frequency: 900MHz

DSP

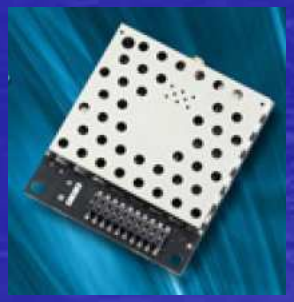
TTL



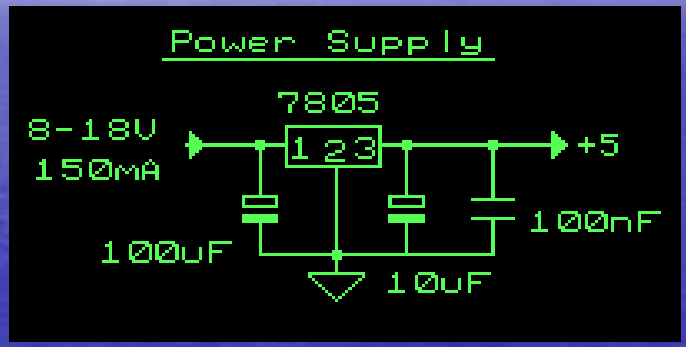
FSK

RS232

TTL



Interface cont: Power supply design

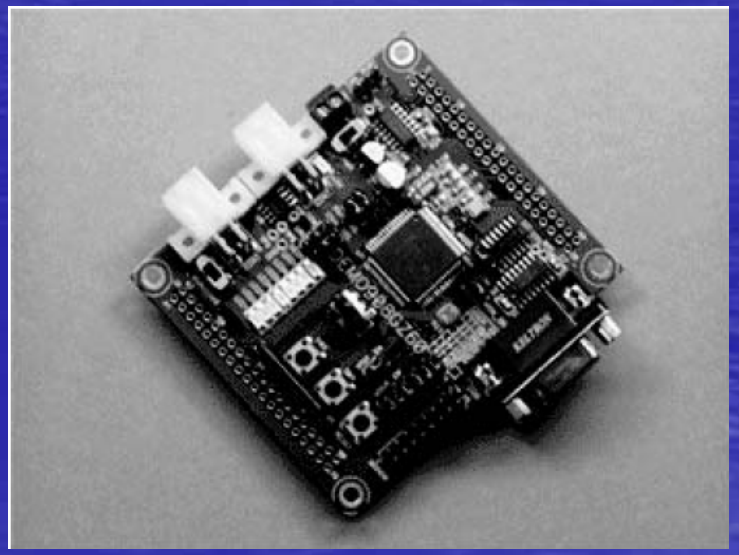


Brief description of operation: Gives out well regulated +5V output, output current capability of 100 mA
Circuit protection: Built-in overheating protection shuts down output when regulator IC gets too hot
Circuit complexity: Very simple and easy to build
Circuit performance: Very stable +5V output voltage, 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

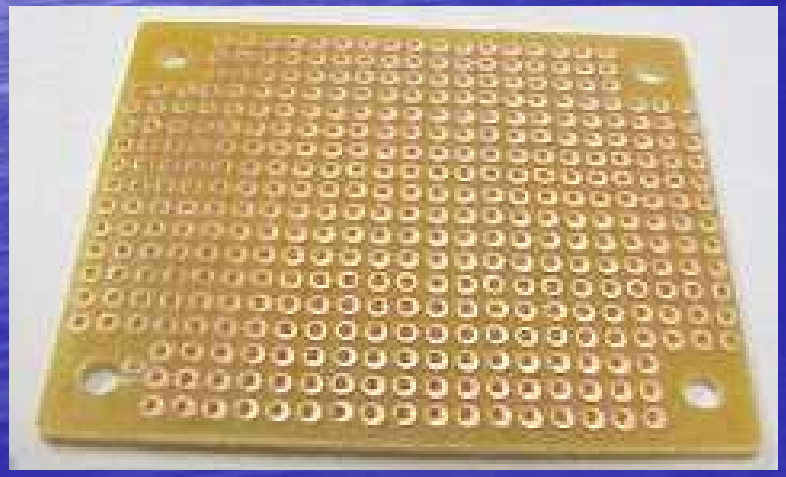
Interface cont: Connecting it all together

Cold Heat Soldering Iron

HCS08 Demo Board

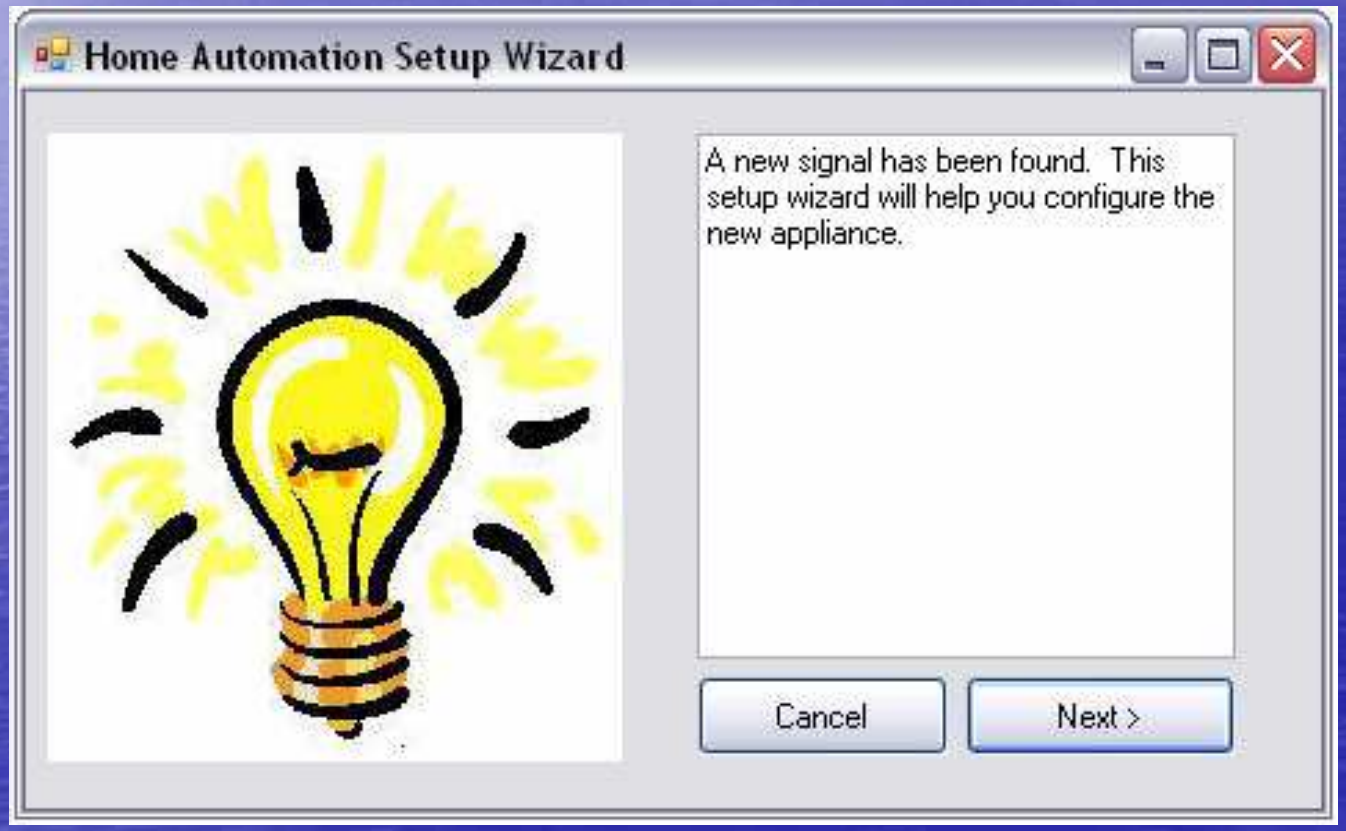


Printed Circuit Board



Interface cont: Door Lock & Light Switch

Extras


Home Automation Setup Wizard
A new signal has been found. This setup wizard will help you configure the new appliance.
Cancel
Next >

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
- Free
- 6 Needed

- **Metroworks CodeWarrior License**
- 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