Carputer

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Overview

- Power

- Communication

- Hardware Design & Fabrication

- Software (client)

- Software (server)

CW

Power

- Vehicle power has large voltage fluctuations, as well as random signal noise.

- Computer requires constant 3.3v with very small (<100mV) fluctuations.

- Power circuit will use UPS to provide constant power in case of low voltage situations.

CW

Communication OBD2

- OBD2 to converter
- Converter to RS232
- freediag will manage communications between vehicle and carputer

Communication Client to Server

- Carputer connects to server via 802.11x using an Ethernet to wireless bridge.

Interface

- 800x600 resolution.
- Touch Overlay.
- Customized Linux Window Manager.
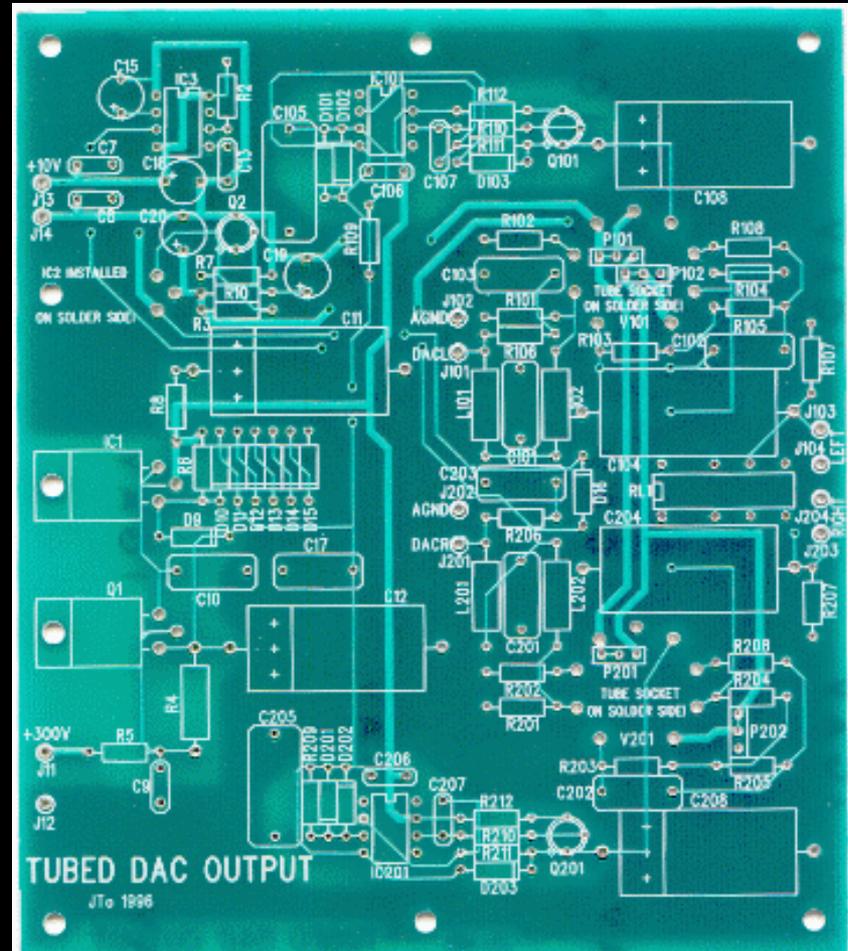- Taskbar Shows Active Data.

Processor

- StrongArm Architecture
- CPU: Intel XSCALE PXA 255 400 MHz
- USB: 2x USB host, 1x USB device
- Expansion: PCI, 32Bit, 33MHz via companion device
- Memory: 64MB DRAM, 32MB Flash
- Software: WindowsCE support, **Linux** support
- I/O: 2x high speed serial port10/100 MBit Ethernet, LPCIDE interface

BD

Motherboard

- We will acid wash our own board.
- Due to high risk we may use a commercial PCB manufacturer as backup.

Motherboard Obstacles

- RF noise

- Power noise

- Difficulties with Design and Manufacture

- Size Requirements

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Enclosure

- Friend of the team, Curtiss Melder, will be employed to mill aluminum for the enclosure.

- The enclosure will provide RF shielding.

- The enclosure will be designed to be aesthetically pleasing.

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Software (client)

- Embedded Linux (slackware) has been chosen as the OS for the carputer.

- Fluxbox will be used as the basis for the GUI.

- FLTK will be used to create custom interfaces for freediag, and other functionality.

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Software (server)

- Transfer logs.

- Server program displays relevant information.

Schedule

- Summer
  - Finish purchasing parts
  - Design and fab mobo
  - Begin UI
- September
  - Make it boot!
  - Integrate with vehicle
  - Custom window manager in place

CW

Schedule

- October
  - Establish minimum functionality
  - Begin server software
- November
  - Debug and polish
  - Finish server software
- December
  - Prepare final presentation and DEMO!

BD

Bill of Materials

- Kontron CPU: already received
- OBD2 interface: already received
- Hard Drive: already received
- LCD/Touch Screen: Ordered
- PCB/Acid wash: available anywhere
- Ethernet to 802.11x bridge: available
- Enclosure: set up but not received
- Other small parts/components: DigiKey, Mouser,etc

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Questions?!?