

Auto-Cool PC

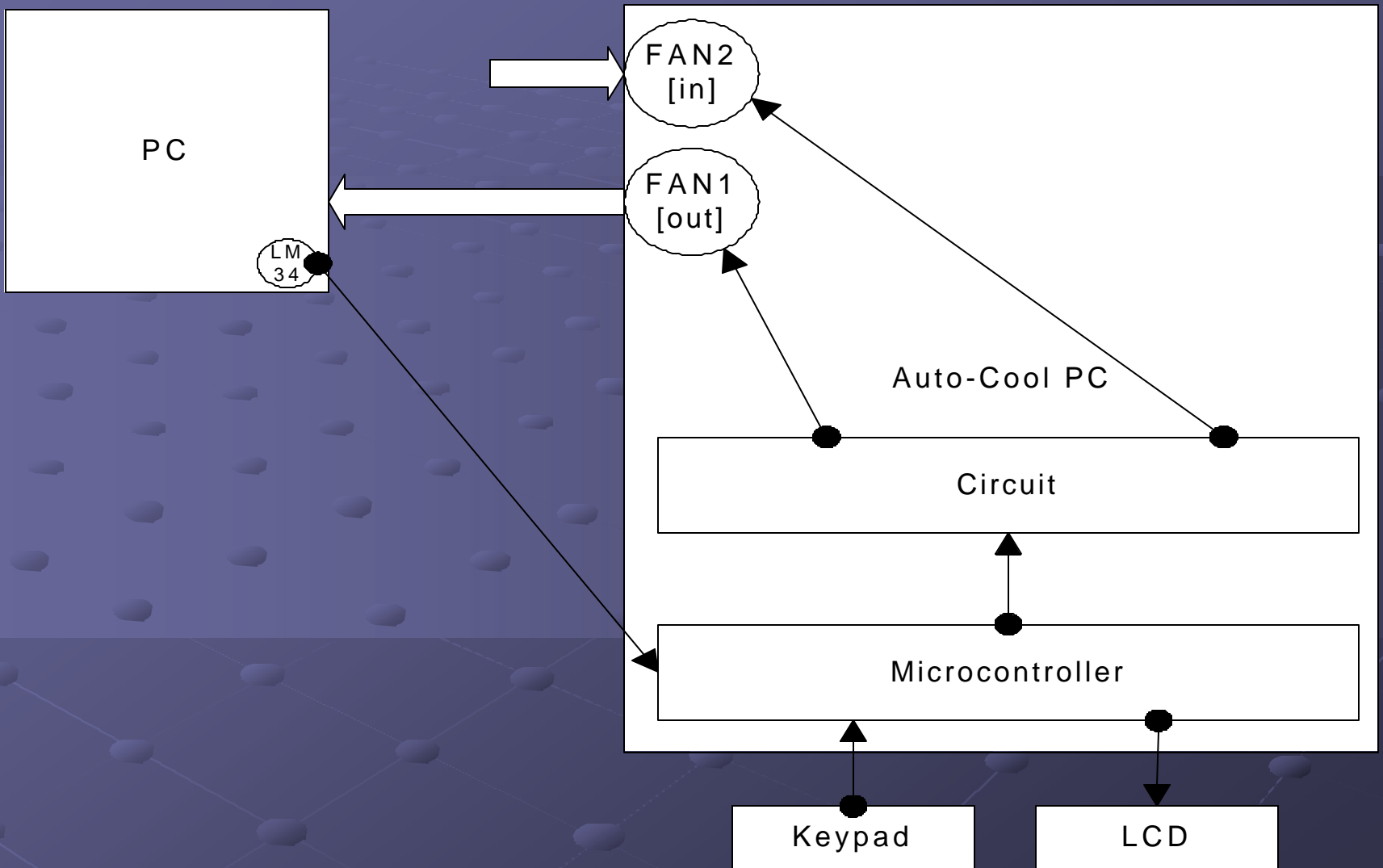
Project Team 1: Quinlane Butler
Chris Freyer
Jeff Konopacki
Derek Schulz

*DEPARTMENT OF ENGINEERING TECHNOLOGY
COLLEGE OF TECHNOLOGY
UNIVERSITY OF HOUSTON
DR. F. ATTARZADEH
ELET4308/12032*

Auto-Cool PC Overview

- Cooling system for a PC or stand-alone server using conditioned air
- Cool air will be funneled into the computer through a PCI slot opening
- An LM34 is used to determine the temperature inside the computer case
- The fan speed for the cool air is determined and controlled using an 8051 microcontroller and voltage regulating circuit

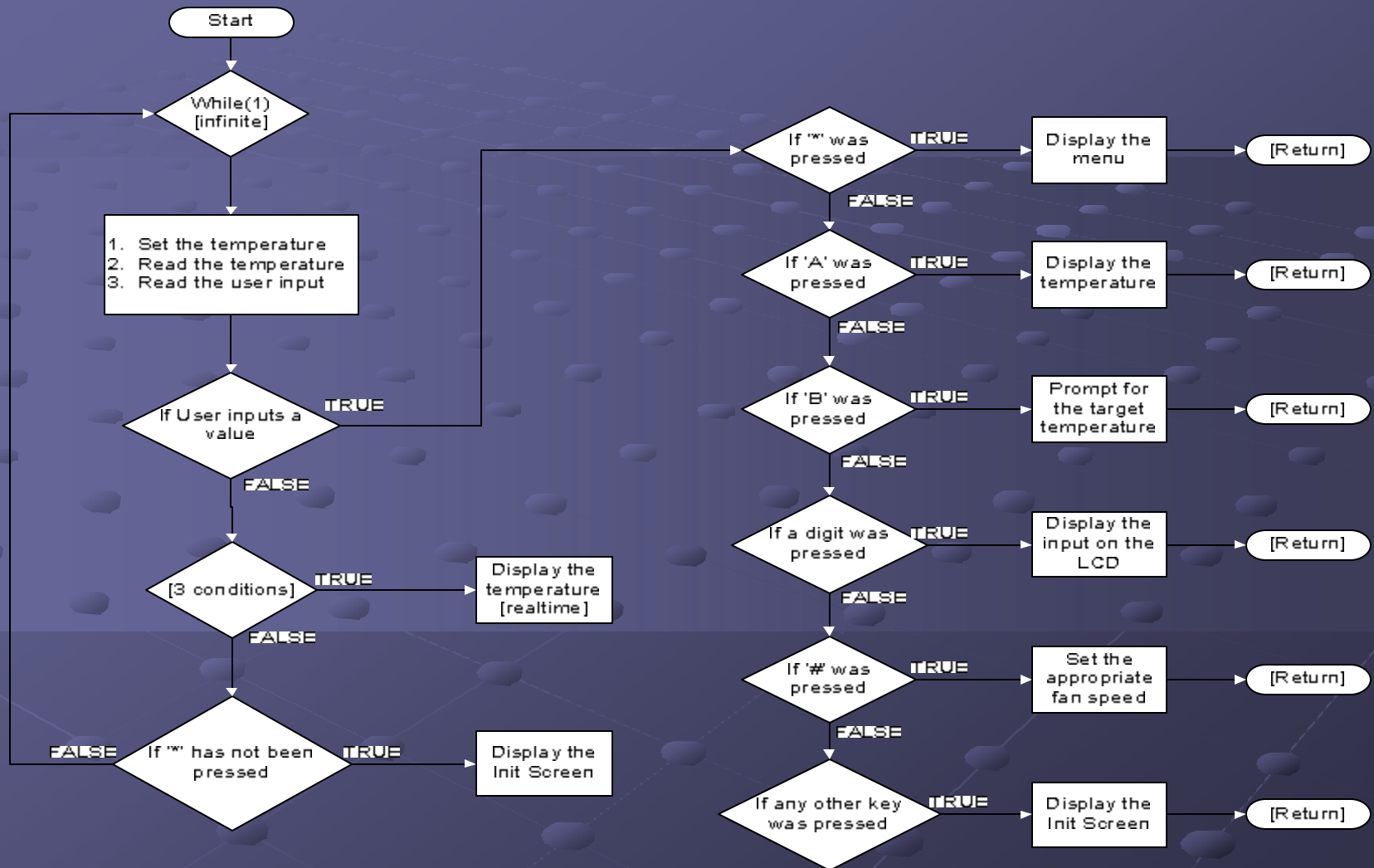
Block Diagram



User Interface/Programming Notes

- Initial design has changed
- Over 650 lines of code
- Written entirely in C
- Issue using LCD and ADC code together
- TB-1 is used for analog inputs

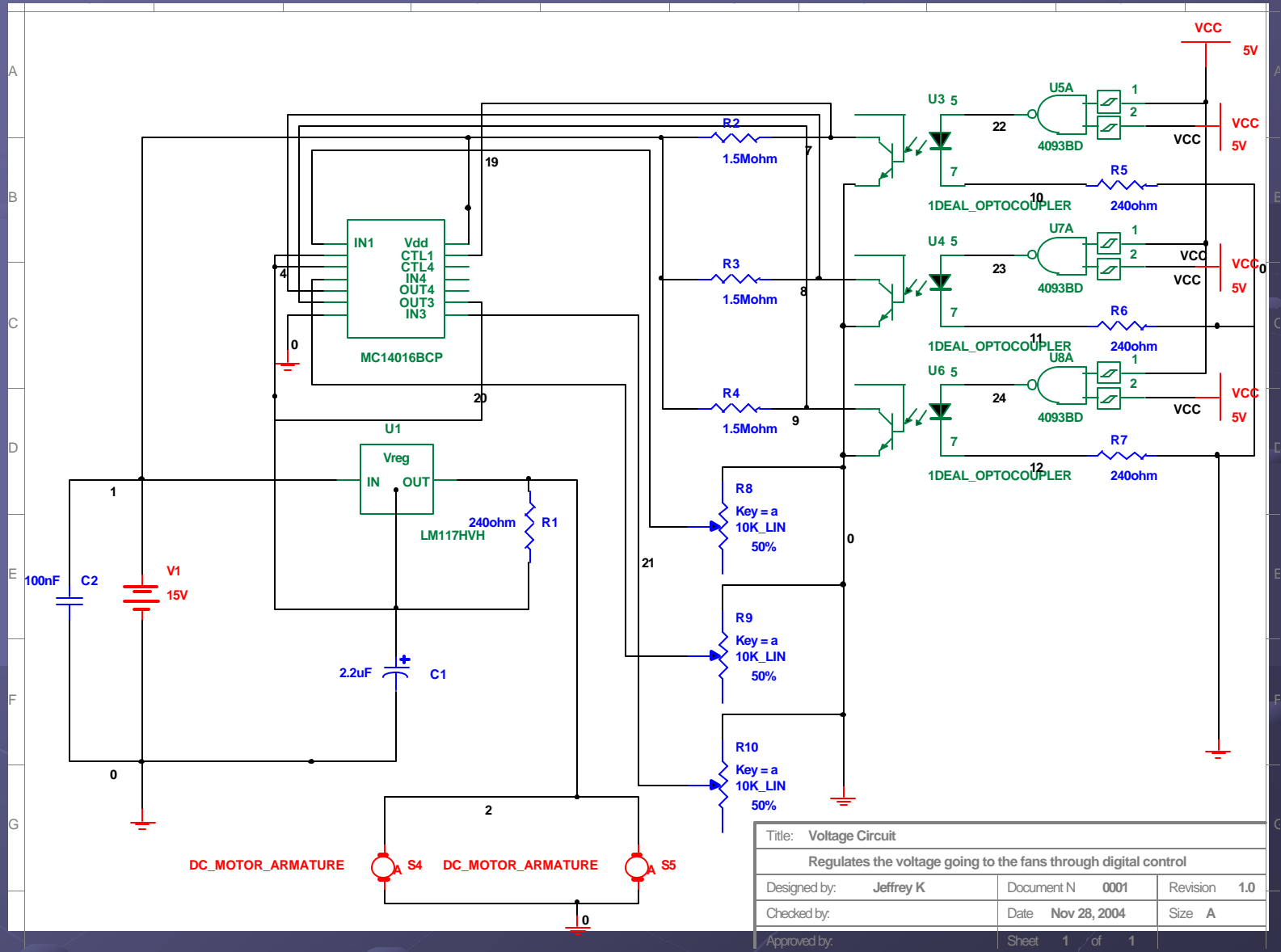
Flowchart



Circuit Design Alternatives

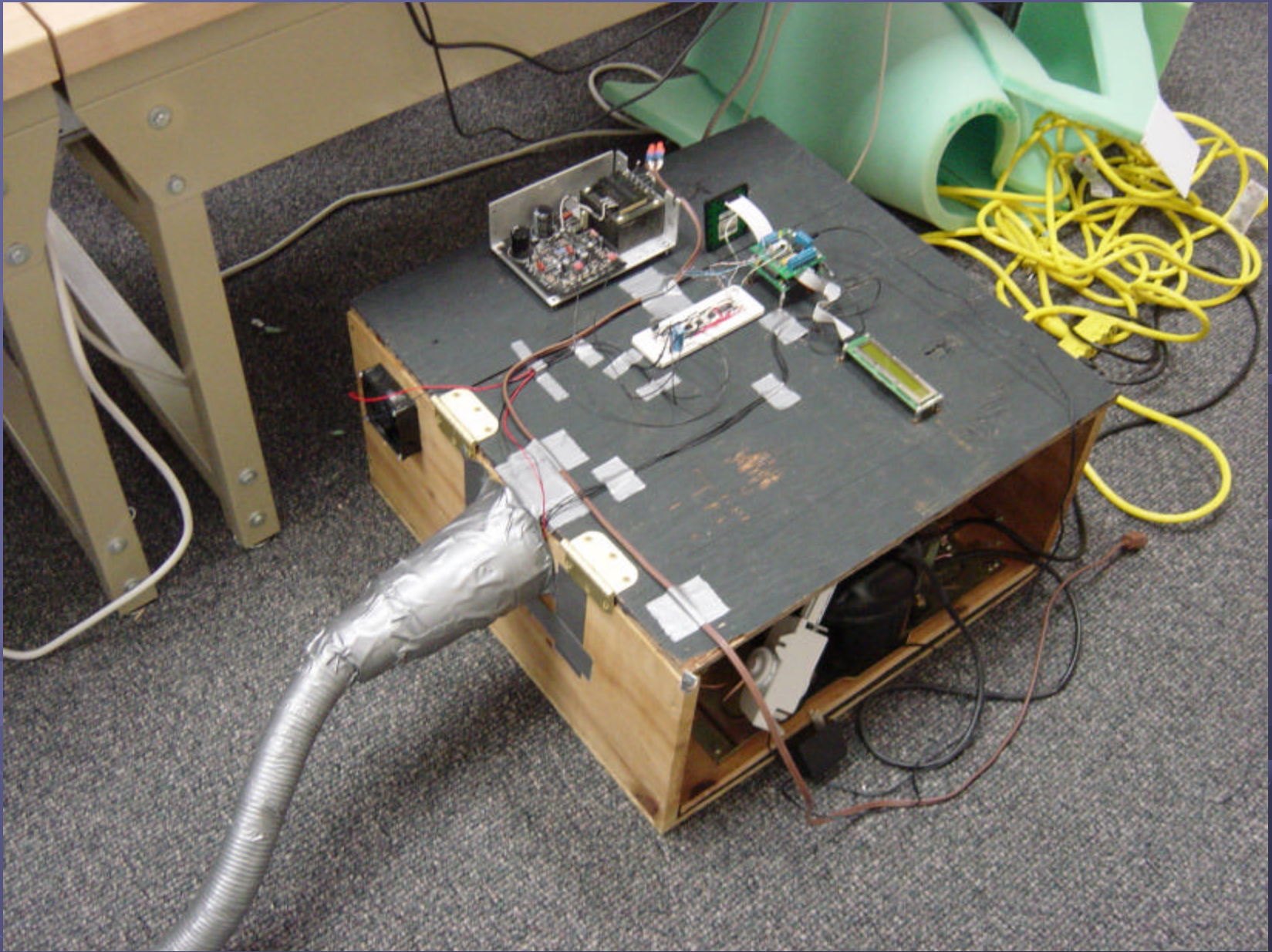
- Analog to Digital Circuit
- Temperature Gauging Kit
- First MUX – 74LS157
- OP Amp

Circuit Diagram

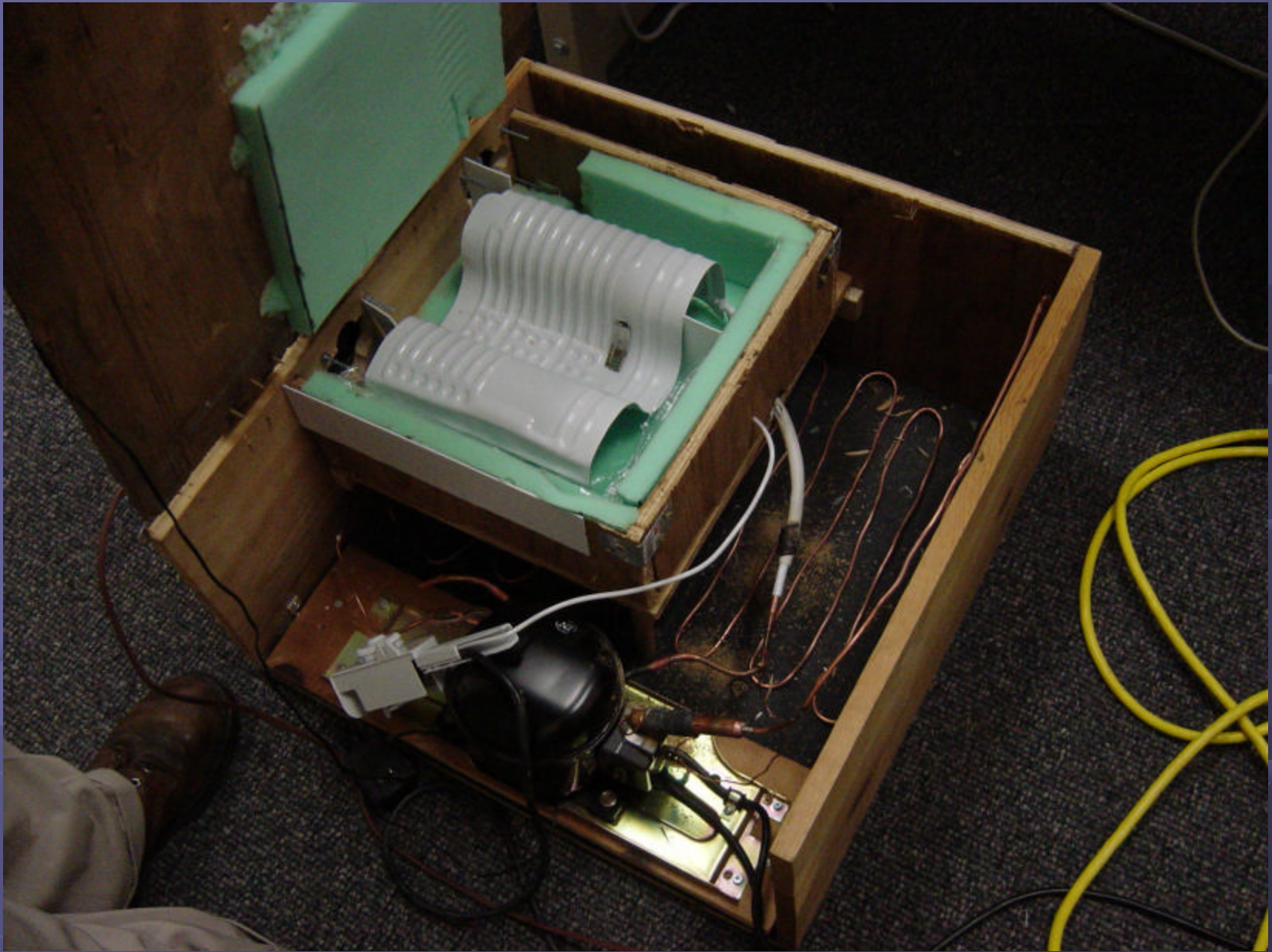


Auto-Cool Construction

- Cooling system from a 1.8 cu ft. refrigerator
- Plywood case
- Foam insulation
- Condenser coil compartment
- Dual fan housing
- Insulated 1.5 inch tubing



March 30, 2006



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Cost Analysis

Material	Unit Price	Price
Haier America 1.8 cu. ft. Refrigerator	\$54.86	\$54.86
PC Cooling Fans (2)	\$2.95	\$5.90
Split Loom (5)	\$1.50	\$7.50
100 Ft. Wire Hookup	\$4.45	\$4.45
Integrated Circuits (4)	\$1.25	\$5.00
MINI-MAX/51-C Microcontroller	\$69.95	\$69.95
TB-1 Training Board	\$50.00	\$50.00
Standoffs (13)	\$.35	\$4.55
IC/Opt-NPN/Transistor (5)	\$2.00	\$10.00
Standoffs (14)	\$.40	\$5.60
Standoffs (4)	\$.60	\$2.40
2x24 LCD w/LED	\$7.95	\$7.95
Unused Hardware		\$69.10
Total Material Cost		\$325.16
Labor	Hours	
Tear down of Refrigerator	2.5	
Modification of Coils	4	
Construction of System	10	
Construction of Housing	3	
Programming Microcontroller	100	
Designing/Constructing Circuit	100	
Installation of Components	3	
Total Hours	225.5	
Hourly Rate	\$20.00	
Total Labor Costs	\$4,450.00	
Support Tools	Hours	Cost per Hour
Cordless Drill	10	\$10.00
Circular Saw	2	\$10.00
Dremel Tool	1.5	\$10.00
Total Costs	\$135.00	
Total Project Costs	\$4,910.16	

Questions/Answers