PROPOSAL

Title: Temperature Monitor

Project engineers: Jane Adams and John Smith

Sponsor: Mr. Wyle E. Coyote, Acme Electronics

Signature: _____

Project definition:

The goal of this project is to design, build, and test a meter that can be used to measure and record air temperature.

Project objectives:

At the end of the semester, the temperature monitor will be completely built and tested. It will perform to these specifications:

- Temperature rage of -40 to +100° C
- Accurate to within 1°C
- Display either Fahrenheit or Celsius temperature
- Display minimum and maximum temperatures during last 24 hours
- Calculate and display 24-hour average temperature
- Calculate and display heating degree days

In addition to these performance requirements, the meter will be portable and capable of battery operation. Parts for the prototype will cost less than $150.

Strategy for achieving objectives:

The analog circuitry and temperature sensor will be prototyped on a temporary breadboard until its operation is fully understood. An analog-to-digital converter plus interface circuit will be added to allow unit to work with a microcomputer system. After temperature is properly read by the computer, a number of display and calculation programs will be written.

Plan of action:

The various tasks needed to implement the strategy are as follows:

- Get prototype breadboard and power supply
- Look for articles and designs on temperature measurement
- Select temperature sensor and A/D converter
- Sketch tentative circuit and calculate circuit values
- Build analog circuit and take measurements
- Connect analog circuit to the A/D converter
- Test the circuit completely
- Design the microcomputer interface logic
- Connect microcomputer and test interface
- Write simple program to read temperature
- Programs and tasks I cannot estimate now

A detailed project schedule follows.

Reporting:

Weekly progress reports will be made. At the end of the project a complete engineering design and working prototype will be presented.

Budget:

Initial funding of $150 is necessary to purchase the prototype analog parts and the microcomputer.

Evaluation:

Verification of how well the prototype meets the design specifications subject to the constraints will be made weekly and at the end of the project. The final evaluation will be conducted by the design engineer and the customer.

	Month			
Tasks to Do	Sept	Oct	Nov	Dec

Get breadboard, etc.	**			
Get articles	***			
Select sensor and A/D	****			
Sketch circuit	*****			
Build analog and test		****		
Connect analog and A/D	*	*******		
Test completely	*			
Midterm report	*	*		
Design interface	*	*		
Connect microcomputer		*	***	
Write simple program	*	*	*******	
Write more programs		*		
Write final report		*	*	*
			*	
		*	*	
		*		
		*	*	
		*	*	
		*		
		*		
		*		
		*		
		*		

Bar-Chart Schedule of Tasks Needed to Build a Simple Temperature Meter

Notes for two semester projects:

- *It is not necessary that something be actually built by the end of the first semester, but it is recommended that at least testing and breadboarding be started by the end of the first semester.*

- *Two semester projects will be required to submit a schedule which covers both semesters.*