In this report you will documenting the construction, calibration and operation of the temperature logger developed in A16.01. The report should include all of the following sections. Remember your temperature sensor should work for temperatures from -50 to 50C and minimum resolution of 1C. You do not need to calibration data over the range just to show that output of your sensor will not exceed the ADC range in these temps.

Remember your data record must meet the following requirements:
- *Data broken into multiple files*
- *Each data records must be uniquely identifiable by some sort of numbering system*
- *Calibrated temperature recorded in degrees C*
- *Time and Date of data including day, month, and year*
- *Altitude*
- *Status of the GPS fix at time the data was recorded*

You are not required to include a copy of your code but must describe how it operates. If you wish include your code please make it an appendix at the end of your report.

A. Cover Page
1. Title (*e.g.* Sensor Interface Report)
2. Name(s)
3. Date submitted

B. Principle of Operation
What measurements is your circuit going to make? What techniques will you use to make these measurements? How does your sensor function?

C. Electrical Design
Describe your electrical design including sensors, sensor interface, microcontroller, data acquisition, data storage, etc.

1. Sensors
What sensor or sensors will be used in your logger? Give the part numbers and specifications. Show how the calibrated sensor satisfies the measurement requirements.

2. Sensor Interfacing
Here you will need to show an electrical schematic as well as describe how the signal from your sensor is conditioned and converted to digital information. You will need to discuss how you set the readout gain and accuracy to satisfy the measurement requirements.

Figure(s) showing the electronic circuits for sensor signal conditioning and conversion to digital format.

D. Software Design
This section describes the design of the controlling software in device as well as your analysis used after retrieving data.

1. Data Format & Storage
Detail your data record format including time stamp, digital sensor data, GPS data, etc. At what rate will you be acquiring data? You should be able to show how many bytes each data record will require, plus how many hours of data you can record given the SD card and library limitations.

2. Operating Software

Here you need to discuss the design of your operating software including the major processes involved in data acquisition, data storage, time stamping, etc.

Use a flowchart or written description to describe the operation of your software.

E. Proof of Performance

Discuss what sensor calibrations done including some discussion of the uncertainty in you calibration. Show the results of tests or calibrations you performed. Show sample data from the final assembled data logger.

Table of test and/or calibration data.