Digital Thermometer and Alarm System Design

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There are two parts for this project:

Part 1 (70%):

Design and manufacture a digital thermometer with the small scale integration chip, namely the measured temperature with digital display. The specifications are listed below:

1. The measuring range is 20 ~ 100 centigrade.
2. Measurement accuracy is 0.5 degree.
3. 4-bit LED digital tube display.

We will test whether it works by using water temperature.

Part 2 (30%):

Design a temperature alarm system for the thermometer in Part 1.

The basic requirements: When the temperature is higher than 70℃, light emitting diode. (10%)

Your idea: Add new feature(s) to this circuit. (20%)

You need to do:

1. First of all, design the schematic of whole system and state the function of each part. (40%)

2. Secondly, buy some components and devices used in your circuits, and work with your TA to make sure which components are already available in laboratory (like resistors and capacitors).

3. Thirdly, build your circuits in the provided multi-holes board, debug and run your circuits. (40%)

4. Finish the midterm-report and final-report (one for a team). In your report, write clearly each teammate's work. (20%)

Components can be used: LM35, LM324, LM6482, CC7107, LED, and so on. Never use any microcontroller like 51, PIC …

In your reports, your need to write clearly the reference paper or websites you find and used in your design, and the different part in your own work.