

ME220 Term Paper Assignment

Draft #1 Due 5/21/08 (not required)

Final Draft Due 6/4/08 (definitely required)

The final event in this offering of ME220 this quarter will be a Sensor Design Term Paper.

In this term paper, you are to select a sensor related design problem of interest to you. The problem should concern a proposed new commercial product or research instrument. It should rely on the selection and operation of one or more sensors which are available or have been demonstrated by researchers. It should be useful to someone.

The term paper should include discussion of the following subjects

- 1) Brief Statement of the idea and the sensing needs
- 2) Who the customers are, and what are some important specifications (quantitative! should include at least an attempt at cost estimate).
- 3) Outline of related inventions already patented, and how yours is distinct. ('Distinct' = more than an obvious extension of the existing 'art')
- 4) What sensor technologies are relevant. This should be based on a literature search of some sort. The library databases, patent database, encyclopedia, etc should be used here.
- 5) The preferred design. Include quantitative details! It should be possible to estimate performance from this design.
- 6) Sensors to be used in the preferred design (incl. part #s, cost, interface specs as much as possible)
- 7) Outline of system electronics and software if necessary. Block diagram/flowchart as a minimum. Some feeling for electronics complexity and cost should be included.
- 8) Outline of packaging requirements, especially if packaging is critical.
- 9) Outline of other miscellaneous requirements
- 10) Estimate of cost and time to build working prototype.

The style of this document should be something you would present to a potential investor - well-written, nicely formatted, and containing a complete, persuasive description of your product.

The text of the report must not exceed 5 pages (data sheets, drawings, patent pages, etc should be attached at the end of the 5 pages), since the attention span of investors (and instructors) is not infinite.

Project topics which overlap other courses or design projects are acceptable, as long as they may be structured to go well beyond the requirements of the other course. The details of will need to be negotiated on a case-by-case basis.

Draft and Final Documents. I plan to provide feedback on all of the drafts turned in on 5/21 within 5 days so that you may do the additional necessary work to complete the final draft.