

ME220 4th Unit Research Assignment Due 6/4/08

For those students taking ME220 as a 4-unit course, this assignment is required.

I would like you to do some research on the status of current technology associated with instrumentation for golf clubs or tennis racquets or any other item of sports equipment which could benefit from instrumentation.

The present situation in sporting goods stores is that it is very hard to find golf clubs or tennis racquets which include sensing devices. Nevertheless, clubs and racquets can be very expensive. The market for this equipment is tolerant of expensive materials technology, and innovative mechanical design, so it would seem a good place to try to introduce sensor technology.

We have seen and will see several sensor technologies that are fairly inexpensive, and seem to have performance that is consistent with measuring the signals which are available during the normal use of a golf club or a tennis racquet.

So : why aren't there "smart golf clubs" or "smart tennis racquets" in sporting goods stores already?

In your report, please discuss the following issues

- 1) Propose a signal that would be useful to measure for improving the use of a club or racquet in a sport or sporting event.
- 2) What technologies would you use for this measurement?
- 3) Search relevant sources of information for any evidence that instrumented golf clubs or tennis racquets already exist. For example, check out the patent databases, or look through back issues of golf and tennis magazines. It is also a good idea to talk to experienced athletes, or retailers about what is available. Sharper Image has a store in the Stanford Mall
- 4) Explain why there has not been much success in producing "smart" products in these markets.

The total write-up should be well-written, nicely formatted, and include copies of particularly useful reference material as appendices. The part that you write should be 5-10 pages in length.