



September 14, 2004

Dear Dr. John D. Enderle,

Our team intends to compete in the 2004-2005 National Student Design Competition. The project that we plan on undertaking is the design of an Accessible Ergometer that meets the guidelines set forth in the flyer. The project's aim is to design a cycle ergometer that is usable by individuals with a diversity of abilities that will allow them to exercise to meet their own individual health related goals. By the end of the project the team intends to have designed, built, and tested a cycle ergometer that is easily accessible, feels stable even when engaging in aerobic activity, and is easy to adjust even with low strength or flexibility. The design must also have an easy-to-view display, be retailed for under a thousand dollars and meet the individual needs of our six clients.

As a team, we propose a design that uses a Nordic Track SL 710, MSRP \$499, as our platform to build the rest of the ergometer around. Some major changes that would be made would be to make the cycle ergometer easier for people to get in and out of by reducing or eliminating the area in front the seat. The display and user interface may be completely redone in order to achieve the best design. The seat will also be redone in order to make it easier to adjust along with making it more adjustable in the four directions of importance up, down, front and back. In order to achieve a better aerobic exercise, our ergometer will incorporate an arm movement system that will work the large muscles of the chest, back, and arms. The upper body can be exercised via the use of one or both arms. Ultimately, it will allow for the user to get a better exercise. Also, a method of measuring heart rate will also be incorporated into the design in order to estimate the range of aerobic output.

Following acceptance to the competition, initial prototype construction will begin immediately and go through January 18, 2005. By this time, the team anticipates acceptance for human testing. Human testing and prototype modification will commence and continue through April 30, 2005, by which time a final prototype design will have been achieved. The anticipated submission date for the project is May 1, 2005.

Our team is composed of four Biomedical Engineering Senior students that are involved in a two semester design course with full backing of the department. Therefore, at our disposal, we have full access to all departmental resources, the TRACE center, and the UW hospital when it comes to the testing process. The team has a combined total of eight years experience of design courses, with a combined total of eleven group projects completed to date. The group consists of Jonathan Millin (jsmillin@wisc.edu), Ryan Pope (popper@cae.wisc.edu), Amit Mehta (amitmehta@wisc.edu), and Jeffery Swift (jaswift@wisc.edu). Our departmental advisor is Professor Justin Williams (jwilliams@engr.wisc.edu). As a part of our course we are currently in the process of creating a more detailed design proposal that should be completed in the week to week and a half.

Thank you for your consideration,

Jon Millin
Team Leader

Prof. Justin Williams
Team Advisor

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