To Design and Manufacture a Device to Maximize the Performance of Rowers

Foy, Conor

Inches often decide results. These margins can make the difference between success and failure, and nowhere is this more apparent than rowing. My project was to develop a system to maximise a rowing crew’s performance. The crew’s performance critically depends on the synchronisation of the rowers and effectiveness of the force exerted by each rower - a skill that takes years to develop. My system accelerates the development of this skill, by giving the rowers a real time visual indication of their timing with respect to the lead rower and a measure of the force exerted. An accelerometer is used to detect the turning of each oar at a critical point in the stroke. The individual time stamps are compared and a result displayed to each rower for every stroke. A force sensitive resistor measures the amount of force applied during each stroke which is an indication of the amount of effort exerted by each rower. Lastly there is an impeller that measures the speed of the boat. The system uses one microcontroller per rower to take inputs from these sensors and generate the output data. The data is also transmitted using a wireless system to the coach. This data can be viewed by the rowers and the coach in real-time so changes can be made instantaneously to ensure the best possible synchronisation and the most effective application of force. This maximizes the resultant speed of the boat.

Awards Won:

Fourth Award of $500