The Fitness Regulator

Overview
Many children lack the proper amount of physical activity needed on daily basis to maintain a healthy lifestyle. Overuse of video games, television, and the Internet has become the leading cause of concern. Instead of parents having to pry their children away from said electronics and force them to exercise, an outside form of motivation is needed to provide a positive balance.

Objectives
Rewarding a child with “play time” by measuring their total “exercise time” through the Fitness Regulator relieves parents of such responsibility, permitting the child to use the system at their own discretion. The amount of “play time” allotted by the Fitness Regulator to power an Xbox 360, for example, depends directly on the length and type of exercise being done.

Approach
- Developed the target audience, customer needs, and user specifications.
- Established engineering requirements based on customer needs.
- Looked into different solutions for our systems i.e. microcontroller, relay, and display.
- Used Multisim to simulate the switching circuits for the relay and speaker as well as the full-wave rectifier.
- Created a 3D model of the enclosure in Solid Works.
- Programmed microcontroller to maintain exercise and play time data.
- Created computer simulation to mimic watch characteristics and communicate with microcontroller.
- Soldered our design onto our PC board.
- Tested our separate systems to make sure we were reaching our required inputs and outputs for each system.
- Once we verified these results we were able to test our final implementation.

Outcomes
- This product is a very different idea
- Tackles the problem
- Plan to come back to Capstone project to finish watch concept (not in scope of this project)