H2Go: The Untapped Energy Source

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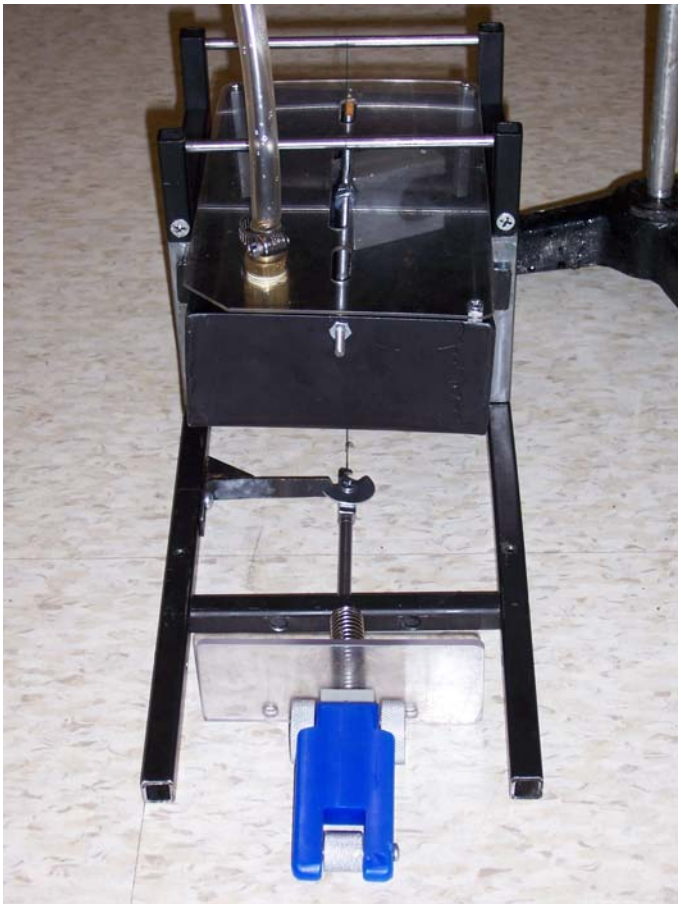
Design Team:

Kyle Goodale (**Team Leader**)
Dan Williams
Adam Ralston
Col. W. Wayne Neel (**Faculty Advisor**)



Summary:

The purpose of this design project was to produce a machine that utilizes one liter of water to power a car the furthest distance possible at the 2011 ASME Student Design Competition in Raleigh, North Carolina. The energy transferred to the car had to come from the water, which was dropped from a height of one meter. Potential energy is transferred from the water into kinetic energy in order to power a small vehicle. The vehicle must travel the farthest distance possible without wasting any energy or losing any of the water. The original and final design was made with metal bar stock, and utilized a water catch tray to store potential energy in a spring using the weight of the water in the tray. The spring is located within a metal and plastic plunger system that is used as a ram to launch the car. Once all the energy is stored in the spring from the falling weight of the water box, a modified washer system was used as a triggering device to release the compressed spring. The final design propelled the vehicle a maximum distance of 10 feet. The design team placed 6th out of 14 teams at the competition and successfully retained the one liter of water. The final design encountered many issues with the trigger system at the competition, which hindered the performance of device. Also, the final design proved to be very inefficient, with the efficiency only reaching 0.283%. The design team learned that it is very difficult to efficiently transfer the potential energy of falling water into kinetic energy that can be used in a mechanical device.