Team D

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Our vex- self-sustaining robot

The purpose of our robot was to make a simple and effective way of pumping water in areas with little above ground water with using solar energy. Our robot is a scale model of a self-sustaining water pump. It runs on a solar panel that powers the vex brain. The vex brain then runs a motor that turns a triangular frame with wheels attached to the corners. The wheels run along a tube that creates a vacuum that sucks the water along the tube and dumps it in the bucket. The main purpose of having a self sustaining robot that can pump water is so that areas that don’t have accesses to above ground water can have a cheap way to pump water that doesn’t use energy that the people might not have access to. This could be used in some areas of Africa because of the low amount of clean above ground water and the lack of necessary power to run other pumps.

I think that having a self-sustaining water pump is a good way to solve the lack of clean water because it is inexpensive to build and is also run on a clean energy source. Originally we wanted to have our robot be able to draw energy from the very water it pumps to make it even more energy efficient. Our design requires water proofed rubber which is damaging to the environment when it is created. If we had instead found a better, less damaging material to make the hose out of, it would make manufacturing easier and more environmentally friendly.

The Autodesk Sustainability Workshop provided us with many useful information and ideas on how we could make our robot more environmentally friendly. The Whole System and Lifecycle Thinking portion of the website showed us alternative sources of power such as solar panels and wind-turbines. We included solar energy into our design to reduce the use of the nonrenewable resources that would be used to charge and make batteries, and increase the efficiency of energy transfer.