

Toilet cleaning. The worst chore in your house. Nobody wants to do it. Is there a better solution to cleaning the toilet then having somebody do it? Yes there is! Call in the Toilet Bot.

### **Description**

The Toilet Bot is a VEX robot designed to, when activated, autonomously clean the toilet. All you need to do to set it up is put the brush in the claws, twist the axel to tighten, and tighten the shaft collars to hold it in. It is programmed to sit next to the toilet until the bumper sensor is activated. Then, it raises the brush, moves the brush forward, and lowers the brush into the toilet bowl. Once the brush is in the bowl it begins to rotate. When finished, the brush is returned to its holder. For heavy brushes counterweights can be added behind the VEX microcontroller. The Toilet Bot utilizes three motors, a bumper sensor, and two shaft encoders. It can be powered by battery but preferably by an AC adapter. If you toilet is too tall you just have to extend the rack gears. Another possible use is helping wash dishes by scrubbing plates, bowls, etc. (With a clean brush of course!).

### **Brainstorming and Designing**

During the brainstorming process we tried to think of the absolute worst household chore. Of course, cleaning the toilet was at the top of the list. I decided to break the project into sections to make the design process easier and more manageable. The Toilet Bot was built in three sections: the brush gripper, the rack and pinion 2 axis lift, and the base. Shaft encoders are used to keep the brush at the right position. All of the screws are on the model because I thought they are an important part of the design. The screws also helped me verify that the Toilet Bot was realistic and buildable.

### **Inventor 2010**

My favorite feature of Inventor was the various controls for moving the viewpoint. I also like the ability to shorten shafts to the desired size. The rendering tool was very easy to use and produced excellent renderings.