

R.O.S. 3

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VEX Robotics

18 January 2022

### Roomba Breakdown

The iRobot's Roomba is a simple vacuum bot that uses various sensors to detect its surroundings. It is a robot that started the revolution for automated household appliances and has made life more convenient just by doing a simple chore. The robot consists of parts for vacuum cleaners (brushes, wheels, dust bin) and automated machinery (gears, motors, sensors).



Two motors run the wheels of the bot while two additional motors run a large and small brush. These motors use gear trains to reduce the amount of energy the motor needs to use from the battery. The sensors mounted on the Roomba use touch sensors (bumpers) and light sensors (lasers) to track the location of objects around the robot. The bumper sensors are mainly used for walls while light sensors are used to keep the robot from falling off edges. The circuits in the brain of the bot take care of the many autonomous functions that the robot can follow, whether it is mapping a field, running a cleaning pattern, or activating during certain times of the day. The combination of motorized vacuum cleaners and automated robots make this machine very useful in modern day households and even in robot competitions due to the simple makeup of the sensors and driving operations.

