Automation and Programming Highlights (Just the Facts)

*Read the descriptions in your Building Guides for a clearer picture of what is expected from each group member.*

**#1 - Spinning Sign:** Use GEARS to control a sign and have it spin slowly. A switch should be pressed to turn it on and another switch pressed to turn it off.

 *Teacher’s Advice: Connect different sized gears to the motor and build your sign around it*

**#2 - Robot Drag Race**: Create the fastest moving drag racer that will go 20 feet and then stop.

*Teacher’s Advice: Different sized gears will make a big difference in speed you can achieve*

**#3 - Grandma’s Chair:** Use a switch mounted on grandma’s chair to control her movement up and down a 300 inclined plane. Her chair must stop when it runs into a limit switch at the top and bottom of its path.

**#4 – Gated Community**: Create a gate as part of a wall that opens and closes as you turn a potentiometer. To open the gate may rise, slide, or pivot at a point.

 *Teacher’s Advice: Keep the speed slow as you estimate how far to move the gate for better results*

**#5 – Golf Pro:** Design a machine to putt a golf ball into the cup. Make your putt 3 times in a row for 3 extra credit points. Your machine has to hold the golf ball, and putt (or push) it by pushing a button.

**#6 – Mail Sorter:** Automate a system to separate large and small packages. How could you use a sensor to tell the difference between items that are taller and shorter? When you can tell the difference, push or pull them into different areas.

 *Teacher’s Advice: This is a bit more difficult than the other projects, so you will automatically get 3 bonus points if you get it to work.*

**#7 – Vroomba Vacuum:** Simulate a Roomba vacuum by making a mobile robot that stops and turns when it runs into something.

**#8 – Electric Chainsaw**: Create a prototype for a chainsaw that is battery powered. You need to make it look like a chainsaw, and have a trigger button to make it run.

 *Teacher’s Advice: Easy to program, but a bit more challenging to build.*

**#9 – Bomb defusal robot:** Use the CLAW to pull a ‘key’ out of a bomb to defuse it. This robot has to move, and has a claw mounted on the front of it.

 *Teacher’s Advice: Adjust the height of the claw as you are building it to make this less frustrating to build.*

**#10 – Design your own crappy robot:** Design and build a robot that accomplishes a simple everyday task. It has to have at least one motor and two switches.

 *Teacher’s Advice: Read the detailed description carefully to get credit for building this robot.*