

Title: Automatic ball collector with sorter

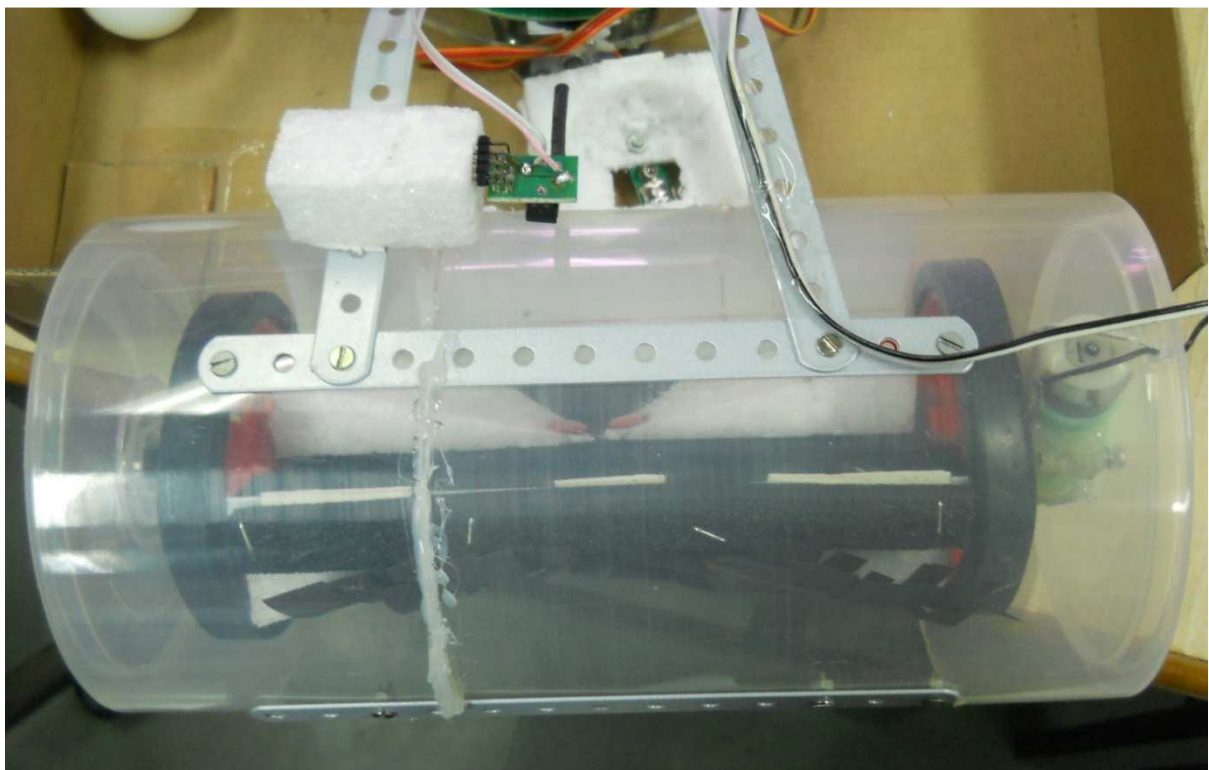
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Introduction:

The 'Automatic ball collector with sorter' project is aimed to collect balls and sorts them by color black and white.

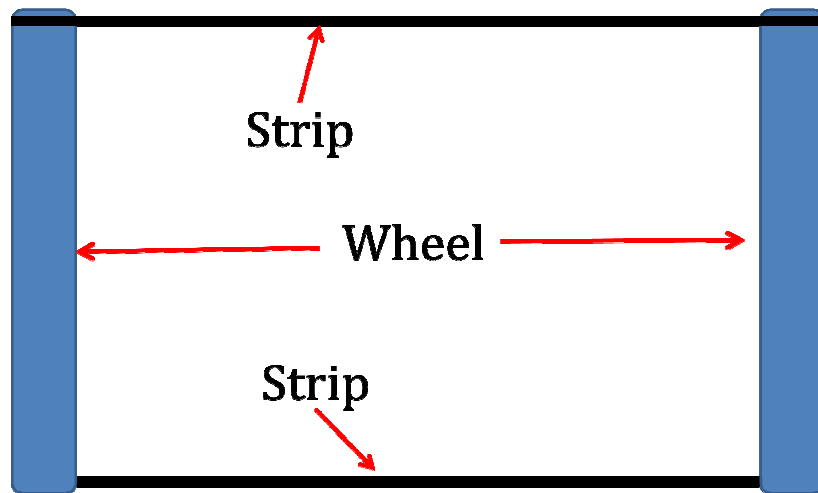
Description:

The automatic ball sorter is developed by using fire bird V (P89V51RD2) using a ball collector drum (shown in fig.).

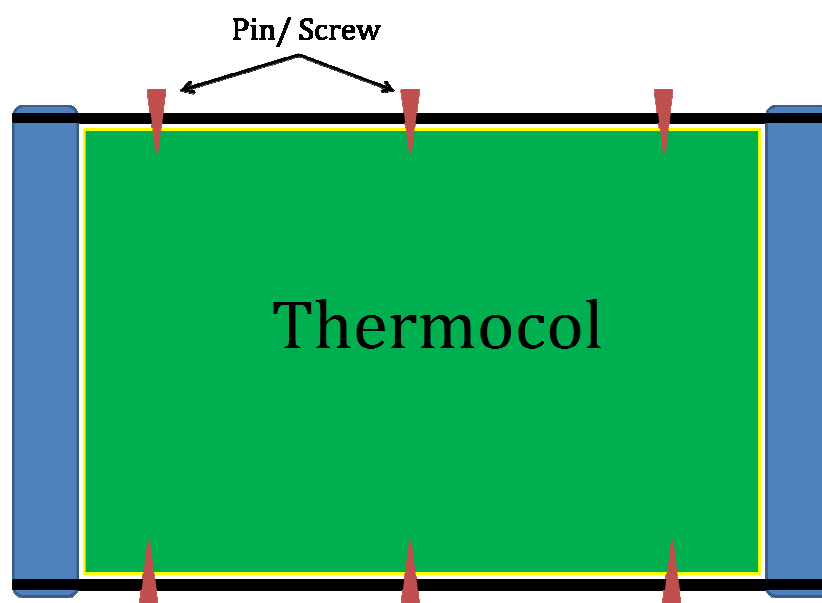


The drum is made by trash. To make small prototype drum, used CD box, wheel, thermocol, geared DC motor with high torque, and mechanical parts (as shown in fig.).

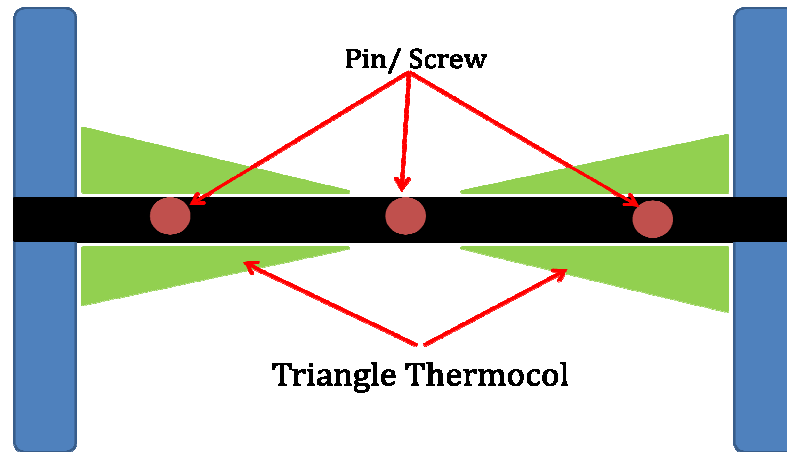
First of all connect the two wheels with mechanical strip as shown in fig.



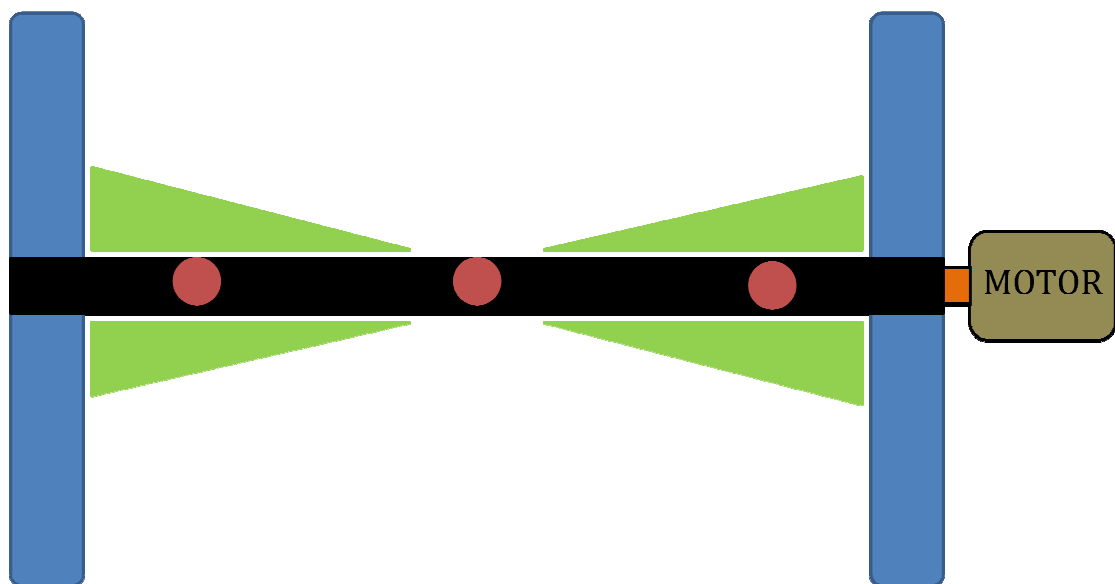
Then put thermocol between two mechanical strips and give it strength by small pin or screw.



Then cut thermocol in triangle shape and put it (as shown in fig.) to collect balls from middle side of drum.



Then connect the DC motor with any one of two wheels and fit all assembly in drum (here we are using empty two CD box small and big as shown in video) and fix it with screw.



Working:

The drum is connected with fire bird as shown in fig. This drum has dc motor which is connected to +5 V. When switch on the bot the DC motor rotates and collects ball whatever comes in front of drum. And it collects all balls from middle due to triangle shape thermocol. At the exit point of the drum, “touch sensor” has been placed and whatever balls comes out it generates pulses, and the no. of pulses indicates no. of balls collected.

After coming out from drum, the ball will collect in “small thermocol disk” (can be called as cup). This disk has color sensor which detects the color of ball ie. white or black. And it tilts respected side and short outs balls in black and white and also counts no. of black balls and no. of white balls.

References:

1. FireBird V AVR2560 Hardware Manual
2. FireBird V AVR2560 Software Manual