## Build Instructions

1. Prepare the baseboard surface. This can be bought pre-cut to size, but it is cheaper to buy a full 48"x96" sheet, and either have them cut it down at the store, or cut it to size yourself, since you will need some extra later. A clamped-down straightedge and a circular saw work well for these long cuts.

2. The "trench" is cut out next. Measure out the dimensions, and cut out the area. A jigsaw works well to cut out the corners.

3. Next, begin cutting the furring strips to length, as per the drawings. You may wish to adjust the length of the 45" pieces to fit closely into the space, as the furring strips may not be exactly 1.5" wide. The 2”x2” furring strip is cut into five 6” sections to make Blocks A through E. Be sure to make square cuts, so that the blocks will sit up straight.

4. 30 holes must be drilled for the bolt grid. This can be done now or after attaching the frame pieces, depending on what works best with your tools. Use a T-square to mark out the four-by-eight grid with 2" spacing, as shown in the drawings. Note that two spots on the grid are left undrilled. Underlayment board will splinter easily, so a Forstner bit is recommended, as well as a sacrificial backing board.
5. The frame is attached to the underlayment using a staple gun. The number of staples used and their positioning are not critical, as they should be flush or below the surface and not affect a robot driving over them. Follow the positions of the frame members from the drawings, and use enough staples to hold them securely.

6. Now is a good time to paint the baseboard with Rustoleum Hunter Green paint. The top surface receives one coat of spray – the edges are not specifically painted, but may pick up overspray.

7. While the paint dries, build the ramped platform unit. A laser cutter was available for this build, but any cutting tool can be used to cut out the components as shown in the drawings (eight pieces total). This unit was assembled using hot glue, but any sturdy glue will work. Again, be sure everything is square.

8. The ramp unit is attached to the baseboard using four #6-1 ½" screws. The exact position of the screws is non-critical and not shown on drawings, but if aligned carefully, three screws can go into the furring strip frame – one will only go into the underlayment surface of the baseboard. Drill pilot holes to prevent splitting, and countersink them to let the screws sit flush with the surface of the raised platform.

9. The bolt grid can now be inserted into the holes in the baseboard (shown here before painting). Use a washer for clearance, and hand-tighten a nut on each bolt to hold them in place.
10. Measure and mark for the terminal lugs using the drawings as reference. Drill two pilot holes, and attach the terminal lugs using two more #6 screws and washers, making sure to set the lugs vertically before tightening the screws.

11. The wire will come off a spool in the store, so the first step to making the wire arch is to straighten it. Measure 6" either side of the center, and make two 90-degree bends to make a Π shape with a 12"-wide center section. Again, bend the wire to be as square, straight, and flat as possible. Insert the arch into the terminal lugs, and adjust the height until the top is 18" above the baseboard surface. Use heavy wire cutters to trim the wire above the bottom of the frame, and mark the position of the wire.

12. The precut felt sheet is hung from the top of the wire arch with plastic cable ties, much like a shower curtain on rings. A standard hole punch is used to make seven holes along the edge of the felt sheet, and cable ties are strung through these. They should be tightened only enough to keep the sheet aligned with the top wire, but not enough to hold it tightly.

13. The center pattern can be painted at this time. First, the entire 8" square is masked off and painted with Rustoleum Satin White, to provide consistent color. Once this is dry, each 4" square is masked off and painted its respective color: Rustoleum Red, Yellow, Blue, and Flat Black.
14. After the paint dries, the tape lines can be applied. Measure and mark with pencil the centerlines as shown in the drawings, and carefully apply the tape centered on these lines. Make sure the tape lines are straight and free of wrinkles and bubbles.

15. Finally, the blocks can be painted with Rustoleum Chrome metallic paint. When the paint dries, measure the positions for the blocks from the drawings, put the blocks in place, and mark out the edges of their locations with a pen or marker (so that they can be easily replaced in the same spots).