

Sensor (Victim) Board

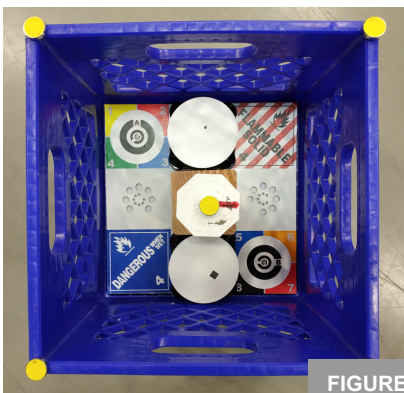


FIGURE A

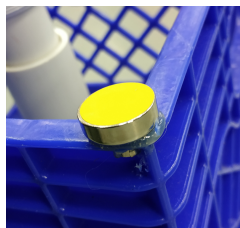
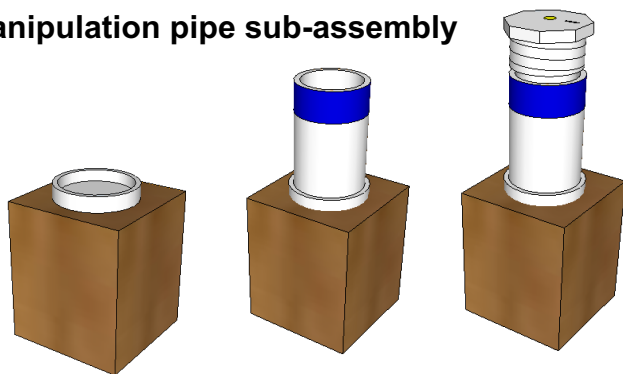
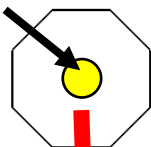


FIGURE B

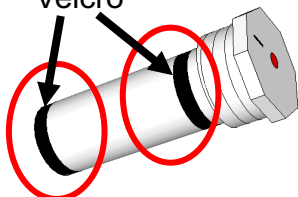
Manipulation pipe sub-assembly



Magnet



Velcro



PURCHASE LIST:

- ☐ [1] Milk crate, > 300 mm (12 in) interior clearance
- ☐ [1] 100 x 100 x 100 mm Post
- ☐ [1] 50 ID mm x 100 mm PVC Pipe
- ☐ [1] 40 ID mm x 75 mm PVC Pipe
- ☐ [1] 50 mm PVC Caps
(https://www.ferguson.com/product/proflo-dwv-heavy-duty-high-pressure-pvc-cap-pftc/_/A-ProdFamily-115673)
- ☐ [1] 50 mm Threaded Plug
(<http://www.grainger.com/product/LASCO-Threaded-Plug-22FK11?functionCode=P2IDP2PCP>)
- ☐ [2] < 100 mm (4 in) battery operated turntables and batteries.
- ☐ [2] 50 x 50 mm (2 x 2 in) sets of hook-and-loop fasteners (eg. Velcro).
- ☐ [2] 100 x 100 mm (4 x 4 in) pieces of white copy paper
- ☐ [5] Approx. 4.5 kg (10 lb) strength hook magnets (remove hooks).
- ☐ [1] Roll cloth backed tape (any color).
- ☐ [8-16] Large (at least 80 x 80 mm (3 x 3 in) chemical hand warmers (2 per 6-hour competition/practice period)

LASERCUT/DRILL: See <http://rrl.robocup.org> for CAD files.

- ☐ [1] 300 x 300 mm plywood, MDF or plastic, white faced, laser cut or drilled - Backboard (Figure F, G)

PRINT: See <http://rrl.robocup.org> for PDF files.

- ☐ [2] 100 mm (4 in) hazmat stickers.
- ☐ [2] Combined color/C stickers (Figure H).
- ☐ [2] 100 mm (4 in) motion target stickers (Figure I).

Fabrication

- Drill or laser cut back board as shown in Figure F, G (next page).
- Attach cap to block. Cap is centered on block as shown in Figure C.
- Attach pre-printed sticker to the cap.
- Attach pipe to cap as shown in Figure C.
- Wrap top 12.5 mm of 50 mm diameter pipe with blue tape as shown in Figure C.
- Insert magnet into the top of threaded plug as shown in Figure C.
- Insert 75 mm pipe into the threaded plug. Wrap 12.5 mm in Velcro at both ends of the pipe as shown in Figure C.
- Screw manipulation pipe sub-assembly to center of back board (Figure C).



FIGURE C

Sensor (Victim) Board

Fabrication (Continued)

- Stick hazmat and combined color and C stickers to back board as shown in Figure A, F.
- Stick motion target stickers to turntables and install batteries if necessary.
- Stick turntables to back board in positions as indicated with hook-and-loop fasteners as shown in Figure C.
- Tape pieces of copy paper over the holes in the back board from back side (opposite to stickers) as shown in Figure D.
- Drill holes in corners of crate and insert magnets as shown in Figure B. Glue as required.
- At competition time:
 - Activate hand warmers and tape behind copy paper as shown in Figure D.
 - Screw back board into crate from behind as shown in Figure E.



FIGURE D

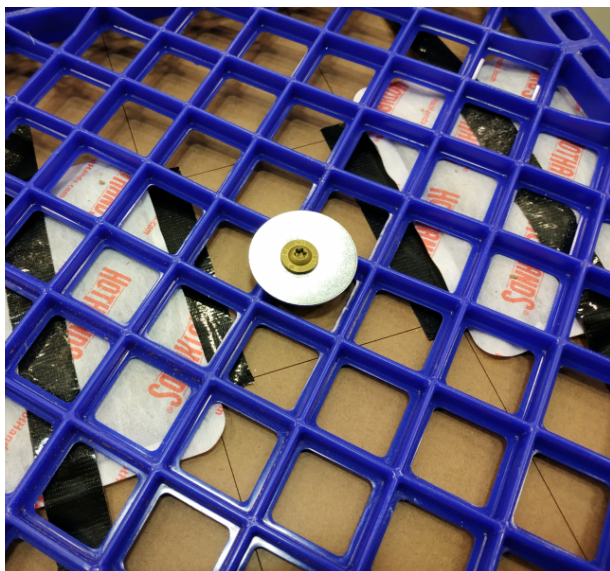


FIGURE E

Sensor (Victim) Board

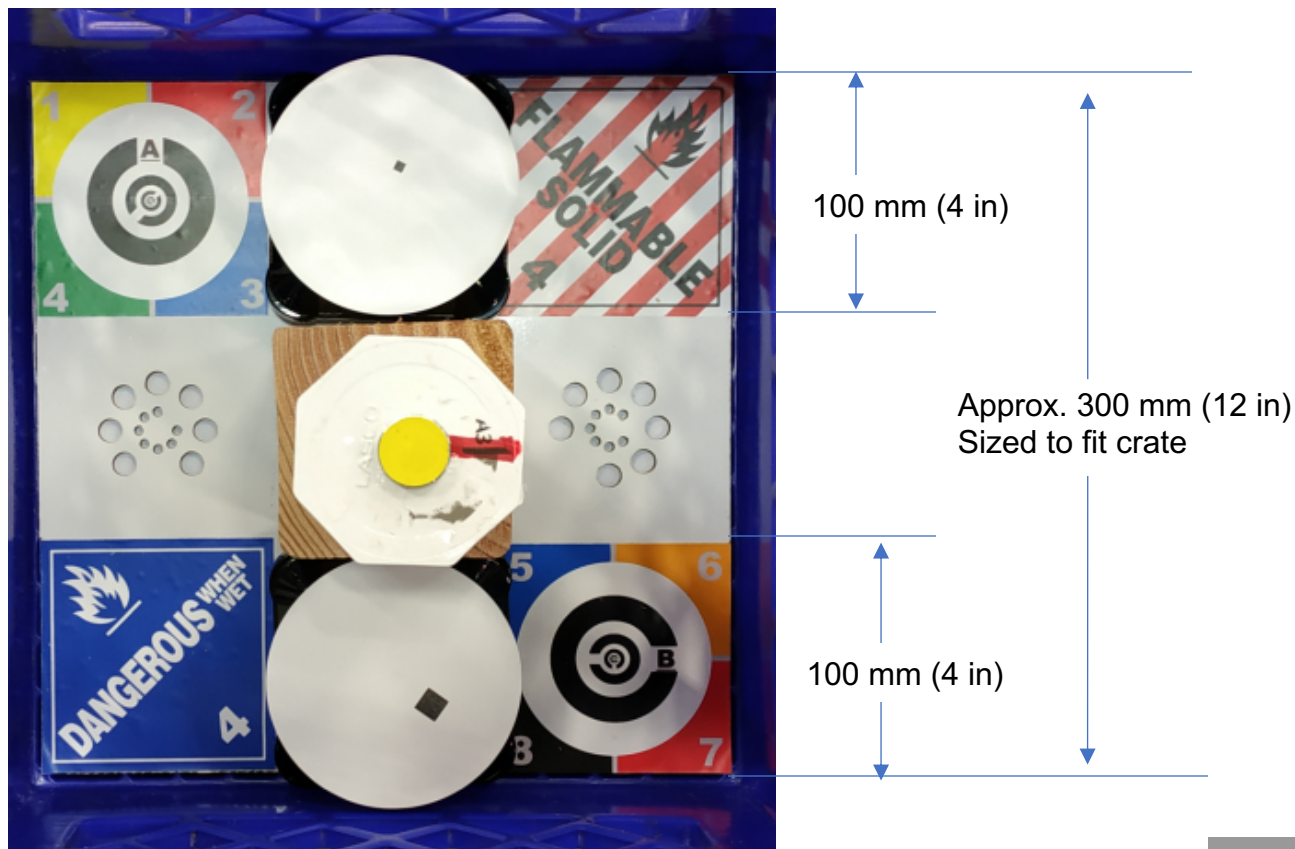


FIGURE F

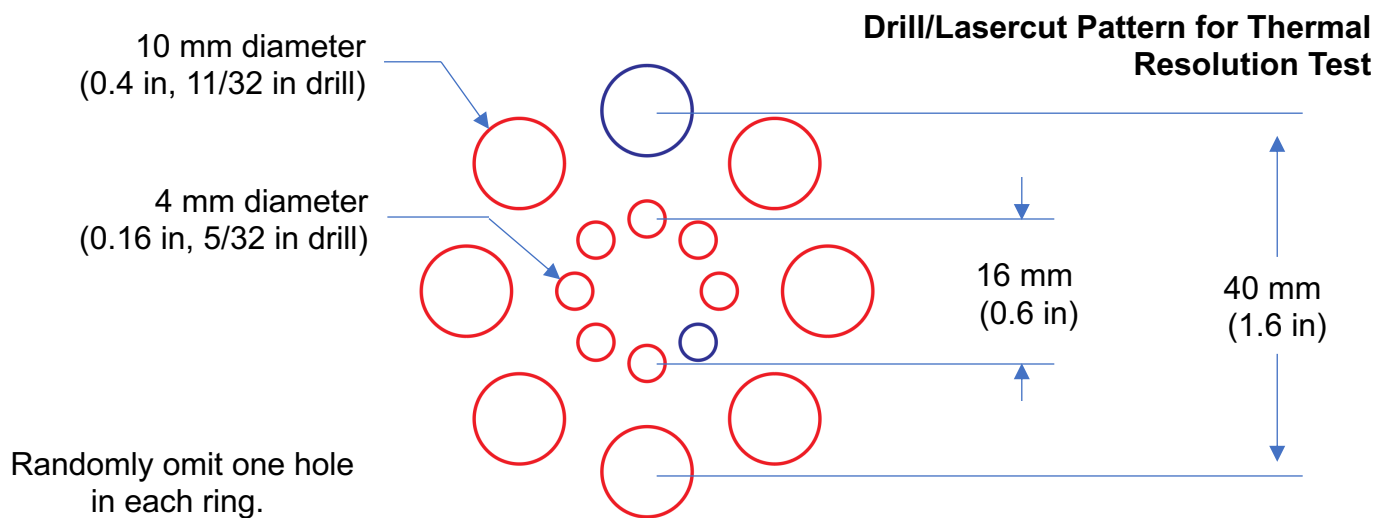


FIGURE G

Sensor (Victim) Board

Combined color/C stickers



Gap sizes ("t"):

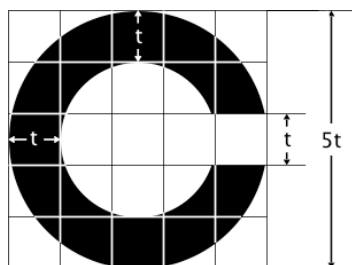
10 mm, 4 mm, 1.6 mm, 0.64 mm, 0.25 mm
(0.4 in, 0.16 in, 0.07 in, 0.03 in, 0.01 in)

Outer Diameters ("5t"):

50 mm, 20 mm, 8 mm, 3.2 mm, 1.25 mm
(2 in, 0.8 in, 0.3 in, 0.13 in, 0.05 in)

100 mm (4 in)

White border diameter 80 mm (3 in)

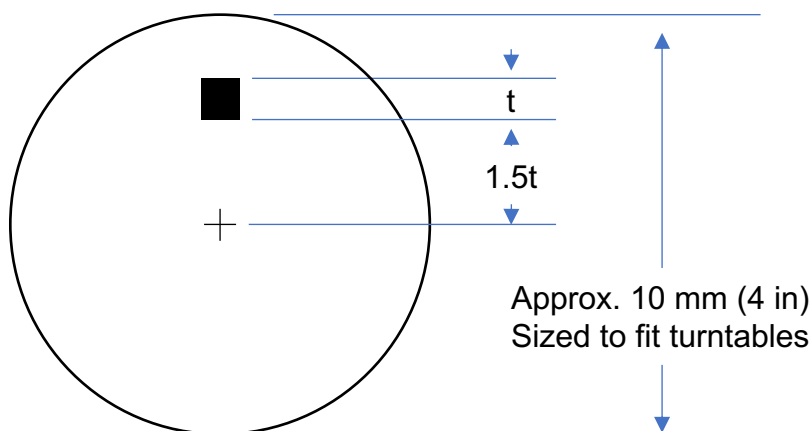


Dimensions of the Landolt-C optotype. Each is oriented randomly to one of 8 directions (every 45 degrees), no two rings of adjacent size having the same direction.

Sets of rings are labeled A (upper left) and B (bottom right).

Colored corners are randomly selected from green, red, blue, green, orange and black and numbered 1-8 as shown.

FIGURE H



Turntable stickers for motion test.

Lower turntable: $t = 10 \text{ mm}$ (0.4 in)

Upper turntable: $t = 4 \text{ mm}$ (0.16 in)

(IMAGE NOT TO SCALE)

FIGURE I