Rules for "Cube Quest"

Version 1.1

March 23rd, 2008

1. Blocks

a) Block size is 1.5 inches cube with 1/16" +/- tolerance with rounded edges.

b) +1 scoring blocks are painted with Krylon Fusion #2328 "Red Pepper" , -1 blocks are painted with Krylon Fusion #2329 "Patriotic Blue".

c) Ratio: 50/50

d) Blocks used per match – 60 (30 red, 30 blue)

2. Playing Field

a) Size: 6x6 foot

b) Floor material: Gray carpet from Lowes. ST103 Stratos / 830 Gray . Lowes carpet item #97937.

c) 12x12 inch goals at corners, surface painted semi-gloss black.

d) Walls behind goal are 5 inches high and extend 12 inches from corner on each side painted semi-gloss white. The bottom 2.25 inches of the goal walls will be painted green. The walls behind one goal will have a ¾ inch wide vertical black stripe from the top to the green stripe centered on each wall. The walls behind the opposite goal will have a pair of ¾ inch wide vertical stripes from top to the green stripe spaced 1.5 inches apart centered on each wall.

e) Field walls are 2.25 inches high and painted green (Paint: Krylon Fusion "Spring Grass" #2327).

3. Beacons

a) Beacons will be continuous white polarized light from 50 watt, 40 degree beam width halogen bulbs. One beacon with be horizontally polarized and the other vertical. The beacons will be placed behind the corners of the goals at a height of 7 inches.

b) Only club supplied beacons allowed. Can't use your own beacon except in the case of swarm bots. They may carry beacons to help them locate each other.

4. Bots

a) Size: Bots must fit in a 12" wide x 12" long x 18" tall box at start but may expand

into an 18" diameter by 18 inch high cylinder after starting. The expanded measurement will be taken with all extremities at their full mechanical extension. Swarm bots will be measured with all bots on the playing surface with no component overlap.

b) Weight limits – 20 lbs max.

c) Swarm bots are allowed as long as they all fit in a 12" x 12" x 18" box at start. All bots in the swarm must move out of the goal after starting but may return. No stationary "bots" allowed ie: you can't just drop off an object that doesn't move. "Mother ship" bots may release their cargo of smaller bots at any time after starting. Swarm bots must be physically independent and not connected to each other.

d) Bots must be fully autonomous and must have computing power on board. No wireless links to off-field computers are allowed except for one way telemetry from the bot. External computers may not control the bot. Swarm bots may communicate with each other only.

e) Bots may use any means to move blocks into the goals. Bots may store any number of blocks on-board before depositing them in the goal. Blocks may be thrown a maximum of 3' in the air from the bot. Any block forced or thrown out of the arena will count as a -1 penalty per block to the bot that caused it to go out.

f) Weapons are banned. Only pushing and blocking are allowed. You may not intentionally force another bot out of the arena. No intentional damage to playing area, blocks, beacons or opponent allowed.

g) Bots may be deemed "unsafe" and subject to disqualification by judges before start or during match.

h) Bots may not deposit anything on the playing surface except other bots (field elements not included). Bots may not mark the blocks, playing surface or opponents with any substance such as ink or paint.

5. Play

a) Blocks are to be "scattered" into the playing area with the majority of them being near the center. No blocks will be in either goal at the start of the match. The blocks will be scattered after the bots have been placed in their starting position.

b) Competing bots must be touching their goal in their compact state at the start of the contest.

c) Competitors will activate their bots when start is signaled. The bots will start 5 seconds after the start switch is activated. The match will last for 3 minutes including the 5 second start delay.

d) After starting the objective is to move as many +1 scoring blocks into your goal as possible while avoiding or moving the -1 scoring blocks into the opponent's goal. Bots may remove blocks from the opponent's goal.

e) A bot forfeits the round if it voluntarily leaves the playing field at any time during the 3 minutes.

f) If opponents get locked together the round may be terminated by the judge and winner determined by counting blocks in each goal.

g) Bots must automatically stop by means of an internal timer at the end of 3 minutes. Judges will not count blocks moved into goal after time has expired.

h) At the end of a 3 minute round only blocks inside or touching the goal count. If bot is also in goal and contains blocks that are not in contact with the goal they do not count. The judge will be the final say on all scoring matters. If a bot must be moved to determine scoring it will be the judge that moves the bot.

i) The winner has the highest score after judges add up to total number of +1 and -1 blocks in his goal.

j) If round ends in a tie the round will be restarted after 1 minute. After a second tie, resolution of match is at the discretion of the judge.

(end)