Hardware Competition Southeastcon 2015
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Contact and Information: Prof. Carlos Cabrera, ccabrera@ieee.org

1. Introduction

Many years ago, when life was simple, before the era of video games, laptops, I pad's, PlayStation, Xbox-One, Internet and GPS, many American families would travel to Discover America in the most popular van of all times; the famous VW Mini-Bus. During these trips,

2. Objective

SoutheastCon 2015, with the intention of recreating the classical American road trip, provides a challenging game of robotics skill. Each team must successfully navigate a white line (will vary for each round), play three classic road trip games, and bring one playing card to the finish line. Each team will have 5 minutes to complete the tasks. Teams can place the assigned games in any orientation/locations within each white square. No toys will be secured to the board and mechanisms that secure the toys to the board are not allowed.

3. Playing Rules

When called, the team will have 1 minute to place their vehicle in the starting square, align toys and then wait until the visible RED LED signal is shut off. Once the signal in shut off the timer is started and the vehicle will have a maximum of five minutes navigate and play each of the games. The game will end when the five minutes expire or when the robot crosses the finish line or if any part of the robot leaves the playing board.

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Each station will be at least 6 inches from the edge of the plywood.

The vehicle must fit in a 1'x 1' square, may not be taller than 1'. It must be self-propelled, autonomous and may not be remotely controlled in any manner. It cannot contain any flammable liquids, gases, or explosives. The vehicles cannot project any objects either in the playing field or out of the playing field, and all parts of the vehicle must remain attached (i.e. the vehicle may not split into multiple pieces). The vehicle may not present any danger to the judges, the spectators, or the playing board. The team may choose the order in which these four task are done.

4. Games – Toys ''R'' Us

1 - Simon Carabiner - "R"Web#:351215, SKU:226CE810, UPC/EAN/ISBN:014397018500

1 - Pocket Etch A Sketch - By: Ohio Art - "R"Web#:636061, SKU:FD79DD3F, UPC/EAN/ISBN:026511051508

1 - Rubik's 3x3 Cube - "R"Web#:374846, SKU:DAD09D9E, UPC/EAN/ISBN:714043050273

1 - Standard 52-card deck – Toys"R"Us

5. Tournament Format

The competition consists of three rounds. Each team will have three rounds in which to base their final score. Each team will complete the game once then each team will go again and once more to total three rounds. At the end of the three rounds, the final scores will be calculated and a winner announced.

Flash and video cameras will be allowed in the spectator area. All designs should take this into account. Reasonable noise levels should be accounted for by teams during practice and competition.

6. Robots at Stations:

Teams can place the assigned games in any orientation/locations within each white square. Teams may also decide in which order their robot will perform these stations. However, locations of squares will be different from board to board and the path from station to station will be different. No toys will be secured to the board and mechanisms that secure the toys to the board are not allowed. All four toys must be visible to judges at all times.

6.1 For Station Simon:

Robot in order to receive full points must play Simon for 15 seconds. If it fails, points will allocate proportional to time played.
If robot plays successfully for 15 seconds, robot may stop playing and leave station immediately, if however robot during these 15 seconds fails, robot should leave station after the fail buzzer sounds.

6.2 For Station Etch a Sketch:

Robot must draw \ write **IEEE**, no specific font nor size, however it must be readable to the judges. Teams may center the Etch a Sketch at any location on the Etch a Sketch screen, and will do so before the robot starts. Robot may NOT USE ANY FORM OF MAGNETIC DEVICE OR ANY OTHER METHOD TO PERFORM THIS TASK. The purpose of this station is to draw\write IEEE using the Etch a Sketch two knobs only.

6.3 For Station Three Rubrics Cube

Robot must rotate one row, team to choose color, side and row 180 degrees in reference to the rest of the cube. Picking up the cube and rotating it 180 does not constitute the purpose of this station.

6.4 For Station Card Games

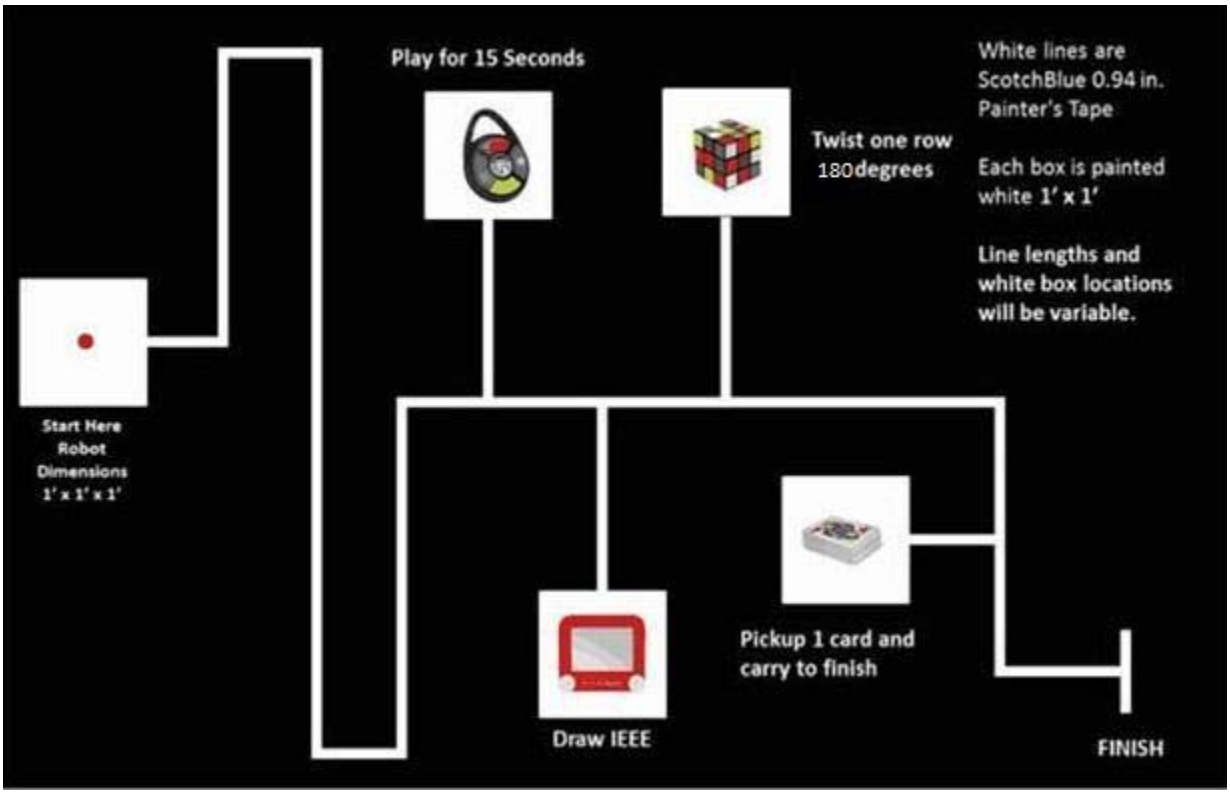
Robot must pick up one card from the deck and carry that card to and cross the finish line and complete this task before the 300-second mark. No specific card is required, teams to choose at will.

7. End of Timing (Game):

Once the robot has completely crossed the finish line the time ends, or at the 300-second buzzer, which ever comes first. At either moment, judges will add points obtained.

Team will remove robot from board.

Typical Board Design



Q: What is the exact # for the Rust-Oleum White paint from Home Depot?

A: Both black and white paint Home Depot brand and reference number have been posted on our Facebook page.

Q: What type of wood, thickness and sanding will the course be?

A: 5/8 in. x 4 ft. x 8 ft. Sanded Pine Plywood Home Depot: Model # 326135 Store SKU # 326135

Scotch Blue 0.94 in. x 60yds. Painter's Tape Home Depot: Model# 2090-1J Store SKU # 958999

Q: Will you be using liquid or spray paint and how will it be applied?

A: The paint will be rolled on liquid black & white paint.

Q: Possibility of having walls surround the playing surface?

A: None. The course will be on the floor with no walls.

Q: Will the playing surface be elevated?

A: No, it will be on the floor.

Q: Will there be a painted white square around each toy area?

A: Yes.

Q: How will the LED be mounted to the course? Flushed or pushed-up?

A: LEDs will be flush against the board.

Q: What type of RED LED are you going to use on the course?

A: This information has been posted on our Facebook page.

Q: How will the LED be driven? Steady on or pulsed?

A: The LED will be steady on.

Q: Does the timer start when the LED display goes out or when the car first moves?

A: When the LED goes out, the robot should start.

Q: How will the current contest/scoring information be displayed to the crowds?

A: LCD projector.

Q: How close do you allow team members/visitors to be to the course?

A: Everyone will be at least 4 feet from the board's edge

Q: How do you handle two teams that both complete the task?

A: The one who does it the quickest wins. If there is a tie then another match will take place.

Q: Do we have a preliminary round to qualify?

A: No

Q: Does playing Simon mean beating Simon?

A: No, but must be played accurately for 15 seconds.

Q: Do the playing cards have to be left in usable condition?

A: Yes. Creases and folds are OK.

Q: Can the robot separate into multiple parts/other robots?

A: No.

Q: Does the robot have to stay the same dimension the whole time?

A: No. The robot may expand but must begin and end as a 1x1x1 robot.

Q: Can you knock the deck over and pick up the card?

A: No knocking over deck

Q: Does the IEEE drawing on the Etch-A-Sketch have to be block or stick lettering?

A: No specific font, it must be readable to all judges.

Q: Does the robot have to be inside the white block to play the games at each station?

A: No, but it can enter the block if you want.

Q: Will there be minimum distances from branch to branch on the course?

A: No. Distances will vary.

Q: Do the games on the course have to be played in order?

A: No.

Q: Can I add objects to support/prop up the games?

A: No.

Q: Will the course always be 90 degree angles?

A: Yes with the exception of any arc lines.

Q: Will there be sequestration?

A: Yes.

Q: Will the games/toys be at the same spots every round?

A: Yes. All games will be in the same spots but the intersections and paths will vary.

Q: Will the road circle back?

A: No.

Q: Will there be walls around the course?

A: No.

Q: Will cameras/photography equipment be banned?

A: No, but intentional flash usage and sabotage will be handled.

Q: Does the toy have to be visible or can the game go inside the robot?

A: No. All games must remain outside of the robot and be visible and audible at all times.

Q: What does the visibility of the Etch-A-Sketch have to be?

A: The word IEEE must be readable to all judges.

Q: Will there be mock up courses?

A: Yes we will have various mock ups.

Q: Will the Rubik's cube always be a new one?

A: Each team will be given a working cube

Q: Will the cube be original or off-brand Rubik's cube?

A: Original.

Q: Can we turn any row or column of the Rubik's cube?

A: Yes.

Q: Can we place the toy in any spot within the white block?

A: Yes.

Q: Can we scramble the Rubik's cube?

A: No.

Q: Does the robot have to follow the lines on the course?

A: No.

Q: How close will the line be to the edge of the board?

A: No less than 6 inches

Q: Will there be dead ends?

A: No.

Q: Will you be penalized if you pick up more than one card?

A: Yes,

Q: Can the robot remove the game/toy from the area of the white block to do the task and then put it back inside when finished?

A: No, all task must be completed in the assigned area

Q: Will we have to set down the playing card?

A: No. Playing card must cross the finish line with your robot.

Q: Does the robot have to turn a specific face on the Rubik's cube?

A: No.

Q: What if a robot goes off the board and runs into another board?

A: We will have people will be there to grab any runaway robots.

Q: Will the Rubik's cube be solved?

A: Yes.

Q: Can the robot be powered on the whole time?

A: Yes.

Q: Can run data be stored?

A: Yes. Run data is allowed to be stored directly onto your robot. You may not use any other resources to store the data. (Example: resources that would require you to upload/download actively into your bot as it runs

Q: Should we expect there to be much ambient noise at the competition area?

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A: We do our best to keep noise levels to a minimum, we will not allow, radio, cellphones, loud speakers etc, during the testing and trails. We will ask everyone to be as quiet as possible, but keep in mind that there will be about 500+ students\faculty\attendants looking at your robot. We will do our best to keep noise\voice levels to a min but you must anticipate some noise.

Q: What's the minimum size the text on the Etch-A-Sketch has to be?

A: No specific text font or size, however it must be clearly readable.

Q: The Simon has roughly a 5 second timer before an error tone is chimed. With that in mind, can the robot leave the Simon square at say 11 seconds and move on? The error tone would still chime after 15 seconds.

A: Robot must be with Simon for 15 seconds, may not leave before.

Q: Is the turn for the Rubik's cube 180 or 360 degrees? If its 180, will points be deducted/awarded if we spin it 360?

A: Robot should only turn the cube 180 degrees either way, points will be deducted if cube is turned more or less than 180.

Q: Will each team provide it’s own games for competition runs or will games be provided by the organizers?

A: We will supply with all need games

Q: Will points be awarded to partial successes of the robot writing IEEE?

A: Yes

Q: If current time based scoring guidelines are kept, can points still be gained after the robot has left the Simon but the game-over buzzer has not sounded?

A: Yes, once the robot plays without errors for 15 sec, robot may leave the station.

Q: How close can the white line come to the edge of the playing field?

A: White lines and Squares will always be at least 6 inches from edge.

Q: Will there be any four-way junctions? That is: will there be a point in the path where there will be two separate branches to two different games as well as the way for the rest of the path?

A: No

Q: What is the qualifications for crossing the finish line? Do we need to cross over it, center over it, or stop at the finish line?

A: Robot completely cross white line carrying the card.

Q: Is there a limit to how visible the toy must be when the robot is operating on it?

A: It must be visible to the judges. Judges must see task performed by robot.

Q: Does the robot have to use the knobs on the etch a sketch?

A: Must use knobs

Q: Can we use magnetic properties to draw "IEEE".

A: No, only knobs.

Q: If an error is made in Simon, can the robot start over, play for 15 seconds correctly, and still get all the points?

A: No, once robot makes a mistake, task over. Move on to next task. Points will be assigned up to the moment of error.