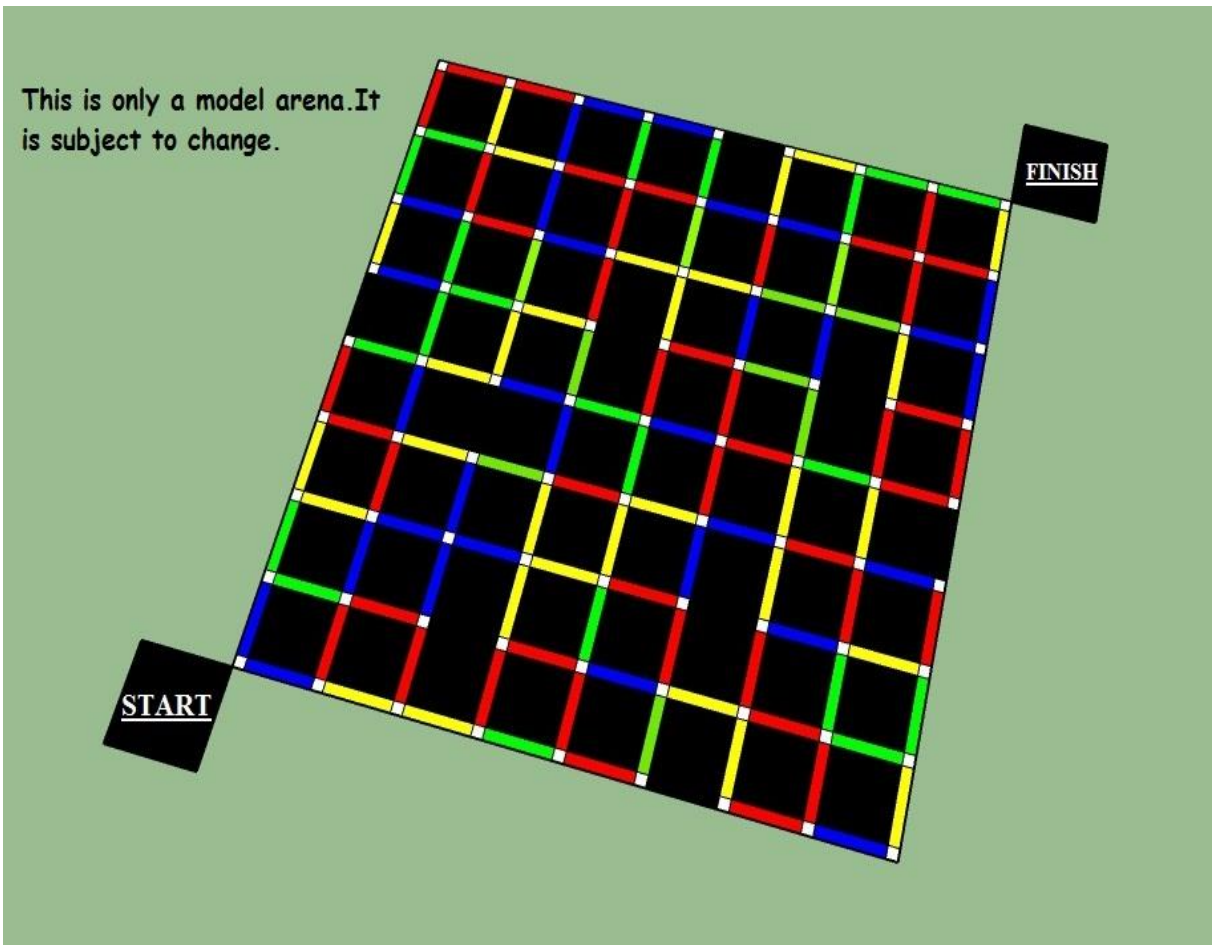
Problem statement: Image processing event

The main objective of this event is to build an autonomous robot which can use IMAGE PROCESSING to traverse from start to finish at the least cost possible (which will be explained shortly).

THE ARENA:

The arena is a black square vinyl sheet which consists of four coloured stripes - red, blue, green, yellow. These strips are arranged so as to form a series of connected grids on the black background. Each strip has a cost to travel on it, similar toll tax on highways . The stripes intersect at a white coloured square junction. A webcam will be placed above (overhead camera) the arena at the centre.



The length of each strip of all colours will be same (undisclosed).The dimensions of the arena will hence vary accordingly. Thus the size and number of grids is subject to change.

BOT SPECIFICATIONS:

- The autonomous bot must fit in a cube of 25x25x25 cc
- The bot must in any form not damage the arena. In case of doing so the team will be disqualified.
- Only an AC power supply of 220 V will be provided at the event.

CAMERA SPECIFICATION:

The camera to be used would be C270h model of Logitech. 2. You can find the specifications of the camera on ---- http://www.logitech.com/en-in/webcamcommunications/webcams/devices/7205

POINTS CRITERIA:

The cost of traversing on a particular colour strip are as follows—

red-25
blue-20
green-15
yellow-10

As the bot travels from start to finish the cost of travelling on each strip is added up to form the total cost.

The colour maze may have one or more paths with least cost which must be noted.

- **In case of a tie with reference to cost, time will be taken into account to declare the winner.**

RULES:

The teams must be prepare to calibrate their bots as per the given

lightening condition at venue.

• Full efforts will be given by the organizers at the venue to reduce the

sunlight and other lights which can affect the colour sensing of bot.

• Due to lightening there may be some deviation of the image taken by the camera so keep it as a note.

• Calibration time of 15 minutes will be given to each team before commencing of the event, and just after 15 minutes timer will start and the team member will not be allowed to change their code or touch their bot.

- The team is allowed to have 3 resets , in case of which the timer will not be stopped and the bot must begin from starting position.

- The bot cannot be handled by the participants when it is in middle of its run. To see to the bots functioning the team must call for a reset, but the timer will not be stopped.

TEAM SPECIFICATIONS:

- Each team must not exceed 5 members. They may not necessarily be from the same institute.
- Each team must have a team leader who must be present when called upon by the organizers.