TEAM ISTE PRESENTS

PRODYOGIKI

NIT HAMIRPUR

CRAZY CRAWLER

After a quite rough landing, Our 3 aliens are finally ready to explore the beautiful blue planet. And the first thing on the planet which fascinated them was a creature with legs walking and balancing on its own. Though the terrain was rough, that creature could walk perfectly. And our aliens too want to have such creature of their own.

Will it not be wonderful if you all as engineers could help them? Certainly.
So here is the description of the event in which you get the opportunity to make one.

Event:
Participants are required to make a self driven, self contained legged bot 'CRAWLER BOT' .

The bot should be capable of moving in a straight line, and has to dash through a straight course from specified start position to finish line in minimum amount of time.

The Course Specifications :

- The course/track will be straight with track length of 2.7m and track width 30cm.
- Track will have a start position with a starting line, a boundary (to visually specify the track) and a finish line.
- The track will not have any ‘walls’ as boundary. (Participants are advised to not make assumptions regarding the boundary such as: walled boundary, chalked boundary, taped boundary, etc.)
- Participants are also advised to not assume the track to be perfectly plane (although the track would be as plane as possible) and having uniform friction.

Rules:

- All the participants are required to submit their bots to the event managers at the time of registrations.
- Every participating team will be given two runs. Best of the two runs will be qualified for judging.
- The participating teams' crawler bot will be placed at the starting position by the team itself. From there, they are allowed to switch on the drive system / mechanism of the bot. Once the crawler bot crosses the start line, a timer will start.
- During the run, if the crawler bot goes off the course, participants have to align the bot without lifting or picking the bot, that is, they are allowed to push the bot in a direction perpendicular to the track length in order to align it. They will be provided with a small piece of board during the run.
- **Timeout Rule:** If bot encounters any problem e.g. If it gets desoldered or stops moving, additional time(5 minutes) will be given to the team. But 5 seconds time will be added to final performance time.
- The timer will stop the moment the bot reaches the finish line.
- At any point the participants use the board to orient the bot to stay on course, it will be considered as 'Assisted'.
- The participating teams that have constructed a bot that is not under the constraints specified by 'Bot specification' will be immediately disqualified.
- The decision made by the judges will be final and all the participating teams must abide by them.

Crawler Bot Specifications :

- The crawler bot shall only employ a legged mechanism (with no more than 8 legs) for the bot's movement. Dimensions of the bot should not be more than 30cm in width, 40 cm in length.
- The crawler bot must 'walk', support and balance itself only on its legs, at all times during the race. For example, any bot that uses its base (base of the body/chassis) for body support and uses its legs only when intending to move will fail to qualify as a 'Crawler Bot' .

Crawler Bot Specifications (Continued):

- The crawler bot shall be self-contained. That is, it should house its own energy source required for the functioning of the legs. Ex- Energy source can be a battery, spring, etc. Energy source should not be based on combustion (like IC engines) and must not cause harm to its environment in any form.
- Rotational Speed of any rotating mechanism employed for the rotation of gears, chain, or legs shall not exceed 500rpm. (* motors (or any other mechanism) of rating above 500rpm may be employed but rotational speed shall not be more than 500rpm).
- The legged mechanism employed shall be mechanical and shall use no more than 1 motor (in case electrical components are employed) to drive the mechanism. (*At max, only one motor is allowed to be housed on the crawler bot and the type of motor used is at the discretion of the participants).
- There is no restriction on the type of material used or number of joints, gears, any other physical or mechanical components used until the above 5 conditions for the bot are met.

Judging :
The winners will be decided based on the 'Track Time'. Team with least 'Track Time' wins. The 'Track Time' is calculated as:

Track Time = Best Run Time + Assist Penalty

Best Run Time = Least run time taken by the bot.
Assist Penalty = N*3 seconds
N = No. of assists.
(All time in seconds)

Team Specifications:
- All students must possess educational institution's ID card.
- Participation as 'Solo' or in a team of at max 3 students are allowed.
- Students from different institutions can be a part of the same team and participate.

For reference on the bot follow the given link:
https://1drv.ms/w/s!AkdlCVOAwsb9iQorozaj7rXV92zS