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RAAIF
ROBOTICS · BEYOND ACADEMICS

ROBOTICS AND ARTIFICIAL INTELLIGENCE FOUNDATION (RAAIF)

AGRIBOT – PROBLEM STATEMENT

Introduction

"To forget how to dig the earth and to tend the soil is to forget ourselves"
- Mahatma Gandhi

Though, technology in India has developed tremendously in the field of computers, manufacturing and Communications but the farmers suffer due to lack of technology and human resources for agriculture. Farming robots will be a boon for farmers in addressing these issues. Want to make a difference! Come build a Agricultural bot for our Green India.

Problem statement

Build a multitasking agriculture robot to execute the basic functions like ploughing, seeding in empty land and spray fertilizer for crops in farmland. Each and every function has to be done in different end effectors.

Event format

The event consists of two rounds.

Round 1

- This round will have 3 stages. Students must complete the task with minimal time and perfection to pass on the next stage.
- First stage will be to plough on the soil surface. The field will have a gardening soil not less than 5cm dense layer; the robot wheels must be suitable to rover over the ploughing soil.
- The Second stage will be seeding, where the students have to spread the seeds in the ploughed area.
- The third stage will be fertilizing the crops using sprayer.
- No trials round will be given inside the arena.

Arena: (Arena shown is subjected to the changes)

>The best teams will be selected for the finals <

Round 2

- The ploughing must be done in an orderly way.
- The seeds must be placed only on the ploughed lines.
- All of the ploughed lines must be covered with the required amount of seeds.
- There must not be overflow of fertilizer from the container. Only the required amount of fertilizer must be sprayed over the entire farm.
- The wheels of the Agri bot must not damage the crops during the fertilization.
- The Team which completes the task with minimal time and perfection would be the title winner.
- No trials round will be given inside the arena.

EXTRA POINTS WILL BE AWARDED ON THE BASIS OF

- Ability to explain the model and the working principle
- Perfection
- Knowledge in design
- Innovation

Rules and specification

- The Agri bot should fit within the dimension 30x30x30cm.
- A team should consist of 4 members only.
- The teams should have a valid school Id-card.
- The Agribot can extend in any direction after the competition begins.
- The bot should spread fenugreek seeds. Standard Quantity of seeds will be informed on spot.
- Liquid fertilizer should be sprayed. Standard Quantity of 250ml of fertilizer (water) will be given on spot.
- The weight of the Agribot should not exceed 6kg.
- The battery for the robot should be on-board.

- The Voltage must not exceed 12v at any circumstances.
- The Robot can be wired and wireless in control. In case of wired robot, the wire length should be sufficient.
- A team should have a leader or a spokesperson to interact with media, RAAIF and other audience.
- Any kind of permanent damage to the arena / stage by any bot or any part of the bot, team will be immediately disqualified. The participant has to compensate for the damage caused.
- Bring cleaning equipment to clean any spills on the arena / stage.
- Any form of changes in connections should be done after consulting to the Robotzindia co-coordinator.
- Unfair arguments regarding the non-functionality of sensors or improper wire-less communication will not be appreciated.
- Judges decision will be the final.