SMART INDIA HACKATHON 2022

Basic Details of the Team and Problem Statement

Ministry/Organization Name/Student Innovation:

PS Code: GS901

Problem Statement Title: Identification and location of voids in earth quake senario

Team Name: Learnix

Team Leader Name: SATWIK DEY

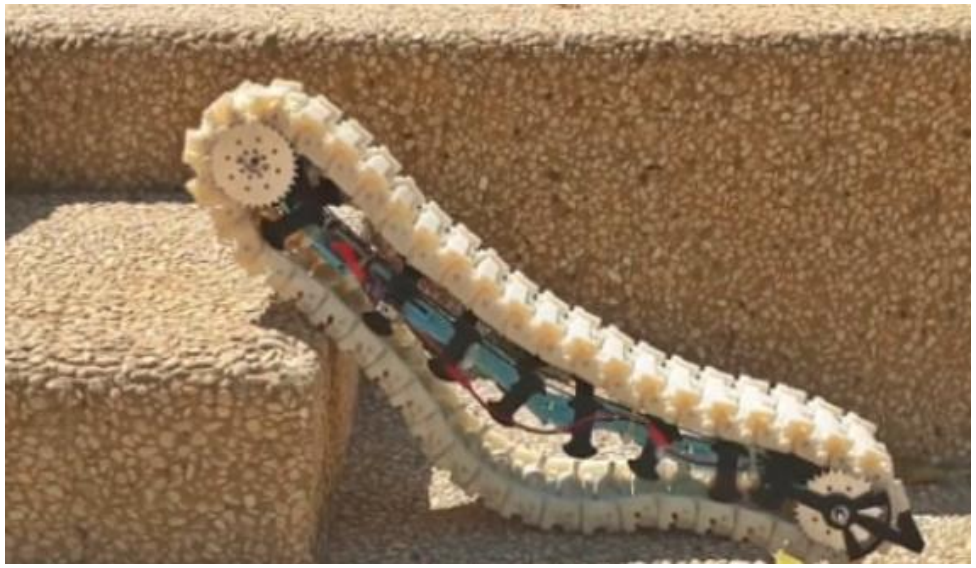
Institute Code (AISHE): -6242

Institute Name: FUTURE INSTITUTE OF ENGINEERING AND AND MANAGEMENT

Theme Name: Disaster Management

Idea/Approach Details

As the problem statement said there are areas which cannot be reached by Rescue operators easily . So we have came up with a idea to make a autonomous robot which can travel through all terrains and is very low profile so that it can pass through small cracks and holes to scan the area for void places and to detect presence of survivors inside void spaces. We will attach a Lidar and Sonar sensor to analyze and mark the voids created during the void and we will use heat sensors to check whether there is any survivor or not . The design of the robot will be based on the "caterpillar" robot and we are using the basic design of the robot made by Adam Danyal (business@adamdanyal.com) and we are redesigning and modifying it to out own interests.



Describe your Technology stack here:

- DC MOTORS
- ARDUINO MEGA
- LIDAR SENSOR
- SONAR SENSOR
- HEAT SENSOR
- BATTERIES
- MOTOR DRIVERS
- FLEXIBLE LINKS
- GEO LOCATION SENSOR

About

The Indian subcontinent has a history of devastating earthquakes. The major reason for the high frequency and intensity of the earthquakes is that the Indian plate is driving into Asia at a rate of approximately 47 mm/year. Geographical statistics of India show that **almost 54%** of the land is vulnerable to earthquakes. With every earthquake there comes death and injuries and many of the people dies waiting for the rescue. So to minimalise this problem to rare case we are designing ‘DOST’ an autonomous robot which will track people who needs to be rescued.

Idea/Approach Details

Describe your Use Cases here

- Can travel through any terrain
- Minimalistic and low profile design so that it can pass through gaps
- Identifies void spaces
- Identifies Victims(Alive or Dead)and sends signal to the rescue operators.
- In future we will try to make it more advance so that it can make a local map to help the rescue operator to reach the victims

Describe your Dependencies / Show stopper here

- Sensors malfunction
- Motors malfunction
- If any heavy material drops from height it can damage the robot

But this two can be overcome by deploying large number of these robots .

Team Member Details

Team Leader Name: Satwik Dey

Branch (Btech) Stream (CSE) Year (I)

Team Member 1 Name: Vishal Bhagat

Branch (Btech) Stream (CSE) Year (I)

Team Member 2 Name: Ananya Mondal

Branch (Btech) Stream (CSE) Year (I)

Team Member 3 Name: Raj Gaurav

Branch (Btech) Stream (CSE) Year (I)

Team Member 4 Name: Trinanjan Kumar Baul

Branch (Btech) Stream (CSE) Year (I)

Team Member 5 Name: Ashish Kumar Singh

Branch (Btech) Stream (CSE) Year (I)