Team

Wizards at Work

Members-
Shiva Gantha : ganthashiva@gmail.com
Jay Malviya : jaymalviya2@gmail.com
Kunal Dighe : kunaldighe97@gmail.com
Arindam Mohanta: arindamforyou@gmail.com

Wall-E prototype

April 9, 2016

Project Overview

A bot that can perform tasks required to acquire data or objects from places particularly not accessible otherwise. The tasks that are aimed to be performed by our bot are-

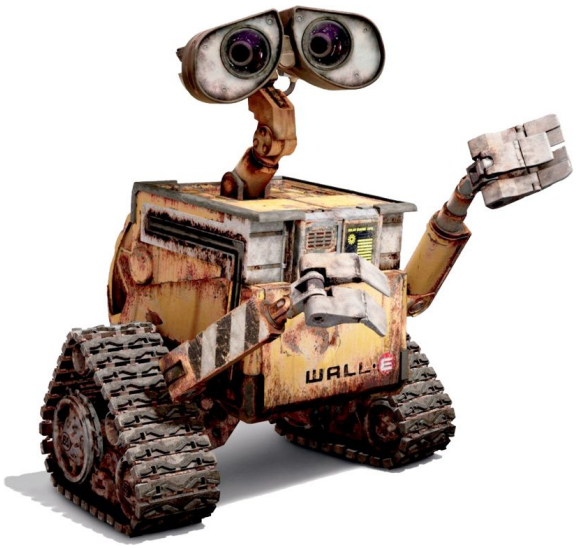
1. Travel on road and off-road tracks.

2. Elevate and lower down its main frame to avoid small obstacles in its path that it cannot roll over.

3. Lift objects and place them onto itself to carry.

4. Provide distances from nearest obstacles on 4 sides(rear, left, right, top) and give a view of its front side assisting in its motion.

5. Follow objects using image processing.



1. Motivation:

Our basic aim of building this bot is to reach out to places and follow objects not easily accessible by person.

2. Plan of Action:

Week 1 : Making the blueprint and decide upon dimensions and parts.

Week 2-3 : Make the mechanical components and learning Image Processing

Week 4 : Make the electrical circuit and integrate it with the mechanical system.

Week 5 : Debugging (#4 weeks too less. Keep more.)

3. List of components and their usage:

1. Wheel assembly (2 nos)- A belt, wheels, gears(mounted on the wheels to rotate the belt), motors, frame for mounting the motors, aluminium metal axle, .
2. Central Body- A box (of wood), battery, cameras for front view, proximity sensors for gauging distances, motor for movement of hand and adjusting box's elevation, space to keep lifted objects, arduino, transistor, jumper wire cables, Relays (or alternate switching system), capacitors, PCB, assistive light(controlled).
3. Hands- metal plate for support to lift objects, motor for rotation of support so that object remains horizontal
4. Elevation system- motors with its shaft connected to linear actuators

5. Electrical components: Arduino, Relays (or alternate switching system), proximity sensors, jumper wire cables, transistors, motors, camera, resistor, capacitor.

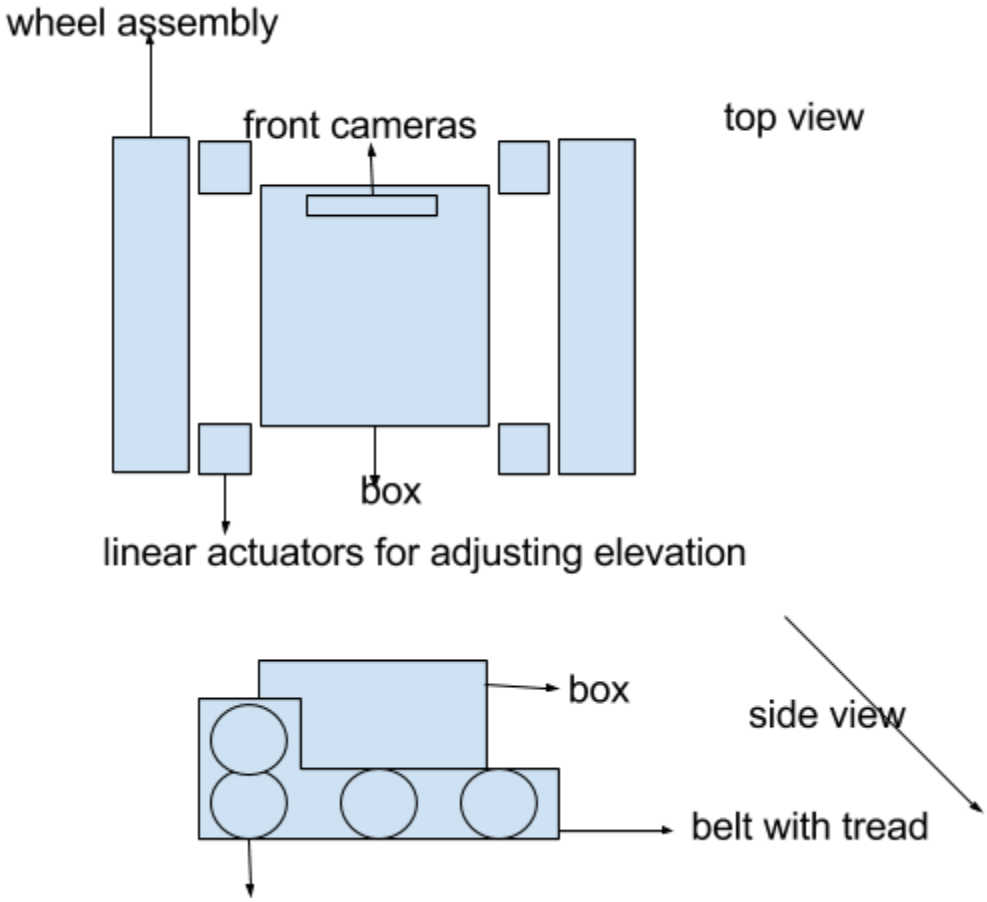
6. Cost of components:

Not yet calculated as some components have not been finalised. Final cost may be around

Rs 6,000 -7,500

7.Learning:

1. Image processing
2. Using arduino


wheel assembly
front cameras
top view
box
linear actuators for adjusting elevation
box
side view
belt with tread