## horizontal line



AndroBot

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Contributed by:

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# Overview

Broad aims of the project:

* Build a chassis capable of maneuvering itself in all 4 direction using the sensors of an android mobile phone
* Integrate this chassis with voice commands and APIs such as live video streaming, chatbot etc. Also, work on the concept of stereovision
* Alongside, work on indoor localization of the bot

# Specifications (OPEN FOR COMMENTS)

This document gives a rough guideline for work to be done in week 1 to kickstart the project:

INDOOR LOCALIZATION:

* Rishav Kumar, Ritesh Kumar, Satyam Bhartiya : Read documentation of WASP, about ESPs,arduino,Kalman Filter and Octave.

Chassis and Misc

* Sama Akhil Reddy: Proposed to integrate stereovision in the bot. However, currently we want to stick to only one camera. The solution devised was capturing two photos from known relative distance and angle, and then apply principles of stereovision on it. Introductory work should focus on learning basics of Open CV and stereovision.

Useful links: <http://docs.opencv.org/2.4/doc/tutorials/tutorials.html>

<https://www.mathworks.com/discovery/stereo-vision.html>

<http://vision.deis.unibo.it/~smatt/Seminars/StereoVision.pdf>

Point of contact, for image processing: Nitish Pant

For stereovision: Mayank Mittal

Try to achieve this on Matlab by 4th June 2017

* Ravi Prakash Tripathi, Mohd Anas

Mechanical Design for chassis:

Discuss with team on all possible electronics that will be needed and their sizes (including battery). Come up with a suitable design/idea for holding a mobile phone(s)(must be able to hold mobiles in a feasible range, look up common sizes of mobiles ). Learn basics of a CAD software. Complete design of <http://users.rowan.edu/~everett/courses/eng_graph/Old%20HW/HW%2008/webfiles/BP-33.jpg> in the first week. (Image only for reference, may choose to do any other with similar or higher level of difficulty). YOu must reach your POC before you begin.

Point of contact: Saurabh Ranjan

* Sudhanshu Bansal, Sandarsh Gupta, Manas Rawat

App

Basics of Android Studio. Come up with an application which has a proper interface and is capable of displaying the ‘processed’ sensor data from the phone of all possible sensors (including camera). Start looking up how to send this data t arduino via serial.

Point of contact: Harsh Sinha

* Suraj Verma, Ayush Singh

By the end of this week, you should have a clear idea of motor driver, servo, DC motors, arduino and other electronics required(example ultrasonic sensors). You should be able to maneuver a ‘toy chassis’ with four wheels in desired direction via commands you send to arduino. You should also be able to control the ‘head’ on which the phone will be mounted

Point of contact: Harsh Sinha, Suarabh Ranjan.