TEAM NAME: MAKDEE

(MANOUVERABLE ARACHNID KINETIC DEVICE CONTROLLED by ELECTROMAGNETIC EMISSIONS)

PROJECT NAME: ALL TERRAIN OCTOPOD

TEAM MEMBERS:

- VARUN MITTAL
- ASHWIN KANHERE
- SANDEEP DHAKAD
- ABHILASH KULKARNI

WHAT DO WE AIM TO BUILD?

- We are thinking of an 8 legged bot which can move (additional feature- while its head is in a steady position).
- We are planning to control each leg with the help of three servo motors-The Leg comprises of 3 main parts called the Coxa, Femur and Tibia which is close relation to a spiders leg- , a controller (this is a point which we will be deciding on after learning more about different type of controllers).
- We also plan to use the software- eagle for designing the circuit, solid works for designing a prototype of the bot, and **C** which helps us code on the controller.
- Coming to how will we control the bot, for that we will learn about how to make an app for windows, and thus control it using that app with certain kind of receiver on the bot to interact with the device holding the app (One of our team members already has made an app on android).

TIMELINE:

- **Preliminary weeks & First week**: In the weeks before 15th may(start of slot2) and the first week we to plan to complete all study related work-which controller should we go with, learn about softwares like eagle, also practise some more solid works, also learn about receivers which can interact with apps on windows as well as the bot.
  Also, we plan to think over different possible ways of making the circuit in such a way that we can optimize on use of minimal motors for moving in a particular direction efficiently. (Additionally, move the motors in such a way that the body remains steady).
- **Second week**: With all the information with us we plan to start working on the bot's prototype on solid works, its circuit on eagle and then move towards the building of bot. We have divided our work such that two of us would start on thinking over the logic of the actual code which would control the controller and thus the bot, and the other 2 will start getting the mechanical and electrical work ready to go-like buying the materials required, giving it for fabrication, buying components like controller, wires, motors, etc.
- **Third and Fourth Week**: In these two weeks we plan to complete the designing of the bot, the circuit of the bot and assembling all this together, by the end of these 2 weeks we will also have the actual code ready. Thus the whole bot will be ready to be controlled and tested. Also, when we will be nearing the end of third week one of us will start thinking over to app's code which will control the bot and get its pseudo code ready by end of fourth week

as we will have to make the connections accordingly.

- **Fifth week**: Making the app actually for windows OS, and finishing the bot completely, with all kind of minor work left-like some assembly work, or soldering work, etc.
- **Last Week**: We plan to keep this week for debugging the code for efficiency and also check all possible codes to check what the best for our bot is.

COMPONENTS AND ITS COST:

- 8*3 Servos-NRS-785
- Acrylic-For body of the bot
- Various electronic items-wires, sensors, ICs
- Controller
- Lithium ion Battery-12V
  Total Cost is Estimated to be About Rs 15000/-

WHAT DO WE WANT TO LEARN BY THE END?

- We are aiming to explore different streams in technology- coding, electrical, and mechanical to understand in which particular stream our individual interest lies.
- We also are trying to learn different softwares-namely solid works, eagle, **C** which will be helpful to us for all kind of further technical projects.
- We also aim to mimic the way a spider moves to the extent which we can achieve in a period of 40 days, thus learn from nature what are the advantages of that kind of movement(with a steady head) and where can this type of movement be used.

RESOURCES:

- http://www.stab-iitb.org/itsp
- https://www.youtube.com/watch?v=7L7oxoZEG-A
- https://www.youtube.com/watch?v=UAJc5Ela_3Y