**29/11/2017**

**Requirements/Goals:**

Able to identify objects:

Able to travel on surfaces with:

Slippery ground (oil expected)

Obstacles with max height 3 cm

loose sand

remote controllable - programmable with c++ - interface logical and easy to use

detect different materials and classify them without human interoperation: (58mm diameter x 112mm height)

possible materials:

|  |  |  |  |
| --- | --- | --- | --- |
| Materials | Property 1 | Property 2 | Solution/sensors required |
| G | 67k Hz radio modulated at 151hz | Acoustic signal at 40k hz |  |
| N | 67k Hz radio modulated at 239hz | Magnetic field |  |
| D | 103k hz at 151 hz | Magnetic field |  |
| B | 67k Hz radio modulated at 239hz | none |  |
| C | Infrared pulses at 421hz | none |  |
| Y | Infrared pulses at 607 hz | Acoustic signal at 40k hz |  |
|  |  |  |  |

Under £50

**Project Management**

project manager: Jerry

secretary: Debbie

account manager: sheng

editors/directors: Leonidas / Sergei

3 parts of work:

1. Mechanical: sheng, Sergei

Overall design for the rover

PCB

Motor driver

1. Programming: Debbie

Arduino

1. Sensors: Leonidas, Jerry

Infrared detection

Radio wave detection

Magnetic field detection

Sound wave detection

Deadlines

Spring week 7

-carried out studies

Things we need for client meeting 7th of Dec:

1. More structured word document
2. Gantt Chart

Goals by the end of this term(Christmas)

1. Knowing what we need to build up the rover and budget distribution
2. Complete sensors studies i.e. logics, how we use them. What sensors we need
3. Mechanical: general idea of overall structure, detailed structure in some parts
4. Logics behind programme, general logic or solution to each problem encounter

**06/12/2017**

Main goal:

1. To share the results of our individual research, i.e. what sensors to use, what type of inputs/outputs each rover component needs to have in order to be programmed and controlled using the Arduino. (30 mins)
2. Complete preparation and print out documents needed for client meeting tomorrow (30mins)

Decision made:

Part 1

* Each part we plan to implant on the EErover needs to be able to operate with either digital signals or analogue signals.
* Sensors needs to be able to give feed backs in either digital or analogue signal form to the Arduino.
* Tank track idea was discarded as it is way to slow and since the rover is remote controllable, we don’t necessarily have to go over the encountered obstacles.
* Sensors/sensors circuit we might want to use are:
* however further research and need to be done by Jerry and Leonidas, to be complete before next meeting. We want some options than we can test which ones fit our system the best.
* General sketched diagram of the mechanical design of the rover was purposed by Sergi and Sheng, it can be completed once we know all the component we want to use.

Part 2

* Gantt char was made by Sheng, and modified by the rest of the group members.
* Ten most important pds element were identified by the group together and explained in detail.
* Individual work assigned for each member to be completed before next week’s meeting on Wednesday.

Plans for the future:

* We should soon list out all the component options we can use.
* Once we know we want several mechanical designing options. Evaluate each option and come up with the top two designs and keep working with those two.
* Needs to contact the department/client members, to clarify whether we can purchase our own materials/components or they all have to come from the departmental store.

1. Performance: To complete all the tasks, explore a storeroom with 3 different conditions and identify the 6 different materials
2. Environment: 3 Different surface conditions
3. Life in Service: Enough to complete the task
4. Maintenance: What does the client wish for?
5. Target Product Cost: Under £50
6. Competition: Correct identification, least amount of time, logical and straightforward interface
7. Shipping: Delivery of final product to the competition by ourselves
8. Packing: Safe transportation
9. Quantity: 1 final
10. Manufacturing facility: 3D printing, Imperial EEE Labs, Human labour, computers, Online Ordering
11. Customer: Willing to adapt our project to client’s needs and meet their requirements
12. Size: No limits, but not much bigger than the EEEBug. Small enough to travel freely
13. Weight: Not too heavy, but not much concern
14. Materials:
15. Product Life Span: Live until the competition
16. Aesthetics, Appearance and Finish: Tidy / Easy to debug / Easily interchangeable and accessible parts
17. Ergonomics: Group division, efficiency and group planning on final design
18. Standards and Specifications:
19. Quality and Reliability: Reliable enough to identify materials without fail and not easily broken
20. Shelf Life:
21. Testing: Several Isolated tests and overall test which will be as similar as final test as possible
22. Processes: Gantt chart showed, group planning
23. Time Scale: Deadlines, shown on Gantt chart
24. Safety: Not high chance of injury
25. Company Constraints: Our abilities
26. Market Constraints: No Plagiarism
27. Patents, Literature and Product Data: No Plagiarism from other groups
28. Legal: “Probably” not going to break the law
29. Political and Social Implications: Not applicable
30. Installation: Combining individual parts after testing, combining program to hardware
31. Documentation: Group common document, group dropbox, group record of subgroup processes, Facebook group chat
32. Disposal: Easily disposable materials / parts (non-radioactive / toxic)