Logbook

This is the logbook for our project. You can find weekly updates on the progress of our project.

Weekly Report

1st Week Report

-The first week was about team building. In the beginning of the week the group was divided into 5 different teams. We started breaking the ice by interviewing each others in pairs and had a couple of exercises with the teams.

-On Wednesday, we took part in a team building activity day in the old factory near Campanha. We created mascots and activities for the other groups to try and we also participated in other groups activities to help create a bond and trust between us.

-On Thursday, we spoke about the list of projects and about the summary of projects and we talked about our project options and we choose our fields of study and we choose 3 options for the beginning.

-On Friday we had a summary of the team building with Mafalda. We saw the movie of our photos from the team building activities.

2nd Week Report

This week we started some new classes. Such as sustainable engineering, Portuguese language and marketing. We learned our project subject and we started to plan and complete the Wiki. Furthermore we looked into the state of the art concerning existing drawing robots.

3rd Week Report

We learned that we should work on the marketing potential of our idea. It is a challenge to find the right market for our project. We feel other groups have an advantage, as their marketing goals are a lot clearer. We divided tasks among team members and created a Gantt chart. The planning of our project is much clearer now. We had an introduction class to Arduino which we will very likely use during our prototyping phase. A brainstorm created a better image of the direction we'd like to take in this project.

4th Week Report

In this week, we have met for work togheter for our cardboard scale model of the structure. Also we have brainstormed about system schematics for our project and we played a bit for the classroom with Arduino board and some sensors about temperature and light. We finished the week with a new

course about Ethical and Deontological Concerns that will help us to continue the project.

5th Week Report

In this week, we have brainstormed about the possibilities to detect paper if it reflect the light or not. Also, we improved our system schematic. For complete the list of materials, we have decided to use 2 DC motors for movement of the robot,one stepper motor for change the color, an arduino board and and a shield for arduino for create and recognize the sound.

6th Week Report

We have been working hard on the final list of components, including local providers and the calculations. Together, with obtained help from EPS supervisors and valuable feedback, we were able to finish it properly. We experienced huge amount of problems with producing electrical circuit and breadboard schematic, but our meeting with both Paulo and Manuel allowed us to bypass those difficulties. Above that, everyone was working on his chapter in the Wiki, regarding topics on the interim presentations, which are the Project Management, Marketing, Sustainable Development and Ethics.

7th Week Report

In the 7th week, we rerouted the circuit schematics so that it is clearer to read for the customer. We are all working on our parts of the wiki to ensure that it is ready for the deadline along with the interim presentation. The final components list was also uploaded to allow the components required for the system to be ordered. The results of the Marketing and Portuguese language tests were uploaded to the portal.

8th Week Report

The main focus in that week was improving the interim report, regarding all the obtained feedback. Mostly we had to face dozens of grammatical mistakes, with using improperly language for Report writing. Taking the report design in the consideration, we have created totally new structure on our own, including custom page template and organizing everything in clean and correct way. We had hard time with completing the Bibliography chapter correctly.

9th Week Report

~Student Week~

10th Week Report

In this week we had a meeting with Manuel and Paulo regarding new problems with our components list. We changed the two micro controllers to one easy to use board, in order to control DC and

stepper motors. Instead of buying a chassis, we decided to print 3D model at ISEP. We also changed our 9V batteries to 6xAA, to be able to recharge them lately. At last, we decided to add user feedback during giving voice commands to our robots, by implementing 2 LED diodes: Red and Green one.

11th Week Report

11th week was the week when we finally got our components that we wanted and can start building the prototype. We were behind on the schedule but we still have time to finish everything. There is also a need for more wires and screws. There are still things we need to figure out and can finalize the 3D drawings for the printable materials. For example battery placement and connections.

12th Week Report

In this week we have finished the final drawings for 3D printer and we just have to wait for that. The testing process have started and what we should to do is to develope the code and then to improve it. We have fixed the problem with Arduino and now everything is going properly. We also started the paper and we have to focus more for some stuff included in this paper.

Meetings

1st Meeting (2016-02-25)

Agenda:

1. Presentation
2. Modus operandi
3. Project proposals
4. Electronic Logbook

Minute:

We learned how to log on to the wiki and edit posts. We started to think about the most suitable projects for our team.

2nd Meeting (2016-03-03)

Agenda:

1. Why did not we get the Didactic robotic fish kit project
2. Where do you see the market potential for this idea
3. Who is going to be our customer
4. What are the provided materials mentioned in requirements?

5. What do you mean with distinct colors, should the robot change them on itself or only we can provide another pen or something?
6. If we are going to use the Arduino board, do you have them or we are obligatory to buy new one?
7. Regarding mechanical parts, do you have some stuff available,´like lego development kit or some other one like this one http://www.amazon.in/gp/product/B008DHZDCC?psc=1&redirect=true&ref_=ox_sc_act_title_1&smid=APNYPE013MBRP
8. Do you have some engines to provide?
9. do you have any PCB or Bread board?
10. Do you have any sound sensor?
11. Do you have any Nut and bolts?
12. do you have any Caster wheels?
13. Considering changing the drawing paper, can it be done manually by a human?

Minute:

Before acquiring any materials we should prove we need them. The market potential should be discussed with the teacher of this subject.

3rd Meeting (2016-03-10)

Agenda:

1. Do you have an arm for us to use?
2. Do you check the wiki weekly? How do we receive feedback on the tasks we complete in the wiki?
3. What do you think of marketing this product for kids to involve them in the programming (like the fish)?
4. Are there instructions or is there a template for completing the structural drafts and drawings?

Minute:

We got our answer about the robot arm and now that we are not provided with one we will have to discuss the matter further. Also we need to take another look at our Gantt chart because we were told that our scheduling does not make sense. Our idea about making the project about learning programming to kids turned out to be not such a good idea after all. So we will need to brainstorm again regarding this matter.

4th Meeting (2016-03-17)

Agenda:

1. What do you think about our idea to involve the user more. We would like to limit the robot so it only knows 5 commands → start, up, down, left, right. This enables the user to draw with his or

her voice.
2. Is voice recognition achievable without Internet connection?
3. What do you think about the Gantt chart, the blackbox… we made?
4. Is the blackbox equal to Structural Draft and System Diagrams?
5. How long should the interim report be?
6. Would it be possible for you to make a schedule for the meetings every Thursday?

Minute:

We have discused the way of interaction between the user and the robot. We figured out that the best way is going to be a mix of user commands with default random behavior of the robot. Regqrding the use of voice recognition we have to check the EasyVR shield 3.0 to see if it is useable for our project. Another way to use voice commands would be by checking the frequency of the sound made by the user. A higher sound (e.g. a whistle) would give a high frequency. We have to improve our system diagram by using colors and doing so, making it more clear. According to Manuel, the final report should contain 327 pages. We can not shedule Thursday's meeting due to previous bad experiences with this system. Additionaly, it is necessary to provide a component table. This table should consist of power consumption, voltage power, current consumption and price. Last but not least, we must use BibTex plugin, to complete the Bibliography and not only hiperlinks from wikipedia.

5th Meeting (2016-03-30)

Agenda:

1. Is is possible to detect the paper and table surface with a simple IR Receiver Module? If so, how do we achieve that?
2. Are the breadboard, system schematics, cardboard model and structural drawings that we uploaded what you were looking for?
3. IF we decide to use IR detector, where could be the best possible location for it?
4. Is there any way we could connect the motors in a more simple manner?
5. We have decided to detect sound level(how loud) instead of frequency or exact voice command. Is it acceptable?

Minute:

We have discussed the possibilities to detect paper if it reflect the light or not to see if the robot is on the paper or outside of the paper. We should to take another look for the system schematics. We have discussed about the motors that we need and we have concluded that we should to use 2 DC motors for movement of robot and a stepper motor to change the color of pen. Regarding the use of voice recognition, we have decided to use the EasyVR shield 3.0.

6th Meeting (2016-04-07)

Agenda:

- Is our list of components acceptable?

- Is our new (system schematic) electronic circuit correct?

- Has our new breadboard been created properly?

- Are our electrical calculations correct?

- We would like to know if you can help us with a stepper motor ?

- What should we do ?

-How should the interim presentation be? Do you have any good examples?

Minute:

Our list of components has some mistakes regarding correct language, digits, symbols… For the battery the critical value is the maximum voltage used by one of the components. Voltages are not added. In the report pictures and tables should have descriptions. The pictures should be bigger and readable on sight. We should check the latency of our VR-shield. A test should be conducted where one team member plays the robot and another a child. Consider a new name for the robot. The interim presentation should be 10 minutes covering all work done so far.

7th Meeting (2016-04-14)

Agenda:

1. Is the components list acceptable?

2. Are the schematics better than the previous version? As we are unsure that it is correct.

3. Which part of the report do we have to work on more?

Minute:

We must calculate the power budget of our robot. This is a forecast towards the kW/h our robot will use. We have to contemplate the different states of our robot: on, moving and color changing. The stepper motor is not connected in our schematics. Dimensions should be added to the structural drawings. Considerations must be made regarding the use of pens or crayons. Crayons might add some value for children. The tables should be corrected to follow the correct template. The electrical diagrams have to be described. Some remarks regarding the words we used in our report were made.

8th Meeting (2016-04-28)

Agenda:

1. When do we receive our components for the robot?

2. How do we complete the bibliography as we cannot seem to link each reference to the piece of text in the report?

Minute:

We really need to adjust the part where we state: 'as measurements prove'. The battery we chose only lasts for 20 minutes. This is not sufficient. We must find another one or a rechargeable one. The stepper motor has the wrong amount of steps per revolution. We must adjust this. We discussed the possibility to use the speaker output on the VR-shield. This would provide more feedback but also use a lot of battery. Another option preferred by the team is using LED's for feedback. How are we going to build the structure? Cork, wood or 3D-printing were suggested. We are considering these options and will most likely make a combination. We have a sponsor: IT sector. Incorporating the logo in our prototype seems a nice idea.

9th Meeting (2016-05-12)

Agenda:

1. Is our new components list acceptable?

2. Do we need to buy our pcb for the robot?

Minute:

Regarding the component list: find a caster ball on bot 'n roll instead of polulu because of the transportation cost. Add a battery jack to connect the battery and arduino. Order more than 10 euros from elektrofun to get free transport. The hyperlink to the motor and wheel are wrong. Another battery will be used, proposed by the EPS team. For the PCB we will use a mechanical one because Fraser has some experience with these. The connection to the Arduino should be accessible from the outside. An on/off switch should be added. Add a quantity and supplier column to the lit of components. We received a stepper motor, cables, a breadboard and a speaker from the EPS team.

10th Meeting (2016-05-19)

Agenda:

1. What kind of things do we need to cover in our functional tests and results report?

Minute:

Most of our components had arrived but we are still waiting for components that are coming from electrofun. Arduino did not have an USB cable included in the box but we will be getting one later today. All the materials we obtain has to be kept at school. In the workshop we can not use materials without asking, only the tools and the working place.

The charger that we are using for the battery will be shared with team 3. They have it already and we have to discuss with them when we want to use it.

In testing phase we need to show that all the functions required and chosen for the project are working. Maybe even test the voice functioning outside. Also we could show our drawings that we make.

11th Meeting (2016-05-25)

Agenda:

1. Can we get some more long cables?

2. How do we physically connect the battery to the Arduino?

Minute:

We received some cables to cut and use. We will get a piece to connect the battery and the arduino. The 3D drawings are almost finished and will be printed as soon as possible.

12th Meeting (2016-06-02)

Agenda:

1. We uploaded a draft of the paper, could we already receive some feedback?

2. Does Manuel have the adaptors for us?

3. Do you have any idea when the 3D printed parts will arrive?

Minute:

After this meeting we have to focus more on the paper regarding about existing product and we must include a lot of referinces everywhere. Regarding about the table from paper, we have to reduce the informations and to make it clear and to avoid the links. If we need some components like screw and nut, we must to create a list of materials which we should to include the dimensions and quantity. For the user manual, we should to put on there how the robot is working and how to fix some little issues,

how to charge the battery, autonomy etc. Finally, we have to create a video regarding about our experience during the project in EPS Group and the video presentation should have no more than 2-3 minutes.

13th Meeting (2016-06-09)

Agenda:

1. We uploaded a manual and poster, could we get some feedback?

2. Do you have our mechanical parts?

3. Do you have any idea when the 3D printed parts will arrive?

4. Can we cut the cables from the LED or do you have others for us?

5. Regarding the final presentation, is the video included in the time limit of 10 minutes

6. Could you check our connections before soldering, not to destroy our 3rd Arduino?

Minute:

1. Changes poster: use European English, consider using the same ribbon as for the flyer, no periods, pictures in blue like the 3D model or customization. Changes manual: use the same e-mail, specify the battery and charger, pen changing could be better explained, some spelling errors.

2. Monday

3. Monday

4. No

5. Yes, the video can even be your presentation.

6. Yes

Activities

Please register here all project activities

Start	End	Task	Description	Who