

Assignment 2 - 1805950

by Lauren Davies

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Assignment 2
Enterprise & Innovation Group Project

1805950
Lauren Davies

Contents

Introduction	3
Ideation	3
Illustration.....	4
Development	5
Marketing Plan.....	9
Conclusion.....	10
References	10
Reflection	11
Networking	11
Team-Working	12

Introduction

The product that has been in development is GMI (General Medical Information) band, which will be able to be scanned by emergency services in order to obtain the wearers medical history in order to assist them further. During the development of the band, it was decided amongst the team that swapping from the Business area (as being in this area and completing graphical designs of the bracelet meant an extremely high work load) therefore it made sense that being reassigned to the planning and production role had benefitted the team and created an improvement to both areas, including time management due to the members being in their specialised fields.

During the course of implementing the ideas of the bracelet, the Planning & production member would create/design the main section of the bracelet within the 3D modelling software (Autodesk fusion 360), which then would have a QR code added on the top side, as a RFID chip coding would prove to be too much of a work load given the time frame that was set to produce the prototype of the bracelet.

Ideation

The product in development is the Medical Bracelet, this band will store all medical information about the wearer on a QR code, which can be scanned by paramedics in order to view this. The QR code will have security implemented it so only those with authority can view the data stored. The bracelet as a prototype will be created using a 3D printer, it will then have a QR code laser cut onto the bracelet. The team had previously come up with the idea to have a RFID chip implemented into this, which has the medical information stored on it, in order to make the overall design implementation less complicated and time consuming the QR code was chosen due to its simplicity and easy use.

The medical bracelet first had a design created by another member within 'Health Helpers', Elliot. That initial design was taken further, and other bands were created in order to be suitable for storing a RFID chip (for the first prototype, it is now a QR code).

1st Stage
Chip to make and replace
Emerging loop

2nd Stage
Microchip placed on back of ring
Chip that it cuts the wire bond in place

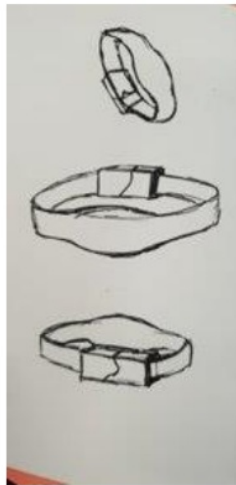
Expensive to make and replace

might be done out of a factory or place

might be done out of a factory or place

Chip that it cuts the wire bond in place

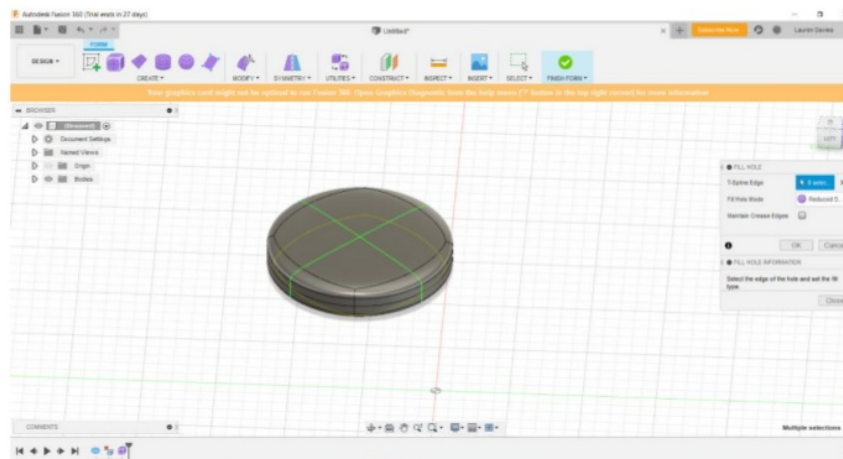
Second Bracelet concept (Davies, GMI Band second concept)



Kids band concept (Davies, GMI Kids concept)

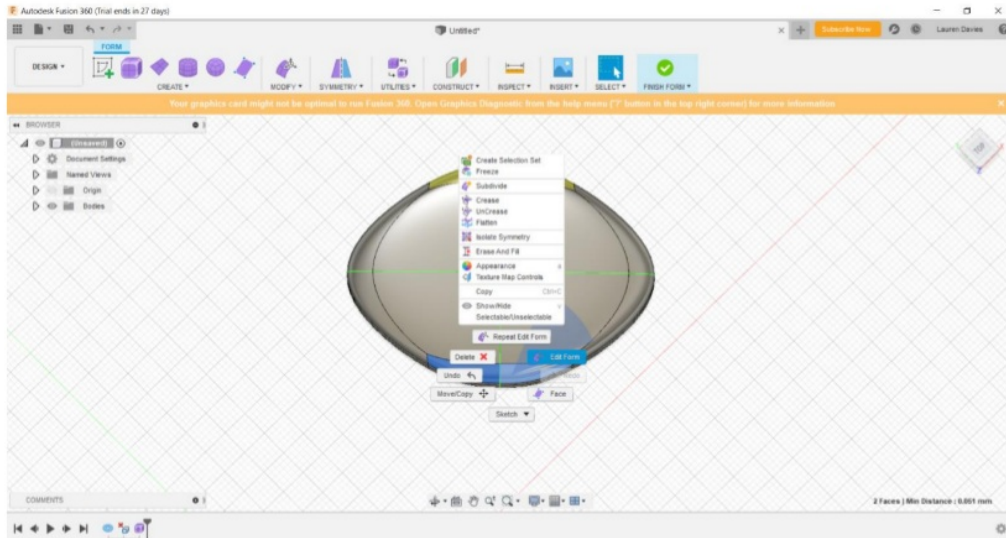
Development

In order to develop the medical bracelet, the software Autodesk Fusion 360 was used. This software is an advanced 3D modelling software, which can also be used to print via a 3D model printer. There are different objects that can be created using measurements in order to make a desired product.



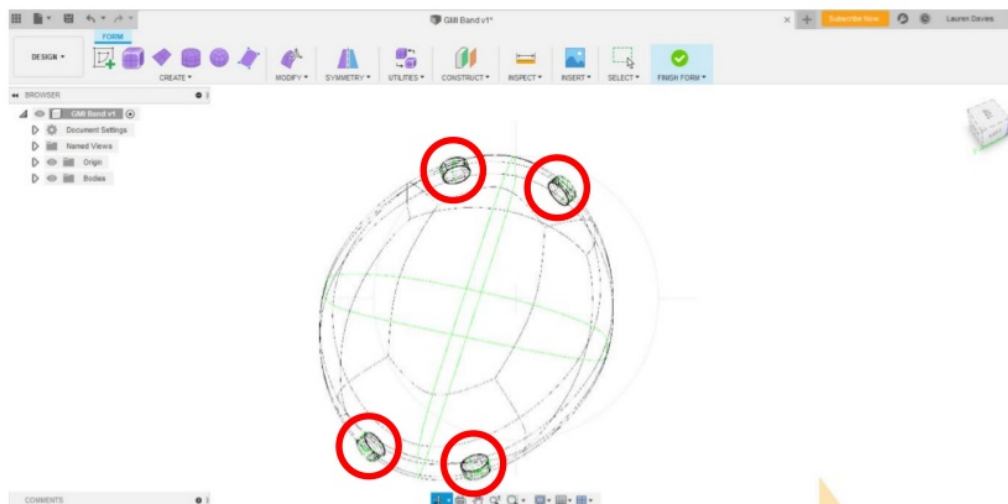
(Davies, GMI Band Autodesk fusion, 2020)

This screenshot is the first step of developing the main component of the bracelet, which will have the QR code (Or the RFID chip inside) placed. The first step was to create a cylinder object, then fill the top and bottom part of it, this was done in order to create a solid object. The tool symmetry was selected on the X and Y axis of the band, to ensure a that there were no imperfections.



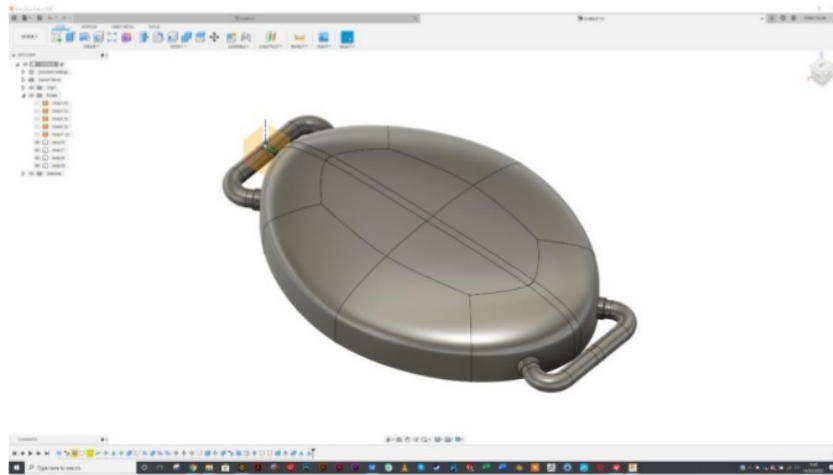
(Davies, GMI Band Autodesk fusion, 2020)

In order to manipulate the component selecting 'Edit Form' allows the user to pull or push at different angles, allowing it to stretch/shrink. This selection allows the user to rotate it vertically or horizontally to allow easier access to other areas.



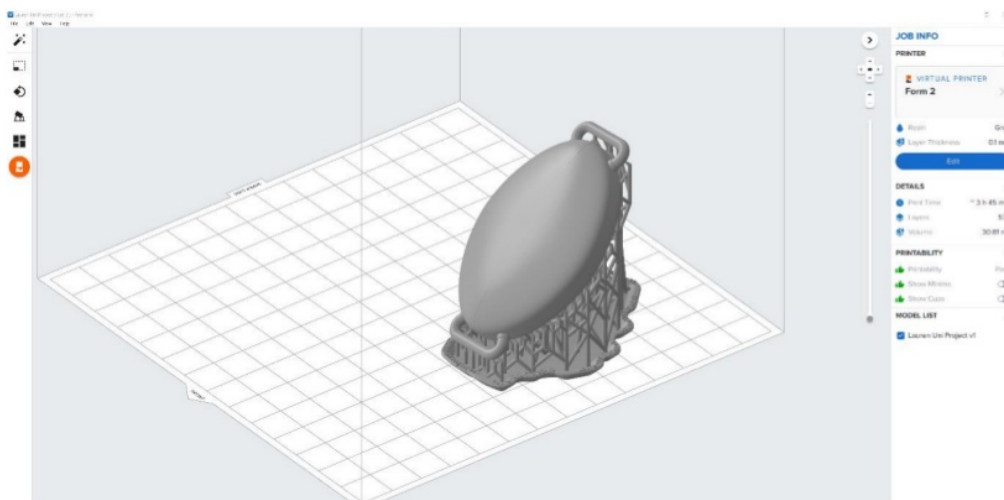
(Davies, GMI Band Autodesk fusion, 2020)

In order to assemble the wrist strap holders, this part was transferred into sketch mode, to make sure that all the addition parts (that are circled) were correctly lined up to avoid any issues when adding on the bar.

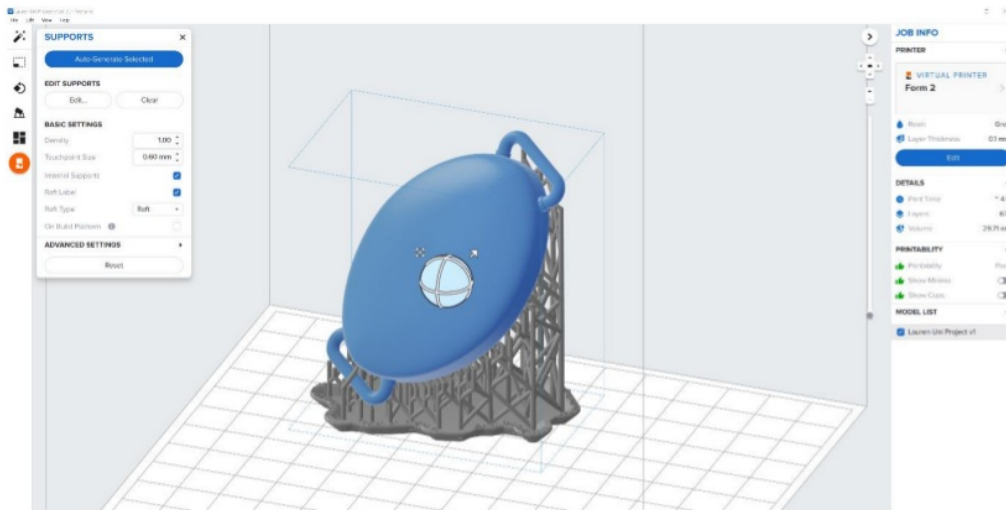


(Davies, GMI Band Autodesk fusion, 2020)

This is what the component looks like after finishing its overall design within Autodesk. After making sure the model was completed it was then sent to the 3D printer, which uses resin, in order to make the first part of the prototype.

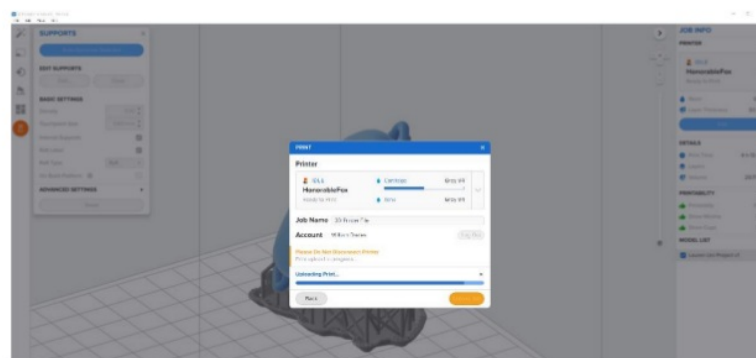


(Davies, GMI Band Autodesk fusion, 2020)



(Davies, GMI Band Autodesk fusion, 2020)

As shown in the images above, once the model has been sent to the 3D printer, the software will generate a structure in order to provide additional support whilst the model is being built in order to avoid any possible damages, although sometimes failed prints can happen due to excess resin clumping on the build.



(Davies, GMI Band Autodesk fusion, 2020)

From the software Autodesk Fusion 360, the option is chosen to send the design of the model that was created to the 3D printer where it can be constructed.



(Davies, GMI Band Autodesk fusion, 2020)

The photo above shows that once the file has been exported from Autodesk to the 3D printer, it then displays the structure of the model (what it should look like) once it has been completed. The printer builds model from the bottom to the top.



(Davies, GMI Band Autodesk fusion, 2020)

After the 3D printer has successfully built the model from the .STL file, it then need to be soaked in a liquid called Isopropyl Alcohol (Industrial masks are important for this) in order to dissolve any liquid resin that is on the model left over from taking it out of the printer (formlabs, 2018).



(Davies, GMI Band Autodesk fusion, 2020)

After cleaning the model using IPA, it is then left to dry for 30 minutes, and then put into a UV drying machine, although it can be put out in sunlight to dry but due to bad weather this couldn't be done.

Marketing Plan

During the process of creating the medical bracelet, the product would need to have a logo so that it would clearly represent what the company and its members stood for. As all medical bracelets have a caduceus (Prakash & Johnny, 2015), and everyone recognizes it as a medical symbol, it was important to have that still represented to show what the product was going to be used for.

(Initial sketch of caduceus symbol - (Barnet E.))



Due to this product also being created for all ages, an idea was created so that children that had also required/needed the band due to their health, would also have the impression of wearing the bracelet as a positive rather than a negative.

(Davies, GMI Kids Logo)



Conclusion

Overall the progress of the GMI band has had minor issues that were addressed, such as the implementation of the RFID chip, which was later replaced by the QR code, however this is something that could be used in further developments of the GMI product. The GMI band as a whole has proved to be a successful project, although if there was a larger timescale available, ideas such as the RFID alongside the GPS tracker is an idea which the group would find ideal in order to provide improvements.

References

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formlabs. (2018, Aug 14). *formlabs*. Retrieved from Isopropyl alcohol:

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Prakash, M., & Johnny, J. C. (2015, Apr 7). *Caduceus*. Retrieved from U.S National Library Of Medicine: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4439707/>

Reflection

During the process of creating the GMI band, the use of Photoshop skills were able to be more developed due to having to use new tools in order to design sketches and different concepts of the medical band, including the installation to protect the RFID chip) along with the clasps to provide a secure wristband. Autodesk Fusion 360 was new to the planning and production member as it was a software that was only just introduced in order to create a 3D model of the main component of the GMI band.

The use of communication and team working skills were essential for ensuring the progress of the product and producing the prototype, to show in the demonstration. Each individual member had their own time schedule to follow in order to reach our deadlines set by the team leader, which meant having strong time management skills.

Networking

In order to improve an understanding of the business industry and starting a new company with the GMI band, a networking event needed to be attended. There were multiple talks held at the university about how to start a successful business, such as having resilience, meaning to not giving up on something that would provide a great outcome in the long term. An online webinar was available by Big Ideas Wales, called 'Running a Business' which provided a more in-depth analysis on business' running. However, due to circumstances beyond control, the webinar was later postponed due to current situations.

Team-Working

Team Progress Sheet

11/03/2020

It has been decided, we are using resin in a 3D printer to create the section where the barcode will go and will be using a silicone strap to keep the band on the wearer's wrist. The holder will be created on the 14/03/2020 and the band will be completed within a couple of days after this. The final prototype will be completed around a week before the final pitch.

09/03/2020

The team are still edging more towards using a 3D printer, we have been evaluating the original designs for an RFID chip and have decided to change up the original plans. The team no longer want to use an RFID chip and are instead going to use a barcode – we feel as though this would be a better option as there are many complications with RFID chips not being readable through some materials.

26/02/2020

There were no formal meetings over the past two weeks however the team have been discussing different options over Facebook Messenger. We are toying with

the idea of 3D printing a medical band – this seems like a good idea. There are 3d printers on campus however it seems like there may be a better option available, allowing a team member access to Maya.

12/02/2020

Team meeting today was focusing around attempting to understand and review a bunch of materials that we feel maybe a good idea – we discussed using recycled materials but as of now it doesn't seem like a feasible idea, maybe in the near future but not for the final prototype. The meeting lasted a long duration of time – 1hr, and still we have not decided properly upon a material we want. We are, however, still confident on being able to complete the tasks within the correct amount of time.

29/01/2020

The progress made today was heavily focused on discussing materials, member of the team highlighted that making bands out of recycled materials may be a good idea and would be more economically friendly, this idea was well accepted by the group and is a definite possibility to take this forward.

Note: materials still seem to be the primary issue, this needs to be resolved

23/01/2020

Health Helpers

Having done well in the presentation the team were feeling reassured and pleased with the progress of the pitch. The team has decided that the primary aim of today is to discuss materials which is proving to be our primary issue, whilst we are still leaning towards using silicone we are still unsure as to what we want to do. This task is now our primary focus.

Notes: need to get together to discuss materials

16/01/2020

Health Helpers

Today the team came in early to rehearse for our pitch, which is also today. Rehearsals went well and team members seem to be benefitting from the role switch, which has allowed each team member to work more productively. Team received the overall grade of 78% on our pitch. The team were very pleased.

15/01/2020

Health Helpers

The team have finished their own sections of the presentation so today's meeting was mainly to merge the presentation together and to rehearse. The group seem to have completed great work and the presentation tomorrow looks promising.

Notes: pitch is tomorrow, so the group should come in early to practice.

14/01/2020

Health Helpers

The main focus of today's meeting was to further discuss the materials that we need, what suits the band best, and to discuss the next presentation we have and our progress. It's been a week since our last meeting so in this time a lot of work was done. The team is still unsure about what materials we should be using to create the band but are still leaning towards using silicone. The team then discussed the progress on our own sections of the presentation and came together to solve minor issues.

Notes: the teams focus is to complete the presentation that is on the 16th of Jan – team is making great progress but worried about the development of the band.

07/01/2020

Health Helpers

The team got together today to discuss how each member had coped preparing for the presentation – there were some issues found primarily within the role distribution, it seems there were a rather large amount of crossed lines making some tasks hard for some members to complete, so the roles were switched. Lauren and Connors roles had a bit of a shake-up but the group were confident in this change and believed it would allow for a better experience for both team members. The group also put together the preliminary design for the next presentation that we have – task moving forward is to start working on the presentation and rehearse.

Christmas Break

13/12/2019

Health Helpers

Christmas break is essentially right around the corner, this meeting was taken as a chance to discuss any important factors in regards to the development of the band and how it would work. Team has another presentation about the band after Christmas break – tasks were distributed and discussed so each team member knew what they were doing. Overall, today's meeting was rather large and covered a lot of basis. Successful day.

07/12/2019

Health Helpers

Having completed the first presentation on the idea of the product, the group has decided that it is time to start planning for the actual production of a prototype – the meeting today primarily focused on talking about which materials could be used and how to make it work for a large demographic. As the team have decided that it is within our best interest to attempt to make a partnership with the NHS, the user base would be quite large, meaning we would have to accommodate for allergies people of different sizes. As it stands we are looking at silicone for the band, with metal clasps holding the band together on the wearers wrist. The RFID chip would be inserted into the rubber band.

Notes: As the group is not yet entirely sure on the materials of the products needed, we shall continue to discuss this.

04/12/2019

Health Helpers

Present: All group

Today's progress was good, today was the day of the presentation. The group met up roughly an hour early in order to rehearse before it was time to go to the actual presentation. Rehearsals went very well. The presentation went well too, this was a success for the team.

Notes: The team should meet up again within the next few days to discuss the progress of the next task.

Date 03/12/2019

Team Name: Health Helpers

Present: Lauren Davies, Elliot Barnett, Joshua Batchelor, Nicholas Evans, Kaylie Shoulder

Absent: Connor Stock

Goals: As the first pitch should be presented tomorrow, the main aim of today is to ensure the entirety of the presentation is completed to the best of our

ability; it should be missing no information and all sections should be completed. The group should ideally run through the presentation to ensure that everyone has stayed within their allocated time and have enough information. Presentation should be cleaned up to look presentable.

Team Report #5:

Today the team completed a series of tasks – the presentation was completed, and each member of the team was able to practice their sections of the presentation. We are pleased with the progress of the group today and we have gone over the presentation to ensure that each section is completed, and the designs align with each-other to ensure consistency within the group's sections. Final touches were made and facts were fact-checked.

Date: 27/11/2019

Team Name: Health Helpers

In Attendance: Connor Stock, Elliott Barnett, Kaylie Shoulder, Lauren Davies, Nicholas Evans

Apologies: Joshua Batchelor

Team Goals: The primary aim of today's session is to continue to develop our first pitch which shall be presented on the 6th of December; each member has been assigned a specific section of the presentation and this now enables us to start the correct development. We are limited to a week, so it should be done by then. This is today's focus. Some other sub-tasks are to consider which brands of product we want to use for our product and research the price.

Team Report #4: Today the team agreed on a presentation design and started the development of the pitch – we have made great progress today. We will continue to develop our presentations within our own time. It will be completed by the deadline.

Notes: The team should find time to practice the pitch beforehand in order to ensure the team delivers it correctly on the day and we each know the timings.

Date: 20/11/2019

Team Name: Health Helpers

In Attendance: Elliot Barnett, Joshua Batchelor, Lauren Davies, Kaylie Shoulder

Apologies: Connor Stock

Absent: Nicholas Evans

Team Goals: The primary goals of today's session is to discuss the type of tech-start-up we want to establish ourselves with (such as ltd, partnership); joined with this, the team needs to start discussing our first pitch/presentation and development of this must commence as of today. The team should also create documentation regarding the values and objectives of the team.

Progress report 3: The team discussed our start-up label but are yet to conclude which fits best, however LTD is favourable. The pitch design and creation were initiated today, which needs to be completed by December 1 to allow the team time to rehearse. A complete document of the team values and objectives was completed.

Date 13/11/2019

Team Name: Health Helpers

In Attendance: Connor Stock, Lauren Davies, Elliot Barnett, Kaylie Shoulder, Joshua Batchelor [Nick Evans]

Apologies: All members in attendance today

Team Members & Roles:

Kaylie Shoulder: Group Leader

Lauren Davies: Graphical Design Expert and Electronics Expert

Elliott Barnett: Financial Expert and Innovation

Joshua Batchelor: Expert Researcher and Documentation Aid

Connor Stock: Documentation Aid and Innovation Aid

Nick Evans: Sales expert, presentations and sales pitches, innovating

Team Goals: Complete a meeting regarding previous activities, conduct a market competitor analysis to see what the competition is, and complete a PEST test.

Progress report 2: The team successfully distributed the first tasks to be completed with a timeframe of a week. Product designs were completed along with a document documenting industry competition and potential partnerships.

Date: 06/11/2019

Team Name: Health Helpers

In Attendance: Kaylie Shoulder, Elliot Barnett, Joshua Batchelor

Apologies: Lauren Davies, Connor Stock

Team Member & Roles:

As of today, the majority of roles remain undecided within our team. We are actively working on this by completing tests and surveys attempting to determine who is best suited to each role.

Currently, only the Team Leader has been allocated and that is Kaylie Shoulder.

The other members of the team are Elliot Barnett, Connor Stock, Joshua Batchelor, Lauren Davies

Team Goals: The goals of today are to get the fundamentals of the project down – this means that a requirement specification should be drawn up, along with the initial designs of the prototype.

Progress Report 1: There were three tasks to completed today – these tasks were: outline and determine the initial requirements for the project, design the prototype, and complete the team progress report. The requirement specification

was completed by Joshua Batchelor, the prototype design was completed by Elliott Barnett, and the progress sheet was completed by Kaylie Shoulder.

Notes: As the team was able to complete the goals of today, it was decided that we would like to review the requirements and designs as a group at our next meeting to ensure that everyone is happy with the current state of the project – this meeting would be deemed as a priority task as these fundamentals are essentially the skeleton of the project and thus we believe that everyone should be happy and comfortable with what has been completed to date. After the meeting has been conducted, we will then go on to finalise our initial documentations and discuss what should be completed next.

Assignment 2 - 1805950

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

Instructor

67 /100

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6

PAGE 7

PAGE 8

PAGE 9

PAGE 10

PAGE 11

PAGE 12

PAGE 13

PAGE 14

PAGE 15

PAGE 16

GRADING FORM: UWTSD EI GRADING FORM

LAUREN DAVIES

67

RESEARCH

Engagement with Literature Skills.



- Limited use of citations, particularly to demonstrate research and support report content in places. Marketing paragraph 1 better. - IEEE referencing not used. + Reference list. Well formatted. – Incorrect referencing style used.

10

KNOWLEDGE

Knowledge and Understanding Skills.



+ Ideation. + Band design.

11.5

ANALYSIS

Cognitive and Intellectual Skills.



+ Team working. + Conclusion.

10

PRACTICAL

Practical Application Skills.



+ Band design. + 3D modelling. Very good. Excellent overview, very well documented. + Logo design. Excellent.

20

TRANSFERABLE SKILLS

Transferable Skills for Life and Professional Practice.



Good report format and structure. – Section numbers could be used. + Reflection. Good. +/-Networking – Could be enhanced by attending an external professional event. + Team progress sheets provide a good overview. – Difficult to see updates from individual members in later sheet. Original template would help with this.

15.5