

Keyzy - 3D Printing Diary

Loreto Mullingar

**Thursday, 12th of September
2019**

- We decided that we were going to stick to our decision to develop a product relating to Enable Ireland. This is because we have no experience ourselves in humanitarian aid and have no basis for an idea that would prove helpful in disaster aid relief.
- We discussed our ideas for the 3D printed product. For example, a key aid, an attachment for a medicine box for the elderly, etc.
- We talked about the structure of these ideas, using our own grandparents as references to help us.
- We decided that the key aid would have a cylindrical structure to make unlocking doors easier or we would create a medicine box with an attachment for easy access to the medicine, while regulations could still apply regarding prescription drugs.
- We thought of both of these devices in relation to Kara's grandfather, as he suffers from Parkinson's' Disease and so is unable to access everyday items as easily as we can.
- We discussed the advantages and disadvantages of both these ideas (e.g.: storage, transport, availability, etc.). We then decided that we would consider both of our ideas and decide upon our final idea the following week.

Thursday, 19th of September 2019

- This week we decided to attempt to develop the key aid as we realised that there is a lack of similar products available to people with disabilities.
- We drew a sample sketch of our product on the computer, using Google Docs, so that we could visualise how the key aid would look and work.
- We also discussed the logistics of the device, so that it could be easy to use and transport for the people that it is designed for.
- We decided that we would use our next session for the building of our prototype.

Thursday, 26th of September 2019

- We made a physical prototype of our device, using toilet paper rolls, Sellotape, glue, scissors and stickers.
- We used one of our own keys to measure how big the device should be to allow the easiest use of it.
- We had some issues with the durability of the prototype, as it is only made from thin cardboard.
- We created a Google Document called '3D Printing Mood board'. Here we all typed different ideas and information about our own possible ideas and similar products that already exist.

Friday 20th of September- Mood board

- In order to put together a mood board detailing our ideas for the project we had to work together to put all of our ideas down on paper.
- We researched what has been done already to aid people who find it difficult to slot a key in a keyhole.
- On our mood board, we explained what the problem we want to try to solve is and who this problem affects.
- We detailed the design flaws we have already corrected and explained our proposition.
- Finally, we presented our mood board on coloured card.

Thursday, 10th of October 2019

- We started to design our prototype on Tinkercad.
- We decided that we would use a paraboloid shape to form the handle, with cylindrical finger cut-outs in order to maximise grip for our target audience.
- We discussed the dimensions of our prototype. We did not finalise the dimensions immediately as we needed to figure out the optimum dimensions for both the handle and the door attachment.
- We also designed the door attachment on Tinkercad, made up of 3 Cylinders, which were grouped together with the centres removed.
- We measured the lock on the door of our school computer room and

decided to measure the door locks in our houses in order to get an average size for the dimensions of our prototype.

Thursday, 17th of October 2019

- We continued the design of our product on Tinkercad.
- We discussed our prototype, clarifying the dimensions of the product. We agreed to remake our prototype with our new dimensions.
- We used two different Tinkercad work planes, so that we could work on the door attachment and the handle simultaneously.

Thursday, 31st of October 2019

- We met up at Niamh's house in order to get started on the poster for the presentation of our product.
 - We decided that we would use Niamh's front door, which has a Yale lock, for all of the measurements of our product and prototype.
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- We decided to use this type of lock because it is quite a popular brand of lock and we know that many people have locks similar to this one fitted to their front doors.
 - We also made a new prototype with measurements that we could use to refine our design on Tinkercad.

- As well as this, we started to create our poster and compiled all of the relevant information that would be used on our poster.

Thursday, 6th of November 2019

- On the 6th of November, we had a two hour long workshop with Fred, Ocean and Isabelle in Loreto.
- During this workshop, we redesigned our product on Tinkercad around the new dimensions, which we took from the lock on Niamh's front door.
- We refined the design for the door attachment and the handle with our new measurements. We got help on how to design the handle to enable the key to slot inside of it.
- In this workshop, we also discovered many discrepancies in our design on Tinkercad and tried to fix these problems but we ran out of time. Méabh then decided to fix these problems the following Saturday.

Saturday, 9th of November 2019

- Unfortunately after all of our hard work, it became apparent that both parts of the handle did not slot together properly, due to a minor fault in the design.
- On Saturday, Méabh remodelled the handle part of the product on Tinkercad, ensuring that each part was perfectly aligned.
- She double checked all of the measurements and grouped all of the segments carefully. Thankfully, all of the sections finally slotted together and the design was ready to be sliced and printed.

**Monday, 18th of November
2019**

- We decided that we would create a logo to go on our poster, a logo which would be unique to our product.
- In addition to this, we devised a product name and a tagline for our product, 'Keyzy - "Your key made easy"'.
- We used Wix Logo Maker website to create our logo, which asked us many questions to tailor our logo to our product. We were then able to customise the logo to include design features we wanted, such as a picture of a key.
- We copied and pasted these logos into a Google Document that was shared with every member of our group.
- From the logo that we created, we designed company stickers for our product, complete with our slogan, 'Your key made easy'.

**Wednesday, 20th of November
2019**

- In our final class before the posters and diary work had to be submitted, we assembled our poster.
- We also used the Dremel software to slice our design and to prepare it to be 3D printed.