

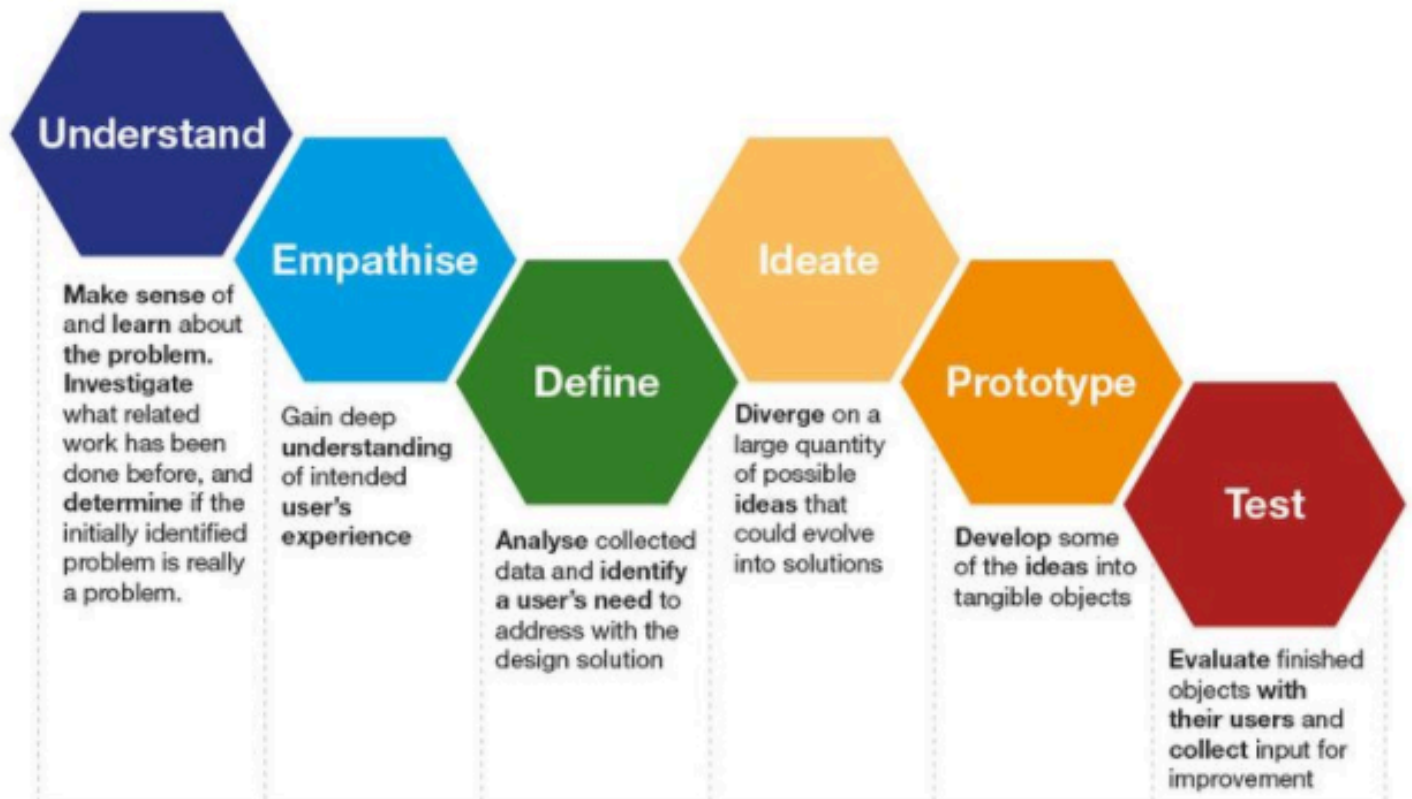
# Community Project Journey Booklet and Report Booklet

## Introduction

We have also documented our process on our [Community Projects Website](#).

You will be using elements of Design Thinking to think like a designer and develop your innovative solution to your identified community issue.

Design Thinking is a process for creative problem solving which utilizes elements from the designer's toolkit like empathy and experimentation to arrive at innovative solutions. Here is a [video](#) to help you understand how it works and an [Introductory guide to Design Thinking](#) for you to refer to.



This stage of the Design Thinking process is an opportunity for you to make sense of the problem. Investigate what related work/solutions have been done before and determine if the initially identified problem is really a problem or if it needs to be changed.

## Project Scope

What is the possible issue or main idea for your project?

## Disease and physical disabilities

- Colour Blindness
- ADHD- to gather information (or to understand the problem) Come up with a range of questions to ask people with ADHD. Perhaps put a box around the school- and get them to answer questions (eg: what are your daily struggles?) In this way, we will be able to understand the actual problems they go through and further understand our users. We can use this feedback to see what issues there really are that need fixing/need a solution.
- Blindness
- Asthma
- Anxiety
- Depression
- Allergies (possible scanners to help identify the food)
- Left-hand discrimination- left-handers get into car crashes.
- Crohn's and Colitis.
- Scoliosis
- Bipolar
- Dyslexia - Trouble reading, writing in public
- Helping people recovering from covid.
- Memory related issues - short term/long term
- Covid Recovery - Mental and Physical Aftermath of covid - effects on our aged groups
- Meditation - breath control, dealing with stress
- Covid-19: pandemic response and coming up with more effective response strategies.
- Covid-19: The ignorance of youth
- A general idea of all invisible disabilities
- mental health.

## Explore the issue

### ● What is the possible issue?

The issue is that most invisible disabilities are hard to spot, and many people go undiagnosed their entire life. People who have these invisible disabilities are good at hiding it, so not many people are aware they are struggling. This unawareness can cause a lot of misunderstanding and harm towards those that have invisible disabilities. Just because you can't see the disabilities doesn't mean that they aren't suffering pain on the inside.

### ● Why is it an issue?

The unawareness of Invisible disabilities is a major issue as people are not aware of the judgement and discrimination people face simply because others fail to understand their disabilities due to the fact that they can't see them. Numerous people that face this judgement due to some inability due to their invisible disabilities can leave them outcasted from the rest of society. This is a problem and we want to educate people.

### ● When is it an issue?

It is an issue that is everywhere in our communities, especially in schools as so many other peers don't know what these are and people can go their whole lives un-diagnosed thinking they are dumb as people with issues such as ADHD struggle to learn more than an average person due to their hyperactive brains.

### ● Who is affected by this issue and why?

People with invisible disabilities because they have to cover up their disabilities and pretend that everything is fine because of the fear that others won't believe it due to the lack of awareness in our community. Their families are also affected because they have to take extra care of their family members who have a disability. Their friends can also be affected because they may not know what is wrong with their friend and think they are just being weird.

### ● What solutions are already available? Why are they not effective?

Little is done to raise awareness for those with invisible disabilities.

Many of these invisible disabilities do not have treatments yet in place, like chrons and colitis. These aren't effective enough as people still go through their daily lives not realising the issues people may have and people with these invisible disabilities may go through life being teased and bullied without others even knowing what they go through on a daily basis. The lack of awareness on various invisible disabilities causes many to not have enough support from their friends and sometimes family.

Please use quantitative and qualitative data in your research and at least 4 - 5 sources

Here is the link for your research template- You need to fill one of these out for each of the sources.

planning page link: [Community project planning page](#)



**Empathy is an important element of Design Thinking. In a general sense, empathy is our ability to see the world through other people's eyes, to see what they see, feel what they feel, and experience things as they do.**

**As a design thinker and in order to create meaningful innovations, you need to know your users, how they think about the world, what is important to them, and care about their lives. In other words, you need to empathize with them.**

**To empathize with your users you need to observe your users and their behaviours in the context of their lives, engage with your users by interviewing them to better understand their needs and understand the problem from their perspective and gain a deep understanding by digging deeper. Please make sure you tell the story below and define the problem.**

**Find a user for your possible solution-** Who are they? Find out how they are being affected and what they want/need as a solution? At this point, you will want to interview a number of users.

People with invisible disabilities in the Westlake/Takapuna community that might not be aware of their own invisible disabilities and those with invisible disabilities.

People in the Westlake/Takapuna community that are unaware of invisible disabilities in general. Focusing on school aged students in particular.

### **What's the Story? (Dig deep)**

**Stakeholders** - Who is affected directly or indirectly by your solution? What do they want?

People who are directly or indirectly impacted by your project.

Directly Affected - People with invisible disabilities. The Westlake/Takapuna community.

Indirectly Affected - Friends and family of people with invisible disabilities or people in the Westlake community. Or really anyone in the community who is un-educated on what people with these invisible disabilities go through every day.



The define stage of the Design Thinking process is all about framing the right problem so you can create the right solution for your users. It is your chance as a design thinker to define the challenge you are taking on, based on what you have learned about your user and about the context. It is also an endeavour to synthesize your scattered findings into powerful insights.

Observations about the problem e.g Prior Knowledge, valid data

We know that many people have no idea what all of these invisible disabilities are. Even we, as a group, are impacted by this as one of our cousins has Crohn's, and one of us even has an invisible disability. From Estelle's cousin, we know that she feels like nobody understands or even knows what this is. There are many examples like that on the internet and even more people within our school and Takapuna community.

## Interview questions, Stakeholders, and script.

Refining the issue

Now that you have completed your research will you take this issue further?

We will be taking this issue further by carrying out a survey on the other members of the STEAM class and our friends to gather data on what people know about invisible disabilities. After research and undergoing multiple interviews, we have discovered that other people also think it is an issue that many people with these invisible disabilities feel unsafe to talk about it, as the majority of people are not educated in this matter, meaning they don't understand their daily struggles in life.

### Community Projects Data Analysis

My identified community Issue:

"How might we help people with invisible disabilities feel more understood and helped in a school/community environment. As well as educating both the youth and the community on what these invisible disabilities are, in hopes to make Westlake and Takapuna a more sympathetic environment.





Idea is the stage of Design Thinking in which you concentrate on idea generation. It's not about coming up with the "right" idea, it's about generating the broadest range of possibilities. Ideation is your chance to combine the understanding you have of the problem and people you are designing for, with your imagination to generate innovative solutions. The determination of the best solution will be discovered later through user testing and feedback.

## Research

Interviews, surveys, books. Research and development Ideas

### [Interviews - Discovery](#)

#### ***Development Ideas***

**Some of our development ideas include:**

Creating a picture book/graphic novel that shows a story about a character who represents people in our community with invisible disabilities. This would aim to both provoke empathy in the target audience and to educate them as each page would have a sort of "Fun fact" about the disability/health issue that part of the book is relating to. We would make this enjoyable to read and it would hopefully help more people in our community understand what people go through to ensure they feel Takapuna and our school is a safer and more understanding environment for them. Our overall goal is to encourage people in the community to learn more about some less known invisible disabilities/health issues.


Another idea we have is to create a VR (Virtual Reality) world that shows users/our target audience what they go through, in a way they can actually almost experience it. We would do this alongside the graphic novel/picture book and beside our final board at the end of the unit.

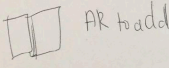
Through our surveys, we have found out that this is a problem within our school and home communities. The feedback we received proved our hypothesis was in fact correct.


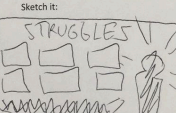
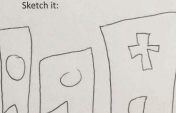
## Brainstorm ideas

Idea generation. Draw at least 3 different solutions for your user and capture feedback, comments, and reactions. Model, stretch, mock up your ideas. Show it to your client and stakeholders.


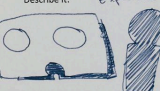
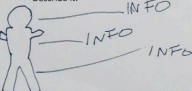
- Now choose your TOP three ideas. You have 4 minutes to sketch and describe these ideas in the boxes across the top of the document.
- Pass your ideas to the next group member. They have 4 minutes to add to/ build on to your idea. Think "Yes, and..."
- Pass the ideas to the final person who has 4 minutes to add to/ build on the ideas.

Idea 1	Idea 2	Idea 3
<p>Creating a picture book - Pop ups and all sort of information about invisible disabilities - some touching - some what you can do and how you can interact!</p> 	<p>When presenting our final idea we could use all of the different disability book.</p>	<p>Volunteer and a hospital as well as making awareness</p>

Build on Idea 1	Build on Idea 2	Build on Idea 3
<p>Sketch it:</p> 	<p>Sketch it:</p>	<p>Sketch it:</p>
<p>Describe it: We can also have this or thing to go with it, so the pictures will be more interesting than in the book that leads to AR experience.</p>	<p>Describe it: we could also add a little bit at the end that teaches you about inv. dis.</p>	<p>Describe it: Most people with inv. dis. look go to the hospital, all that often, so not hospitals but some where else?</p>




Build on the idea above	Build on the idea above	Build on the idea above
<p>Sketch it:</p> 	<p>Sketch it:</p> 	<p>Sketch it:</p> 
<p>Describe it: Many people / school people may find this less interesting as graphic / symbolic novels catch the eye more and many people want anonymity.</p>	<p>Describe it: We've most also create physical board and personally a more effective way to raise awareness would be with storying.</p>	<p>Describe it: I agree with Sam, this wouldn't really work and hospitals / doctors already know about these and people probably won't want to see it.</p>


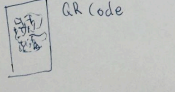
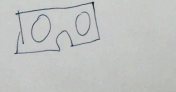
Idea 1	Idea 2	Idea 3
<p>Graphic Novel with invisible disability go through on daily basis, each chapter on different disability 'disorder'.</p> <p>Describe it: Will have character that represents and will have a symbolic storyline to help expanding from users helping them gain a greater understanding of what it is therefor raising awareness.</p>	<p>A VR world where users are able to experience what it's like in their perspective/ different experiences for diff disabilities.</p> <p>Describe it: Meaning our audience will be able to see the world as in their world and will be able to see the world as they see it in the world. Should help raise awareness around this issue.</p>	<p>3D interactive sculpture that they can move around for info on the invisible dis/ disorder.</p> <p>Describe it: A tree plant with each branch speaking off with info about a few invisible dis/disorder and at the end where they can be rewarded for learning motivation.</p>

Build on Idea 1	Build on Idea 2	Build on Idea 3
<p>Sketch it: The book could be interactive - pop up book e.g. make it really attractive for children. It could also be published we can also introduce the book to primary schools.</p>	<p>Sketch it: This would be quite good. This could be a side display and could make people empathise with the people with invisible disabilities.</p>	<p>Sketch it: The sculpture could be e.g. a person, or body part and all the invisible disability you could get</p>
<p>Describe it: The idea of someone who represents our topic.</p> 	<p>Describe it: experience it</p> 	<p>Describe it: INFO</p> 

Build on the idea above	Build on the idea above	Build on the idea above
<p>Sketch it: It could be a series of short stories in the form of a graphic novel so they don't confuse them with other disabilities mentioned in the book.</p>	<p>Sketch it: and at the end of the story we can add more info or have a special feature that tells you about the inv dis.</p>	<p>Sketch it: It would be quite complicated, but a more digitalised version would be easier to make and spread!</p>
<p>Describe it:</p>	<p>Describe it:</p>	<p>Describe it:</p>

Idea 1	Idea 2	Idea 3
<p>Game to raise awareness for invisible disabilities may be?</p> <p>Describe it: As you progress along the game you will be able to unlock more information and types of disabilities. Platforming game?</p>	<p>Repository of collectible cards full of facts, ranked by rarity</p> <p>Describe it: They can be either physical or digital, each one will have a picture at the top and descriptions below.</p>	<p>VR or AR Experience (Educational)</p> <p>Describe it: Games that game you power-ups that are named after: invisible</p>

Build on Idea 1	Build on Idea 2	Build on Idea 3
<p>Sketch it:</p> 	<p>Sketch it:</p> 	<p>Sketch it:</p> 
<p>Describe it: Different games with challenges you must complete (these challenges relating to a symptom of relating to a symptom of a disability). Game is about while learning and getting info.</p>	<p>Describe it: Rarity rated by rarity of disease/ disability.</p>	<p>Describe it: Experience what school life is like and by walking/going through it you raise awareness.</p>

Build on the idea above	Build on the idea above	Build on the idea above
<p>Sketch it:</p> 	<p>Sketch it:</p> 	<p>Sketch it:</p> 
<p>Describe it: In order to get this game into community we can post it on App store and advertise it around the school.</p>	<p>Describe it: You could turn it into QR code instead and put them up around the community and educate (game challenge) community members.</p>	<p>Describe it: Position making VR experiences - you have to pick between two decisions.</p>

## Our Top 3 Ideas

**Idea 1** - A graphic novel symbolizing what people go through with certain disabilities/diseases. A competition will go alongside this where people from our school are able to create an informational poster about a chosen disability/disease from a list we will provide that will feature at the end of the graphic novel explaining what each section of the graphic novel will be about.

**Idea 2** - A VR/AR experience where users are able to experience what it is like and where they complete challenges to get to future stages and at the end, a quiz will appear to see if they learned anything and if they achieve good results they can win chocolate or a different small award.

**Idea 3** - Our last main idea is a 3D interactive sculpture that has pop/pull-out information to teach people about what invisible disabilities and diseases are. AS this is a physical item it will be interesting and impactful for users to touch and gold.

**Final chosen idea-** Our final solution idea that would help make a positive impact towards solving this issue within the community is to raise awareness by creating a graphic novel. Our graphic novel will have inspiring stories of everyday people and their everyday experiences with an invisible disability. Our aim is to make the readers and audience emphasise with the people in the book as we spread awareness about this issue. Many people with an invisible disability are quite afraid because people don't believe that they have this condition. An example of this would be when an employee with scoliosis has a really sore back in the morning and they need rest, however, they have to go to work and can't pull in sick without a medical certificate. This obstacle can cause many problems in the future. Our aim is to make it easier for people with this everyday problem. Our goal is to inform people about invisible disabilities so that people take into consideration that there is such a thing and there are many people with them.

The digital twist we have added to our idea is that is the back of the book we are going to add an AR experience QR code. Upon scanning the QR code they will be taken to a digital AR experience where they will see an online version of the book.



## Prototyping & Testing

A prototype can be anything a user can interact with and experiment. Remember that your prototype is likely to change due to feedback. Remember that what you are trying to test and how you are going to test it must be considered before you create a prototype. E.g if you are creating a digital game a storyboard might be a good prototype to make for the users to test and give you meaningful feedback.

Testing is an opportunity to learn about your solution and your user and most important refine prototypes and solutions.



## Key factors

Things to think about before you make your solution: Stakeholders, resources, issue

One issue about creating a physical product is that it might be hard to spread to multiple users. Thus comes the ingenuity of digitally creating a book. When placed in a library, the book will have the chance to be read multiple times by many people. By creating it digitally, we can also spread the digital version of the book over the internet for easier access. But what makes our book stand out from the masses? First, we have bright colours to attract attention, and we are also creating a complementary AR experience. AR was chosen over VR because it would be easier to spread and also easier to make. However, because the prospect of VR is very exciting, we are considering doing both if we don't run out of time. Our targeted audience are students around our age (intermediate school to high school), both the content and the design and colors and visual elements are meant for students around our age. We can't print many copies of our book because that would be expensive and our resources are limited, so the digitised version of the book would come in very handy to help patch this particular issue, but we would still print one or two copies for our school library.

## Initial brief

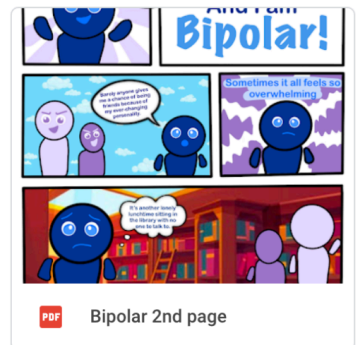
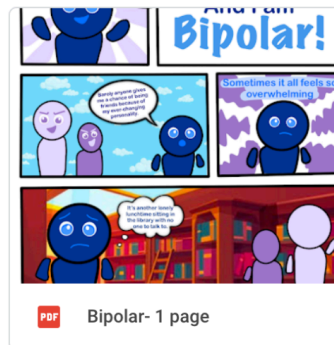
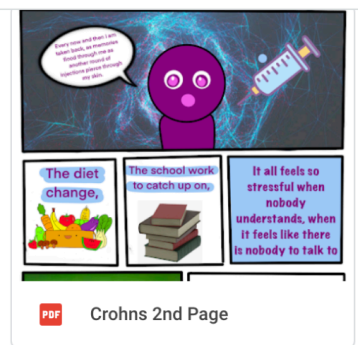
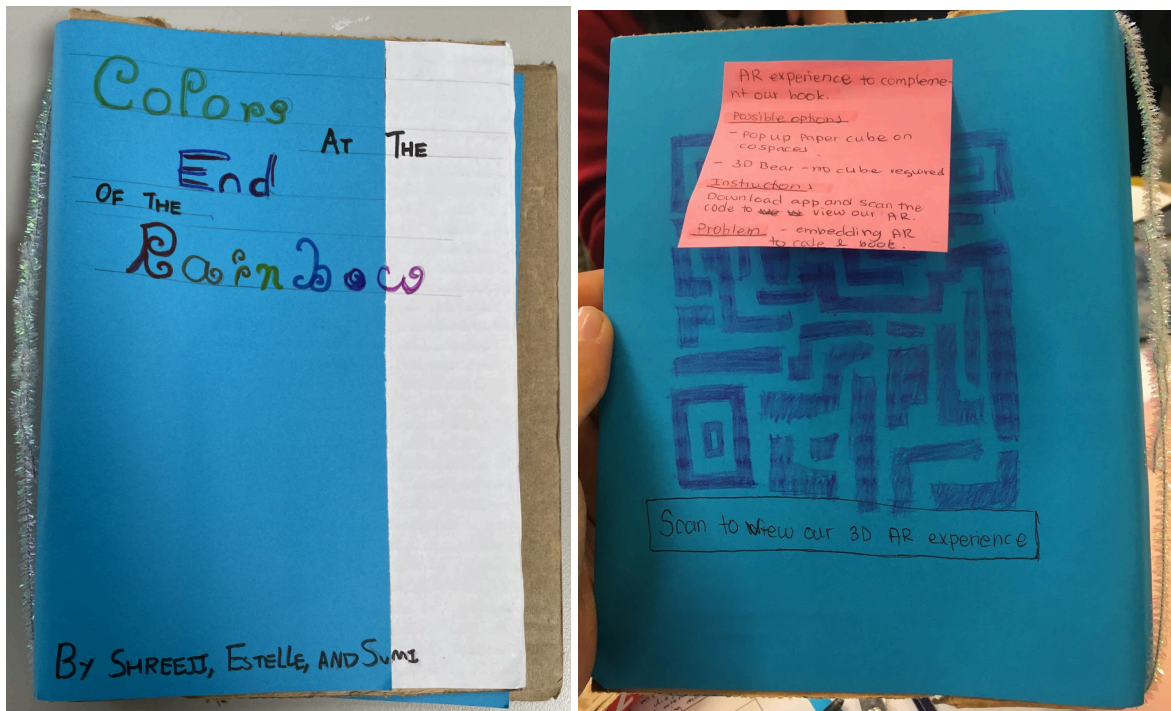
The basics of what you are making. Conceptual statement, constraints, specifications. Revise and update your brief as a new specification arises

Our product is a graphic novel style book showcasing the hardships many people with invisible disabilities have to go through in everyday life, and also to educate people more about invisible disabilities. It will be available both digitally and as a physical product, and will contain a QR code which can be scanned to augment the user's experience with AR. The AR itself will contain a diorama-like projection of the stories inside the book to help the user to better understand the stories and to evoke more sympathy. It will also serve to make the book more visually entertaining and appeal to a wider audience. The AR experience will have to be easily accessible, and usually needs to be achieved by downloading an app onto the user's device, but we are searching for possible ways to circumvent that constraint. More research is needed on that subject and the application we use to create the AR experience would need to be very carefully chosen. The QR code, on the other hand, has already been handled with a simple QR code generator.

Sketch/ Blueprint of the idea either hand-drawn or using an online tool such as google sketch



Colours at the end of the Rainbow Plan



## Colours at the end of the rainbow- Graphic Novel

### Final brief after testing


The final brief includes all decisions you have made in the form of specifications.

Throughout the process of creating our prototype we altered many things. While looking for different AR software we had to alter the AR storylines to fit the software we were using. We have made decisions to slightly change written

storylines to fit the specific disability/disease as well. We tested, altered and after some tough decisions we finalised a prototype.

## Production

Make the final solution. Modify your solution

We have finalised our solution as well as modified it. We now have both a digital and hard copy of the book and all the storyline pages are finished. We have proofread and had it checked by an English teacher as well as received feedback from our stakeholders. Our online version of our Graphic Novel (final solution) can be found here - [Colours at the end of the rainbow- Graphic Novel](#) +  Invisible Disabilities- AR experience - for the AR experience.

## Demonstrate

Show your final outcome to your stakeholders and clients

We have shown our project to three of our stakeholders as well as presented it to everyone in STEAM including our peers and teachers. We have a meet recording as well detailing feedback, highlights and lowlights we received from a stakeholder. <https://www.youtube.com/watch?v=NYx-BwFLWn8>

## Evaluation

Please write a project evaluation, make sure you address the questions below:

1. What your project was and why you chose it:
2. What challenges did you face and how did you resolve them?
3. Which part of the project excited you the most? Why?
4. Was your project successful? How do you know?
5. What have you learned about developing a digital solution?
6. What would you like to learn about next?

The UN goal that we have chosen was good health and wellbeing. Under this goal, we thought of many ideas, and finally arrived at looking at the problem of invisible disabilities.

The problem that we have identified is that many people within our community do not know what invisible disabilities and diseases are and because of the lack of knowledge, they ignore this issue. Some people with invisible disabilities feel uncomfortable and unsafe in our community to speak about their experiences, and we want to change this. Our aim and project are based on raising awareness of invisible disabilities and making our community a more inclusive place.

Our innovative and unique solution to raise awareness about invisible disabilities is a 6 chapter graphic novel, each focuses on a different invisible disability. Each chapter follows its own storyline, trying to provoke empathy in our readers and educate them on the common things that these people go through on a daily basis. As well as the empathy provoking stories, it contains scientific information that will talk about the real facts about the disabilities.

As part of the technology element, there will be a QR code at the back of the book, which after scanning will take you to an Augmented Reality app called Overly. This allows you to scan pages of our book where you will see the construct of where people are educated about invisible disabilities in the AR and where people aren't educated about these disabilities in the book. This contrast will help users understand how much of a difference we can make about this problem when we know about these disabilities. With animations and moving characters, we will surely blow your mind.

Here is a video that sums up of final prototype

[Community Projects Group Speech](#)

Final AR experience (including instructions to use)

[Final AR experience](#)

[Stakeholder feedback received on Final prototype](#)

We believe our project to be successful as we have sent the file to our stakeholders who then showed it to their friends. These friends of our stakeholders were surprised at how much information they had not known before reading the book and stated that after reading they felt far more educated than they had originally.

Throughout our project, we learned lots of new skills around technology and how AR (augmented reality) works. As a group, we would have loved to develop the storylines and our AR aspect further if we had fewer time constraints.

The highlight of our prototype that one of our stakeholders mentioned in the incorporation of the AR technological experience, as it was a good contrast from the book and really educates users when we are aware of invisible disabilities. The lowlight of our prototype that she also mentioned was that this particular prototype didn't quite affect her as an adult. As the target audience was school ages children, and scenarios within our book were more related to younger kids as opposed to the older generation. So our next step would be to incorporate and scenarios of all ages, not just children and teens.

The feedback that we received on what we could have improved on within our project from one of our stakeholders (Ms Bhavsar) was to possibly make the storylines less school-based and to create a book that could have been targeted at a wider range of people in order to educate more of the community as well as further developing our AR to a higher standard, however with the deadlines we had we could only achieve certain things.

Through developing our prototype, particular the AR experience, we learnt many things and were especially confronted by our underestimation of this whole project. Firstly finding a suitable software for the AR experience was very difficult, however, through thorough research and contacts we found one just right for our project (Overly). The second difficulty was managing to complete our project in lockdown, and especially as one of our group members was unable to stay in contact with us for quite a bit of the project. We definitely learnt the importance of teamwork, discipline and time management. All of our effort that we have put in can be seen in our site, CP book and final prototype, and we aim and hope that become finalist for the 123 challenge.

The part of the project that excited us most was creating the in class prototype. We were provided with a bunch of materials that we could use to create this fun and simple prototype. We as a group found that quite exciting and fun. There was a lot of tension and stress that period as we were running out of time, however, we pushed through and managed to get a small little book ready. Although we weren't quite happy how it turned out in comparison to our



current final prototype, we still had a blast that period.

We hope we still get to experience many exciting things as we finish off our community projects. It has been a rollercoaster, and we have experience so many new things and learnt a vast range of life skills. We are all immensely looking forward to the innovation expo and the shark tank. Fingers crossed we that we'll manage to blow the judges away with our well-earned prototype.

We faced many challenges throughout this project. These challenges really tested our team work but as famously said "Anything can be conquered when working together." we were motivated to keep going and fight through like an army and not like a lost soldier. These challenges have helped us get stronger as a bunch of young individuals and has brought our friendship to another level. We have gotten to know each other a lot more and our individuality and talents brought together have helped create an amazing project and even blow ourselves away.

The major barrier of lockdown really made it difficult to communicate and effectively work together. However, our communications manager, Shreeji, made sure everything was organised and that we were having our weekly meetings as well as updating the blog and keeping the teachers informed and updated. As most of our work was done during lockdown, we are extremely proud of the work that we have produced and our ability from the guidance of our teachers to adapt to the new learning environment and get the work done.

Another challenge that we faced was internet issues. A team member within our group happened to be moving houses and wasn't able to contribute much towards the finishing product, however, with her help and planning from the start of the project we were able to finish strong. And lastly, another major road bump we experienced at the start of our community projects journey was one of our teammates, Helena, leaving the school, hence also leaving our community project group. For our team, this was extremely sad and made things difficult as we have to re plan roles and task each of us would manage.

And lastly, another major problem that we faced was finding a suitable software for the AR experience in our project. We spent weeks trying to find software that was easy for us to build on, straightforward for the users to use and fascinated the users when they experienced this technology. However, it wasn't all so simple. Even today, the AR software we are using is only accessible to android holders. We aim in the future to improve on this and work even harder to find the finest out there.

Overall, many road bumps were faced and conquered. This unity and the effort that we have put into community projects is definitely paying off, now seeing how much we have achieved and our final prototype we are extremely proud of our teamwork. This experience has been great and we managed to gather data, interview stakeholders and create an amazing prototype in an ethical way. We made sure to maintain privacy and as this topic can be quite serious and emotional for some, we made sure we were not crossing the limits.