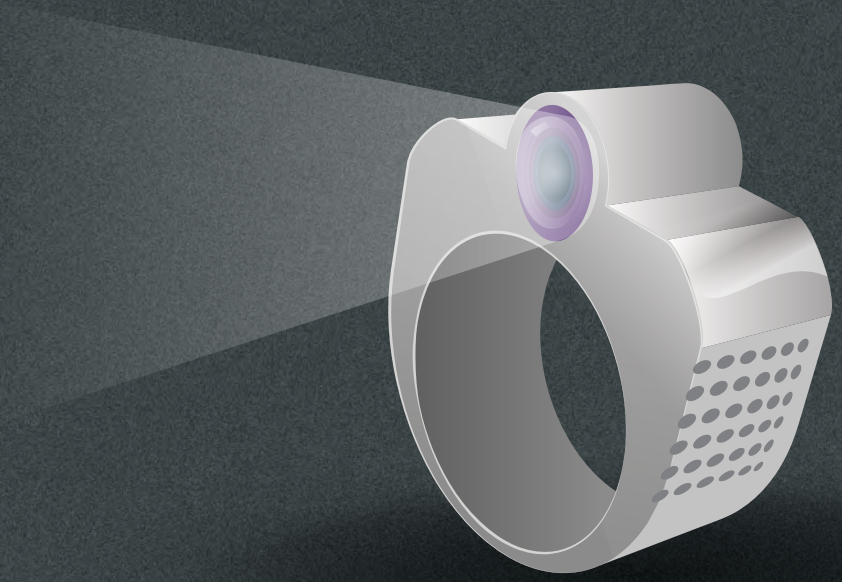
DECO7385
Physical Computing
& Interaction Design Studio

Project proposal

Mommy!!! what is this?



POINT AND ASK

26 March 2012

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Qingtong (Viola) Han, 42308863

Contents

Background

As parents, everyday we face our kids having a lot of questions they want answers to. Sometimes the pressure of assignments and other tasks is too great, reducing the time we can spend answering such questions from our kids. This was how the idea of the Point and Ask ring emerged - what if we could build a talking device that could answer the questions of our kids in place of us!

Inspiration:

Siri(Speech Interpretation and Recognition Interface)
uses a natural language user interface to answer questions ,make recommendations and perform actions by delegating requests to a set of web services.Siri understands what you say, knows what you mean, and even talks back.

Google googles
is a downloadable image recognition application. It is used for searches based on pictures taken by hand held devices. For example, taking a picture of a famous landmark would search for information about it, or taking a picture of a product's barcode will search for information on the product.(Google mobile,2010)[b]

Sixth Sense Technology
is a wearable gestural interface that augments the physical world around us with digital information and lets us use natural hand gestures to interact with information.

Using a ring as our device would make it easy to carry with you all the time. This would allow the kids to easily get the answers for their questions at any place, any time. The parents will be free from curious kid keep on asking the things and kids can explore new things. Any invention which deal with kids is more pleasant to parents.

Features:

The ring size is adjustable and fit for every one's index finger.The ring has a camera to capture the object and also has a microphone which converts sound into an electrical signal. It has speakers to return the answers.The 3G connection is used for cellular transmission.So we can use it anywhere if we can get 3G reception.It can access cloud communications which are internet based voice and data communications.Cloud communications is attractive because the cloud can now become a platform for voice,data,video.(Wikipedia)[c]

Our ring will answer your questions in any language. If you are a Chinese, the ring will answer you in Chinese language. So it would be very helpful for language learner and traveller too.

Value of the ring

In this section we describe what function the ring fulfills; as a project in our course, as a mediator of information in the family, and as a knowledge base for language learners, respectively.

The ring as a Science Fiction themed studio project

How does our ring relate to the theme posed by this studio course - science fiction? What is apparent in science fiction, both literature and the popular movies, is that the idea of personal technology as a (single) computer device is gone. In the future, it seems, people are no longer interacting on their own in front of a single computer, using arbitrary mouse and keyboard interaction. Instead, the technology is everywhere and anywhere you need it, used by multiple people, and perhaps most importantly - it is interacted with by what is today referred to as 'natural interfaces'. The same trend is visible in future envisionment videos posted by technology companies.

Our ring brings the future closer in two ways. The first way is in that it removes the need for the computer, or any (extra) computational device at all. If we can manage to pull this off, the only 'device' the user will be carrying will be our wearable ring, and the user would not even be required to interact directly with it, but just to use natural gestures and vocal commands. The second way is the way it combines what would otherwise be several steps of execution for a user into one command. By just asking the question, the ring will on its own go through the steps needed to find the answer; it will appear 'magically', just as in science fiction.

We know that with our ring we are not proposing a giant leap into the future - it is not an item perhaps that would stun a Science fiction audience in awe - but we are still bridging the gap. We think devices like our ring make up important steps towards to future of technology that we want.

Family

In natural conversation with children, parents usually simplify their language, and encourage the growth of their children (Engle, 1980). She also emphasized the importance of parent in helping children to established the basic knowledge of native language in their children.

However, not all parents are able to play and enjoy with their kids, they are busy with jobs, shopping, cooking, taking care of house. However Kids are always curious about objects around them, and the best way for them to find out is asking questions, - "in many other situations, children must actively seek information from others by asking questions" (Mills, 2011). The question to be raised here is: "Who will answer the kids, when the parents is away?" With the introduction of the product we hope to give a new ways for kids to learn about the world naturally, and intuitively. In some ways it helps to enhance parents and children 's relationship. It is annoying for busy parents to be constantly asked by their kids simples question, or things that adult take for granted, or thing that parent hardly know how to answer appropriately. In that case parent will very easy to lose their temper and probably yell at kids. The ring helps keep the kid busy, teach them about the object around, and free parents form the question. Kid happy, parent happy.

Education

In term of education, the rings will open a whole new way for language learners to learn a new language. Luo, Luk and Bialystok, 2010, stated that: Lake of vocabulary is one of the reason leads to low level of language fluency. That means the more vocabularies are known, the more fluent the speaker is. Language is a living things , the most powerful way to learn vocabulary is to learn it in the context, and conversation. (P. Nation, Language Education 2006). The interaction between the ring and the user: point, ask, listen and answer within the context simulates most the conditions for effective vocabulary learning.

The only trouble the learners might run into is:

they have to ask the question in the language that they want the answer to be in. However this gives the opportunities for student to practice their ability to ask simple question, as well as pronunciation.

Target users

"Point and Ask" ring – The quality of giving satisfaction sufficient to meet a demand or requirement. According to the function of the ring, we decide our target users are those kinds of people who in an individual situation and couldn't ask others anytime or anywhere. So, target users of our project include kids, travelers and language learners.

Kids

Sometimes, Children who at the stage of growth is full of vitality and curious enough that they maybe could not be treated with due seriousness. They always ask lots of questions about stuff and their parents don't have enough patience or time to answer it. So, parents need "Point and Ask" ring when children go on and on asking questions. What children need to do is that they point to the objects and ask "What's this (that)?", whenever and wherever the ring will answer them. No matter kids are at Home, Street and Store or in the morning, evening, the ring can help children solve many problems efficiency, develop the power of speech and exert positive influences. Children unconsciously develop their capabilities of autonomous learning through daily communication.

Language learners

The "Point and Ask" ring is a good learning language tool as it could provide multi – language for language learners. Multi – language could fill the requirements of different language speakers. This ring is a good assistant but also a link which connects to other culture. The good environment of language is not just for kids, language learners also profit from the ring. For example, an English learner does not know how to pronounce a desk. What he needs to do is just points the desk using "Point and Ask" ring and ask the question. The ring answers in a standard accent. From this conversation, this English learner learned the pronounce of desk and also practiced language conversation skills. "Point and Ask" ring provides a very good language environment. Users could test the abilities of language using it. So it is useful for language learners.

Travellers

"Point and Ask" ring is very useful for travelers. It could be a translator when they couldn't contact with native speakers. Travelers travel to an entirely strange land where they may not know local languages. They try to understand some interrogative stuff, but not knowing each other's language they don't get far. At this time, travelers take out the "Point and Ask" ring and put a question to those things they are wondered and this ring find all the solutions. This ring is both convenient translator and carried conduct tours. Travelers can be acquainted with local lives very quickly through "Point and Ask" ring. The ring acts as an interpreter that travelers do not need to find one for their trip. Therefore, the ring is also a good choice for travelers.

User Research

From the research (Appendix), we found that most of investigators think that the ring could help them a lot in their daily life. It could be very convenient for users when they get some troubles of figure out items.

According to their answer, the questions they want to ask are manifold. Not just "What's this?" or "What it is for?", investigators want a more smarter ring that could manage the whole life, kind of like a daily manager which is no doubt a great challenge for us. For the shape of our project item, they all agree that compact articles is great for carrying. Not just ring, a watch, brooch or chain which can carry in the pocket with people is easy to take everywhere. We also get some information about speech system. Siri need to moving toward richer, smarter human-computer interaction in the future. To summarize, "Point and Ask" ring should improve in many ways. we will try to make our ring confirm these requirements as closely as possible.

User Experience

Taking into account our target users and the contexts they are in, mentioned in the previous sections, three major criteria for our device emerges:

- Simple 'physical' interaction
- Mobile and wearable
- Fun to use

Simple interaction is of course useful for every device. As with our product however; the simplicity and physicality of the interaction is at the core of our concept. Young children might have limited experiences with complex digital devices; their motor skills are yet not fully developed which makes the kind of micro navigation often seen on digital devices hard for them to perform (L.Plowman 2012), and they also lack in working memory capacity which further stresses the importance of a simple, familiar, physical interface.

Simplicity is also important for people on the run, people who are multitasking, or just just resuming a task after a period of interruption. As our device is mobile we can expect this kind of usage from our users in general, but we might also see it in particular from our travelling users. Finally, simplicity can greatly improve the task of finding translations for objects for our language learners. Instead of having to flicker through a whole dictionary or having to navigate through a sequence of steps we only require them to know one thing - how ask their question in the language they want the answer in.

The next core criteria is that the device is wearable and therefore mobile. Making the device mobile is crucial for the natural point-and-ask interaction, which would be severely limited by instead having a stationary device. With a stationary device the objects the users want information about would have to be carried to our device, instead of allowing for free exploration of the world, as we want it to be. With the mobility however comes a cost: the device has to be carried around, and it is also at risk being forgotten or even simply left at places. Kids are not known as the most trustable carriers of important items, and during a trip it is also anyone's mistake to misplace things along the way, especially if it is just another extra gadget/item you are not yet used to carrying around. This is why is it crucial that our device is not only mobile, but also wearable.

As a final criteria, we want the device to be fun to use. Not only has this, and aesthetic quality, been shown to improve usability (Norman, 2002), but we also believe it is extra important for our users. For kids, however big their curiosity might be, our ring will be competing with other toys. To retain attention from the kids, using our device has to be a pleasure able and fun experience. A variety of the same requirement comes back from our language learning users. Since they are also using the ring for 'educational' purposes, they as well might need the fun experience to motivate them to use the ring more, to keep on asking questions so that they can learn the language they want.

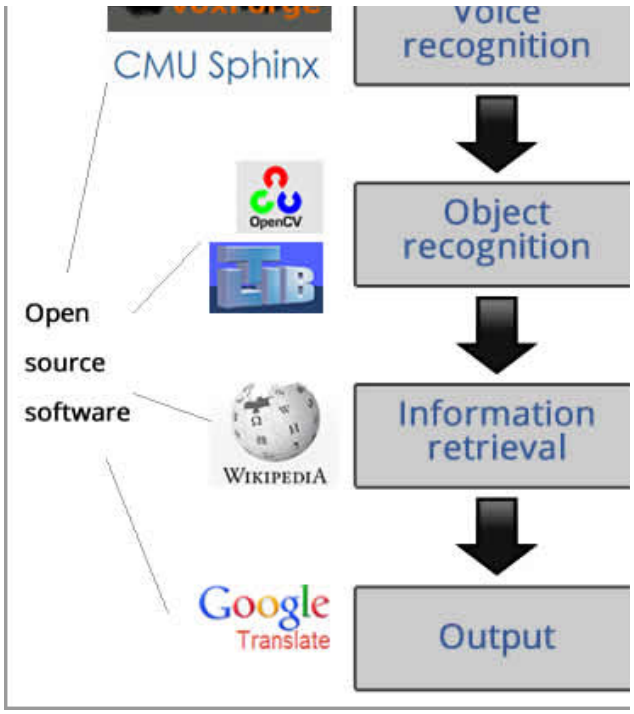
Technology

In order to build our ring, a range of technology is needed, both terms of software and hardware. Most step of the interaction between the user and the ring require their own technologies to be handled, making the total number of software and hardware solutions needed for our ring rather high. In this section we go through what technology we will need, and discuss what shortcuts we can take in order to make our project manageable.

Let's use an analogy to describe the task that the ring need to perform (this is how we consider the ring should be in the low-tech level):

- The ring is a very simple mobile phone, with the camera, that allow you to dial to our "We-Know-Everything" there is one person there waiting to answer your question.
- That person asks you to show him/her the picture of the object that you are asking about by allows he/she seeing what your ring is seeing!
- And he/she will answer you on the phone: what that object is.

Unfortunately, there is no one have to do that boring and frustrating job, so we will replace that person with the software on the server.



Software

In terms of software, our ring needs to make use of (at least) 4 different technology solutions to achieve our highest expectations. These solutions are; Voice recognition for activation command, object recognition for identifying the object being asked about, information retrieval for finding the answer to the question, and finally, voice synthesizing technology for communicating the answer to the user (see Fig. 1). This section briefly discusses each of these problems in order, outlining our current plan for each section, along with a backup plan in case we fail to carry out our first plan.

1. Input (voice recognition)

In our original scenario, the ring is activated using a voice command. Whether this will be just the question 'What is this?' itself or a separate command (for example 'Ring ring'), this necessitates a voice recognition solution. Fortunately, voice recognition technology is quite good nowadays, at least for major languages, and there are a couple of open source software packages out there for us to chose between.

- Current plan: To begin with, we will try out CMU Sphinx (http://cmusphinx.sourceforge.net/), a open source voice recognition toolkit written in Java. In the simplest case, all we need this software to do is to with a decent accuracy be able to detect our activation command, and/or our question phrase.
- Backup plan: Fall back to alternative input method, such as digital/physical activation button, or possibly even just use the camera shutter button as a trigger.

2. Recognition (object recognition)

Object recognition, the step where we are supposed to go from the picture taken by our ring's camera to an identified (and named) object, might be the hardest step in terms of software. We have found some open source packages who claim to do object recognition, but we are not sold on this yet. Merely object detection is unfortunately not good enough for us, we do need the objects to be

named if it is to be of any use.

- Current plan: We will try the OpenCV package (http://opencv.willowgarage.com/wiki/), most likely using their Python interface. The question is how long we should pursue this solution if it proves problematic. For example, one could argue that if we have to train the algorithm to recognize each object individually, using a more low-tech solution might be more efficient.
- Backup: Failing the object recognition through visual perception plan, we will try to detect our objects by other means. The perhaps simplest solution would be using RFID technology, tagging the objects we want to 'recognize'. This would be enough for proving the concept of our idea.

3. Information retrieval

Once we have a name of the object we have question posed about, retrieving the answer should be fairly easy. Of course, this depends on how complex questions we allow the users to ask.

- Current plan: In the case of our simplest question, 'What is this', the answer is already provided by the previous step in the loop. For the slightly more advanced question of what the object is called in another language, simply getting this information of Google Translate will suffice. Whereas our original stance is that we will not at all go into language understanding, if we do get that far we will probably parse the objects' Wikipedia pages hunting for simple answers such as the usage of an object.
- Backup plan: Not needed.

4. Output (voice synthesizer)

The last step in the loop is providing the user with the answer to their question. As we have argued for a simple interaction scheme, avoiding digital displays, we want to give the final answer using audio output. This requires some kind of voice synthesizer software, programs that can now be found in many places.

- Current plan: We are currently favouring the simple idea of just using Google Translate to speak out our answer loud. This would have the advantage of answering both the eventually needed question of translation, and the one of vocalization using the same software source. Alternatively there is open source software (such as Espeak: http://espeak.sourceforge.net/), which has the advantage of being available for offline use. As long as we need online access for other steps in the process however, we will most likely use Google Translate.
- Backup plan: In terms of software, this should not be problematic. However, would we find that we can't provide our ring with speakers, we might have to just display our answer in text on some sort of display instead.

Hardware

It is a ring, however it does more than a ring can do. It is the ring in "Lord of the Ring".

The challenge for hardware design is:

- Small enough to be wearable
- Battery can last for at least 15 minutes for one fully charge
- Have wireless connection.

In active mode:

- The microphone need to be ready to pick up the command. And stream it to the server using the 3G.
- After the command is finished. The ring need to take a photo using the camera, and stream the photo to the server.
- The server will take the photo and the command analyze them, retrieve the information
- Generate the audio, and stream it back to the ring
- The ring plays back the stream it receives with the speaker.

The rings need to have all of the following components to perform the task:

Input

- Camera

The camera need to be small enough to be wearable. However the picture quality must be good

enough for the server to be able to analyze.

• Microphone.

The microphone 's polar pattern, should be shotgun. So it is directional, just pick up the voice from the user, and reduce the noise.

Output

• Speaker

Small, yet powerful enough to provide good sound quality.

Connection

• 3G connectivity

UMTS connection can roar up to 120 kbps and the faster it is the more juice it going to drain from the battery. The 3G connectivity, needs controller chips, and antenna. It is clear that all those chip, and the CPU need to be integrated in one single circuit board. Learn from the genius design of the iphone4, it might be a good ideas to use the ring itself as the antenna.

Backbone:

• Power (battery) solution.

It seem we have to make a compromise for the the runtime of the battery. We aim at 15 minutes continuously runtime for the battery, with 3G connection, speaker, camera, and microphone, we going to need at least: 5WH battery. Li-MnO2 (Li-Mn, "CR") can provides 280Wh for a kilogram of battery. With a simple calculation, we can estimate the battery weight can be: 5/280~~20g battery.

However, thermoelectric power is a good alternative, or feature that can be use as a second source power. The lithium battery can be charged using thermoelectric technology when the ring is inactive. If thermoelectric power is practical in this case, it look like we will not need to have any other mechanism to power the ring

• Central controls chip (CCC)with some kind of memory.

It is obvious that the ring need to have a CCC to controls all the other parts: Camera, 3G connection, speaker, and microphone.

Even Though data coming and out of the ring are streamed, that does not mean we will not need memory for the ring. Since the photo need to be stored in some where before they can be successfully upload to the cloud. Integrating the CCC and the memory into one chip, can be a good idea

Individual roles

Jonas

• Seeing as we are not a very programming heavy project team, I am thinking I might have to take on a developer role. Whereas I prefer doing user research and front end design, I do have quite a lot of experience with the programming languages we will probably use in this project (Java, Python, Flash(?)), and I am well familiar with web technology in general.
• Strengths: Usability, Design, Web technology, Front-end development, Software development
• Weaknesses: Hardware, Aesthetics.

Anusha

• Role:I am interested in designer role
• Strength:.I do have an experience in CSS,PHP,HTML and Javascript.I have a good knowledge in Adobe Creative Suite.
• Weakness:Hardware

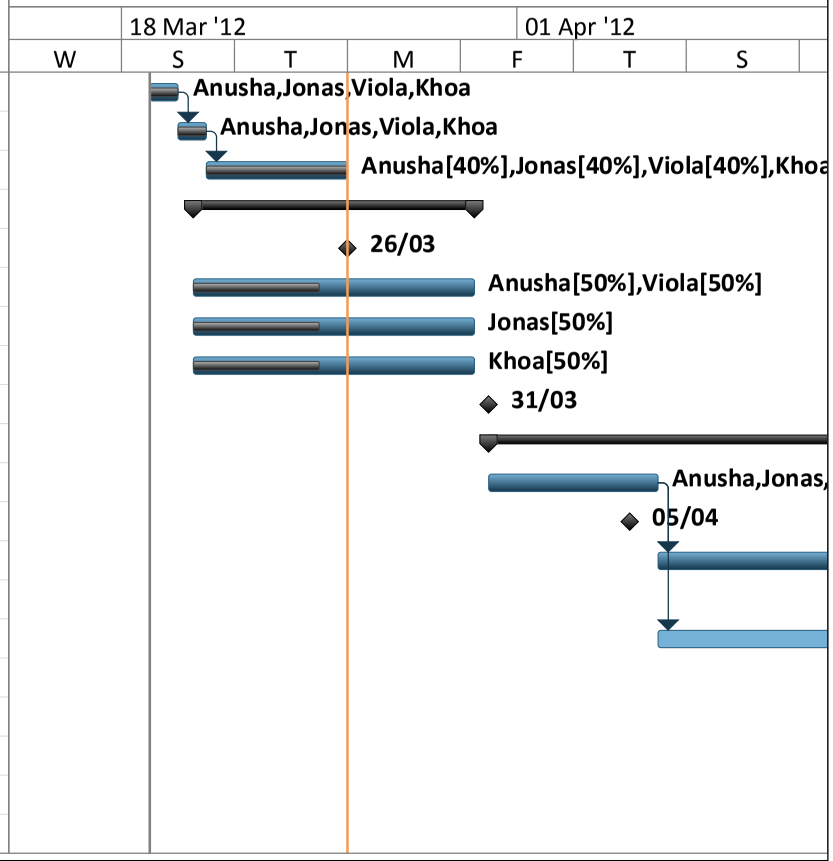
Viola

• I am doing multimedia design, and I am good at using drawing software like Illustrator and Photoshop. I also have some experiences in Python, PHP and HTML.
• Role: I prefer to do the design part and also could do a little programe.
• Weakness: Java

Khoa

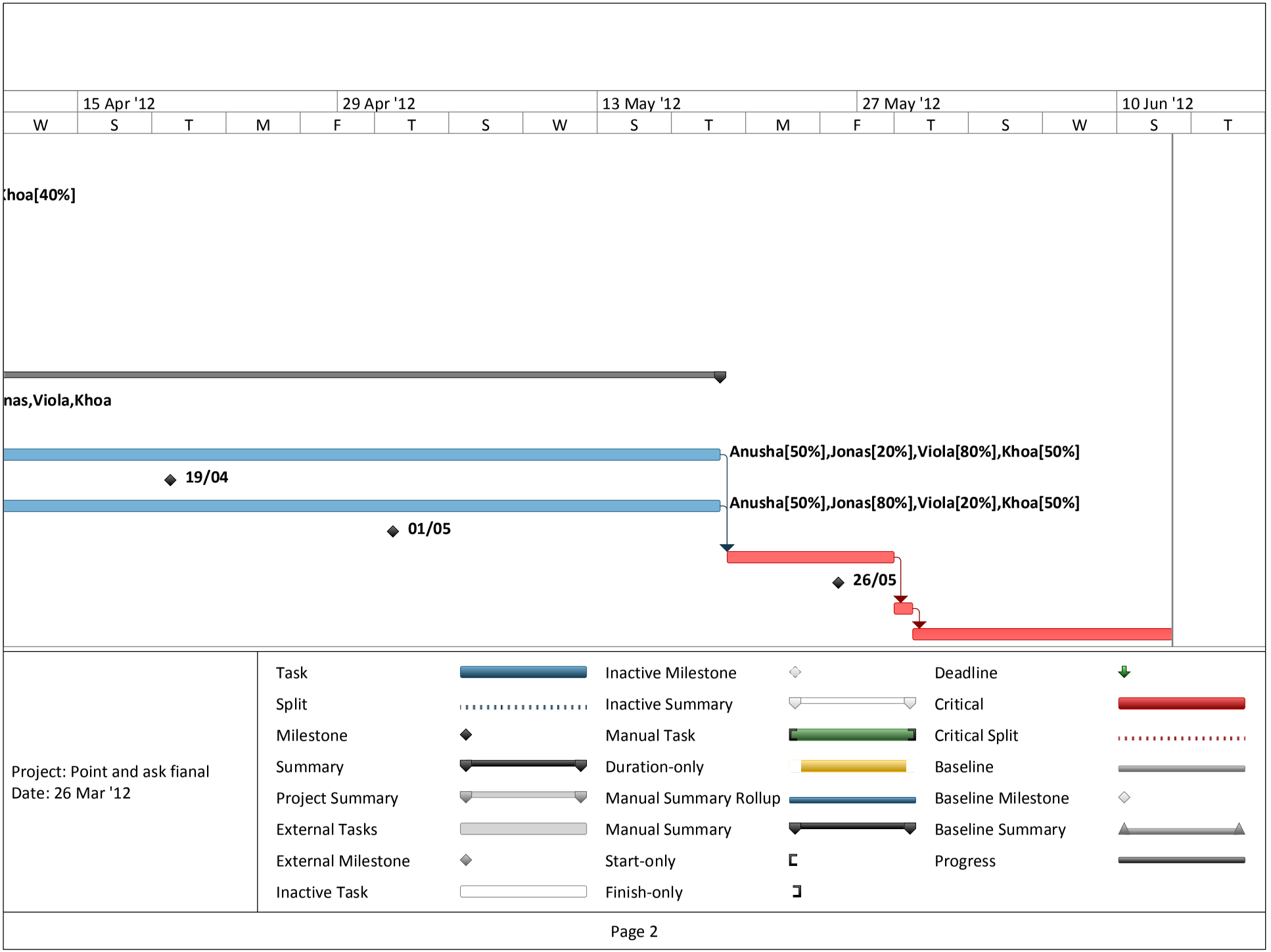
• I come from multimedia design, and did very little product design. However I am interested in new technology. I had strong skill in HTML, CSS, and Javascript and really strong in graphic design.
• Role: Take care of hardware development. Preparing the project plan.
• Strength: HTML, CSS, Graphic design.
• Weakness: Some time I am a last minute person.

ID	Task Name	Duration	Start
1	1 Timeline- Presenatation Preaparation	1 day	19 Mar '12
2	2 Presenation	1 day	20 Mar '12
3	3 Proposal	10 days	21 Mar '12
4	**4 Research**	**20 days**	**20 Mar '12**
5	4.1 Project proposal	0 days	26 Mar '12
6	4.2 User research	20 days	20 Mar '12
7	4.3 Soft research	20 days	20 Mar '12
8	4.4 Hardware research	20 days	20 Mar '12
9	5 Finished up research, meet with lecturers	0 days	31 Mar '12
10	**6 Design**	**99.5 days**	**31 Mar '12**
11	6.1 User experience design	12 days	31 Mar '12
12	6.2 Finalized desire technology, and user intera	0 days	05 Apr '12
13	6.3 Harware design	87.5 days	06 Apr '12
14	6.4 Workable hardware that can show some kir	0 days	19 Apr '12
15	6.5 Software desgin	87.5 days	06 Apr '12
16	6.6 Start to intergrated software and hardware	0 days	01 May '12
17	7 Testing	18 days	20 May '12
18	8 Working prototype	0 days	26 May '12
19	9 Exhibit prepare + Exhibit	2 days	29 May '12
20	10 Portfolio Design	28 days	30 May '12



Project: Point and ask fianal
Date: 26 Mar '12

Task		Inactive Milestone		Deadline	
Split		Inactive Summary		Critical	
Milestone		Manual Task		Critical Split	
Summary		Duration-only		Baseline	
Project Summary		Manual Summary Rollup		Baseline Milestone	
External Tasks		Manual Summary		Baseline Summary	
External Milestone		Start-only		Progress	
Inactive Task		Finish-only			


15 Apr '12
29 Apr '12
13 May '12
27 May '12
10 Jun '12
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hoa[40%]
nas,Viola,Khoa
Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
19/04
Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
01/05
26/05
Project: Point and ask fianal
Date: 26 Mar '12
Task
Split
Milestone
Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
Deadline
Critical
Critical Split
Baseline
Baseline Milestone
Baseline Summary
Progress

Critical Tasks as of 25 Mar '12
Point and ask

ID	Indicators	Task Name	Duration	Start	Finish	Prede	Resource Names
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa

ID	Resource Name	Units	Work	Delay	Start	Finish
1	Anusha	100%	112 hrs	0 days	30 May '12	12 Jun '12
2	Jonas	100%	112 hrs	0 days	30 May '12	12 Jun '12
3	Viola	100%	112 hrs	0 days	30 May '12	12 Jun '12
4	Khoa	100%	112 hrs	0 days	30 May '12	12 Jun '12

19		Exhibit prepare + Exhibit	2 days	29 May '12	29 May '12	17	Anusha,Jonas,Viola,Khoa

ID	Resource Name	Units	Work	Delay	Start	Finish
1	Anusha	100%	8 hrs	0 days	29 May '12	29 May '12
2	Jonas	100%	8 hrs	0 days	29 May '12	29 May '12
3	Viola	100%	8 hrs	0 days	29 May '12	29 May '12
4	Khoa	100%	8 hrs	0 days	29 May '12	29 May '12

18		Working prototype	0 days	26 May '12	26 May '12		
17		Testing	18 days	20 May '12	28 May '12	13,15	Anusha,Jonas,Viola,Khoa

ID	Resource Name	Units	Work	Delay	Start	Finish
1	Anusha	100%	72 hrs	0 days	20 May '12	28 May '12
2	Jonas	100%	72 hrs	0 days	20 May '12	28 May '12
3	Viola	100%	72 hrs	0 days	20 May '12	28 May '12
4	Khoa	100%	72 hrs	0 days	20 May '12	28 May '12

16		Start to intergrated software and hardware	0 days	01 May '12	01 May '12		
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]

ID	Resource Name	Units	Work	Delay	Start	Finish
1	Anusha	50%	175 hrs	0 days	06 Apr '12	19 May '12
2	Jonas	80%	240 hrs	0 days	06 Apr '12	13 May '12
3	Viola	20%	70 hrs	0 days	06 Apr '12	19 May '12
4	Khoa	50%	175 hrs	0 days	06 Apr '12	19 May '12

14		Workable hardware that can show some kind of connectiv	0 days	19 Apr '12	19 Apr '12		
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]

ID	Resource Name	Units	Work	Delay	Start	Finish
1	Anusha	50%	175 hrs	0 days	06 Apr '12	19 May '12
2	Jonas	20%	70 hrs	0 days	06 Apr '12	19 May '12
3	Viola	80%	280 hrs	0 days	06 Apr '12	19 May '12
4	Khoa	50%	175 hrs	0 days	06 Apr '12	19 May '12

12		Finalized desire technology, and user interaction	0 days	05 Apr '12	05 Apr '12		
11		User experience design	12 days	31 Mar '12	05 Apr '12		Anusha,Jonas,Viola,Khoa

ID	Resource Name	Units	Work	Delay	Start	Finish
1	Anusha	100%	48 hrs	0 days	31 Mar '12	05 Apr '12
2	Jonas	100%	48 hrs	0 days	31 Mar '12	05 Apr '12
3	Viola	100%	48 hrs	0 days	31 Mar '12	05 Apr '12
4	Khoa	100%	48 hrs	0 days	31 Mar '12	05 Apr '12

9		Finished up research, meet with lecturers	0 days	31 Mar '12	31 Mar '12		
8		Hardware research	20 days	20 Mar '12	30 Mar '12		Khoa[50%]

ID	Resource Name	Units	Work	Delay	Start	Finish
4	Khoa	50%	58 hrs	0 days	20 Mar '12	30 Mar '12

7		Soft research	20 days	20 Mar '12	30 Mar '12		Jonas[50%]

ID	Resource Name	Units	Work	Delay	Start	Finish
2	Jonas	50%	58 hrs	0 days	20 Mar '12	30 Mar '12

6		User research	20 days	20 Mar '12	30 Mar '12		Anusha[50%],Viola[50%]

ID	Resource Name	Units	Work	Delay	Start	Finish
1	Anusha	50%	58 hrs	0 days	20 Mar '12	30 Mar '12
3	Viola	50%	22 hrs	9 days	25 Mar '12	30 Mar '12

5		Project proposal	0 days	26 Mar '12	26 Mar '12		
3		Proposal	10 days	21 Mar '12	25 Mar '12	2	Anusha[40%],Jonas[40%],Viola[40%],Khoa[40%]

ID	Resource Name	Units	Work	Delay	Start	Finish
1	Anusha	40%	40 hrs	0 days	21 Mar '12	25 Mar '12
2	Jonas	40%	40 hrs	0 days	21 Mar '12	25 Mar '12
3	Viola	40%	40 hrs	0 days	21 Mar '12	25 Mar '12
4	Khoa	40%	40 hrs	0 days	21 Mar '12	25 Mar '12

2		Presenation	2 days	20 Mar '12	20 Mar '12	1	Anusha,Jonas,Viola,Khoa

ID	Resource Name	Units	Work	Delay	Start	Finish
1	Anusha	100%	4 hrs	0 days	20 Mar '12	20 Mar '12
2	Jonas	100%	8 hrs	0 days	20 Mar '12	20 Mar '12
3	Viola	100%	8 hrs	0 days	20 Mar '12	20 Mar '12
4	Khoa	100%	8 hrs	0 days	20 Mar '12	20 Mar '12

1		Timeline- Presenatation Preaparation	2 days	19 Mar '12	19 Mar '12		Anusha,Jonas,Viola,Khoa

ID	Resource Name	Units	Work	Delay	Start	Finish
1	Anusha	100%	4 hrs	0 days	19 Mar '12	19 Mar '12
2	Jonas	100%	8 hrs	0 days	19 Mar '12	19 Mar '12
3	Viola	100%	8 hrs	0 days	19 Mar '12	19 Mar '12
4	Khoa	100%	8 hrs	0 days	19 Mar '12	19 Mar '12

Resource Usage as of 25 Mar '12
Point and ask fianal

	18/03/12	25/03/12	01/04/12	08/04/12	15/04/12	22/04/12	29/04/12	06/05/12	13/05/12	20/05/12	27/05/12	03/06/12	10/06/12	17/06/12	Total
Anusha	76 hrs	38 hrs	56 hrs	56 hrs	56 hrs	56 hrs	56 hrs	56 hrs	54 hrs	56 hrs	56 hrs	56 hrs	24 hrs		696 hrs
Timeline- Presenatation Preaparation	4 hrs														4 hrs
Presenation	4 hrs														4 hrs
Proposal	32 hrs	8 hrs													40 hrs
User research	36 hrs	22 hrs													58 hrs
User experience design		8 hrs	40 hrs												48 hrs
Harware design			8 hrs	28 hrs	28 hrs	28 hrs	28 hrs	28 hrs	27 hrs						175 hrs
Software desgin			8 hrs	28 hrs	28 hrs	28 hrs	28 hrs	28 hrs	27 hrs						175 hrs
Testing										56 hrs	16 hrs				72 hrs
Exhibit prepare + Exhibit											8 hrs				8 hrs
Portfolio Design											32 hrs	56 hrs	24 hrs		112 hrs
Jonas	84 hrs	38 hrs	56 hrs	56 hrs	56 hrs	56 hrs	56 hrs	56 hrs	14 hrs	56 hrs	56 hrs	56 hrs	24 hrs		664 hrs
Timeline- Presenatation Preaparation	8 hrs														8 hrs
Presenation	8 hrs														8 hrs
Proposal	32 hrs	8 hrs													40 hrs
Soft research	36 hrs	22 hrs													58 hrs
User experience design		8 hrs	40 hrs												48 hrs
Harware design			3.2 hrs	11.2 hrs	11.2 hrs	11.2 hrs	11.2 hrs	11.2 hrs	10.8 hrs						70 hrs
Software desgin			12.8 hrs	44.8 hrs	44.8 hrs	44.8 hrs	44.8 hrs	44.8 hrs	3.2 hrs						240 hrs
Testing										56 hrs	16 hrs				72 hrs
Exhibit prepare + Exhibit											8 hrs				8 hrs
Portfolio Design											32 hrs	56 hrs	24 hrs		112 hrs
Viola	48 hrs	38 hrs	56 hrs	56 hrs	56 hrs	56 hrs	56 hrs	56 hrs	54 hrs	56 hrs	56 hrs	56 hrs	24 hrs		668 hrs
Timeline- Presenatation Preaparation	8 hrs														8 hrs
Presenation	8 hrs														8 hrs
Proposal	32 hrs	8 hrs													40 hrs
User research		22 hrs													22 hrs
User experience design		8 hrs	40 hrs												48 hrs
Harware design			12.8 hrs	44.8 hrs	44.8 hrs	44.8 hrs	44.8 hrs	44.8 hrs	43.2 hrs						280 hrs
Software desgin			3.2 hrs	11.2 hrs	11.2 hrs	11.2 hrs	11.2 hrs	11.2 hrs	10.8 hrs						70 hrs
Testing										56 hrs	16 hrs				72 hrs
Exhibit prepare + Exhibit											8 hrs				8 hrs
Portfolio Design											32 hrs	56 hrs	24 hrs		112 hrs
Khoa	84 hrs	38 hrs	56 hrs	56 hrs	56 hrs	56 hrs	56 hrs	56 hrs	54 hrs	56 hrs	56 hrs	56 hrs	24 hrs		704 hrs
Timeline- Presenatation Preaparation	8 hrs														8 hrs
Presenation	8 hrs														8 hrs
Proposal	32 hrs	8 hrs													40 hrs
Hardware research	36 hrs	22 hrs													58 hrs
User experience design		8 hrs	40 hrs												48 hrs
Harware design			8 hrs	28 hrs	28 hrs	28 hrs	28 hrs	28 hrs	27 hrs						175 hrs
Software desgin			8 hrs	28 hrs	28 hrs	28 hrs	28 hrs	28 hrs	27 hrs						175 hrs
Testing										56 hrs	16 hrs				72 hrs
Exhibit prepare + Exhibit											8 hrs				8 hrs
Portfolio Design											32 hrs	56 hrs	24 hrs		112 hrs
Total	292 hrs	152 hrs	224 hrs	224 hrs	224 hrs	224 hrs	224 hrs	224 hrs	176 hrs	224 hrs	224 hrs	224 hrs	96 hrs		2,732 hrs

Viola 's Task

ID	Indicators	Task Name	Duration	Start	Finish	Prede	Resource Names
Week of 18 March							
1		Timeline- Presenatation Preaparation	2 days	19 Mar '12	19 Mar '12		Anusha,Jonas,Viola,Khoa
2		Presenation	2 days	20 Mar '12	20 Mar '12	1	Anusha,Jonas,Viola,Khoa
6		User research	20 days	20 Mar '12	30 Mar '12		Anusha[50%],Viola[50%]
3		Proposal	10 days	21 Mar '12	25 Mar '12	2	Anusha[40%],Jonas[40%],Viola[40%],Khoa[40%]
Week of 25 March							
6		User research	20 days	20 Mar '12	30 Mar '12		Anusha[50%],Viola[50%]
3		Proposal	10 days	21 Mar '12	25 Mar '12	2	Anusha[40%],Jonas[40%],Viola[40%],Khoa[40%]
11		User experience design	12 days	31 Mar '12	05 Apr '12		Anusha,Jonas,Viola,Khoa
Week of 01 April							
11		User experience design	12 days	31 Mar '12	05 Apr '12		Anusha,Jonas,Viola,Khoa
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 08 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 15 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 22 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 29 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 06 May							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 13 May							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 20 May							
17		Testing	18 days	20 May '12	28 May '12	13,15	Anusha,Jonas,Viola,Khoa
Week of 27 May							
17		Testing	18 days	20 May '12	28 May '12	13,15	Anusha,Jonas,Viola,Khoa
19		Exhibit prepare + Exhibit	2 days	29 May '12	29 May '12	17	Anusha,Jonas,Viola,Khoa
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa
Week of 03 June							
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa
Week of 10 June							
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa

Jonas's Task

ID	Indicators	Task Name	Duration	Start	Finish	Prede	Resource Names
Week of 18 March							
1		Timeline- Presenatation Preaparation	2 days	19 Mar '12	19 Mar '12		Anusha,Jonas,Viola,Khoa
2		Presenation	2 days	20 Mar '12	20 Mar '12	1	Anusha,Jonas,Viola,Khoa
7		Soft research	20 days	20 Mar '12	30 Mar '12		Jonas[50%]
3		Proposal	10 days	21 Mar '12	25 Mar '12	2	Anusha[40%],Jonas[40%],Viola[40%],Khoa[40%]
Week of 25 March							
7		Soft research	20 days	20 Mar '12	30 Mar '12		Jonas[50%]
3		Proposal	10 days	21 Mar '12	25 Mar '12	2	Anusha[40%],Jonas[40%],Viola[40%],Khoa[40%]
11		User experience design	12 days	31 Mar '12	05 Apr '12		Anusha,Jonas,Viola,Khoa
Week of 01 April							
11		User experience design	12 days	31 Mar '12	05 Apr '12		Anusha,Jonas,Viola,Khoa
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 08 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 15 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 22 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 29 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 06 May							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 13 May							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 20 May							
17		Testing	18 days	20 May '12	28 May '12	13,15	Anusha,Jonas,Viola,Khoa
Week of 27 May							
17		Testing	18 days	20 May '12	28 May '12	13,15	Anusha,Jonas,Viola,Khoa
19		Exhibit prepare + Exhibit	2 days	29 May '12	29 May '12	17	Anusha,Jonas,Viola,Khoa
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa
Week of 03 June							
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa
Week of 10 June							
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa

Anusha 's Task

ID	Indicators	Task Name	Duration	Start	Finish	Prede	Resource Names
Week of 18 March							
1		Timeline- Presenatation Preaparation	2 days	19 Mar '12	19 Mar '12		Anusha,Jonas,Viola,Khoa
2		Presenation	2 days	20 Mar '12	20 Mar '12	1	Anusha,Jonas,Viola,Khoa
6		User research	20 days	20 Mar '12	30 Mar '12		Anusha[50%],Viola[50%]
3		Proposal	10 days	21 Mar '12	25 Mar '12	2	Anusha[40%],Jonas[40%],Viola[40%],Khoa[40%]
Week of 25 March							
6		User research	20 days	20 Mar '12	30 Mar '12		Anusha[50%],Viola[50%]
3		Proposal	10 days	21 Mar '12	25 Mar '12	2	Anusha[40%],Jonas[40%],Viola[40%],Khoa[40%]
11		User experience design	12 days	31 Mar '12	05 Apr '12		Anusha,Jonas,Viola,Khoa
Week of 01 April							
11		User experience design	12 days	31 Mar '12	05 Apr '12		Anusha,Jonas,Viola,Khoa
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 08 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 15 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 22 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 29 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 06 May							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 13 May							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 20 May							
17		Testing	18 days	20 May '12	28 May '12	13,15	Anusha,Jonas,Viola,Khoa
Week of 27 May							
17		Testing	18 days	20 May '12	28 May '12	13,15	Anusha,Jonas,Viola,Khoa
19		Exhibit prepare + Exhibit	2 days	29 May '12	29 May '12	17	Anusha,Jonas,Viola,Khoa
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa
Week of 03 June							
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa
Week of 10 June							
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa

Khoa 's Task

ID	Indicators	Task Name	Duration	Start	Finish	Prede	Resource Names
Week of 18 March							
1		Timeline- Presenatation Preaparation	2 days	19 Mar '12	19 Mar '12		Anusha,Jonas,Viola,Khoa
2		Presenation	2 days	20 Mar '12	20 Mar '12	1	Anusha,Jonas,Viola,Khoa
8		Hardware research	20 days	20 Mar '12	30 Mar '12		Khoa[50%]
3		Proposal	10 days	21 Mar '12	25 Mar '12	2	Anusha[40%],Jonas[40%],Viola[40%],Khoa[40%]
Week of 25 March							
8		Hardware research	20 days	20 Mar '12	30 Mar '12		Khoa[50%]
3		Proposal	10 days	21 Mar '12	25 Mar '12	2	Anusha[40%],Jonas[40%],Viola[40%],Khoa[40%]
11		User experience design	12 days	31 Mar '12	05 Apr '12		Anusha,Jonas,Viola,Khoa
Week of 01 April							
11		User experience design	12 days	31 Mar '12	05 Apr '12		Anusha,Jonas,Viola,Khoa
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 08 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 15 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 22 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 29 April							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 06 May							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 13 May							
13		Harware design	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[20%],Viola[80%],Khoa[50%]
15		Software desgin	87.5 days	06 Apr '12	19 May '12	11	Anusha[50%],Jonas[80%],Viola[20%],Khoa[50%]
Week of 20 May							
17		Testing	18 days	20 May '12	28 May '12	13,15	Anusha,Jonas,Viola,Khoa
Week of 27 May							
17		Testing	18 days	20 May '12	28 May '12	13,15	Anusha,Jonas,Viola,Khoa
19		Exhibit prepare + Exhibit	2 days	29 May '12	29 May '12	17	Anusha,Jonas,Viola,Khoa
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa
Week of 03 June							
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa
Week of 10 June							
20		Portfolio Design	28 days	30 May '12	12 Jun '12	19	Anusha,Jonas,Viola,Khoa

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