

ONESTEP MENTORSHIP PLATFORM PROJECT PLAN

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ONESTEP PROJECTS

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ONESTEP MENTORSHIP PLATFORM PROJECT PLAN

By: Team MuchCS

Problem Definition

With vast amounts of valuable resources that are now on the internet, many of us would find it hard to imagine trying to live without easily attaining access to these resources. Unfortunately, for the young professionals and students in Nepal, accessing internet resources is a little harder. Unfamiliarity with the English language, and simply being less exposed to technology, compared to us university students, make it hard for them to find what they are looking for on the web. Furthermore, with the obsession with high definition and graphic intensive user interfaces in today's web development, it is hard for the Nepalese, who lack access to high performance computers and high speed internet, to access many valuable sources on the internet due to the technology that they possess. In addition, although some people in the city may have access to their own internet and devices, the people in the villages, the ones that are most disconnected to resources, only have a few devices that are shared amongst many people. This poses another challenge for Nepalese students and professionals in rural communities because by the time they get to find a valuable resource, they have to leave to give an opportunity for others to use the computer as well, barely leaving them with any time to actually read and learn from what they found. It is clear to us that the people in Nepal value the use of technology, but the problem is that technology is not used to its full potential due to issues in accessibility. This leaves many Nepalese students in a position where they cannot self-develop and achieve to their full potential from both the educational and professional perspective.

Given the current state of Nepal, the lack of opportunities for personal development is a major problem for the Nepalese people. First and foremost, Nepalese people have just recently been struck by a devastating earthquake, removing villages off the map and destroying the already abysmal infrastructure. Without professional development and education, it would be hard for an individual to help themselves, their family, and most importantly, their village, in the recovery process since they lack the funds to do so. Secondly, poverty is still a major problem in Nepal, as there is a general lack of skilled labor in the economic sector. Without education, it is hard for the Nepalese to have skills to work in skilled labor positions. Furthermore, even if they do get the education, there is still a general lack of opportunities in terms of jobs in skilled positions in Nepal. Thus, there is also a huge need to develop entrepreneurship and professional opportunities to create skilled jobs that would help Nepal develop economically.

On the bright side of Nepal's current status, Nepal's government has displayed its willingness to fund education and the future of its people. Over the past decade, Nepal has substantially increased funding for government-run schools, showing that politically, they are very invested in helping their people get educated. Statistics show that up to 90 percent of kids

are now enrolled in primary school (Aryal). Another bright side to the current state of Nepal's education is that the people of Nepal have shown some great interest in helping their kids get a better education. Many stories come up in Nepal where parents are picking up two jobs and families are moving into smaller homes just so that they can afford to send their kids to private school, which has a 90 percent success rate to take kids to secondary school compared to the 30 percent that the government schools yield(Aryal).

The willingness of the people to help their kids get educated is a good sign of the cultural willingness to get educated. However, it also demonstrates some problems that the government run education system is facing. Although the primary school numbers may be great, the statistics show that education at the secondary level and beyond is still very dismal, with less than a third of the students enrolled in school making it to grade 10 and beyond(Aryal). Bidhyanath Koirala, a professor at Nepal's Tribhuwan University, blames the problem on the lack of opportunities for students to explore and develop their curiosities beyond textbooks, which is why Nepal's educational state is still very anemic (Aryal). From the standpoint of U.S. university students, it seems that a very potent solution to allow students to develop their curiosities is through learning on the internet . This is why we believe that our web platform is needed because the simplification of the search to resources would develop curiosities and global awareness, which would spark further interest in education and also interest in developing skills that can provide assistance in professional development. It seems from both a political and cultural perspective, Nepalese people value education deeply, which is why we believe that our platform would not pose major problems with the people, and that we expect high adoption and promotion rates of our platform in Nepal.

Overall, non-tech savvy Nepalese students and young professionals working with the non-profit organization One Step need a web platform to simplify and quicken the access to professional and educational resources because they face challenges in accessing resources that can potentially improve learning and professional development, which can have communal implications in improving economic productivity and poverty conditions especially for those hit hard by the earthquake.

Stakeholder Analysis

Key:

Manage Closely - high power, high interest

Keep Informed - low power, high interest

Keep Satisfied - high power, low interest

Monitor - low power, low interest

Nitya Timalisina at One Step – Nitya, the founder of the nonprofit organization One Step, is MuchCS's client and the key player in this project. She is the bridge between the users and the engineers. She provides answers to any questions MuchCS has regarding the project and how they should go about coming up with an idea for it. She has a strong influence on the decisions made pertaining to the project. MuchCS is trying to build something that she believes the Nepali people would deeply benefit from. She is highly interested in this project because she is the one who thought of providing the Nepali people with a mentorship platform after she visited Nepal in the summer with Brandon. MuchCS can communicate with Nitya in person, through e-mail, or through Trello.

Engineers at MuchCS – The team that is responsible for proposing an informative and educational online platform for Nepalese students and young professionals. While the design is being restricted by the local Internet access, the team has high influence over how information are being presented in an intuitive and easy-to-understand way to the platform users. The team also has high interest in this project because they are motivated to expose students around the world the same educational resources they have in their hands. The team meets in class and outside of class three times per week. They also sync with each other through Facebook Messenger, Slack, and Google Drive.

Brandon Reynante – Brandon is the instructor of the class and as such, MuchCS has to keep him updated about any progress they have made with their project. He has a high interest in their project because he had the opportunity to see what it was like in Nepal, works with the nonprofit organization, and is friends with the client. If MuchCS ever needs guidance or support concerning the project, he is the perfect person to go to because he has had first hand experience with the subject since he actually visited Nepal. He is also easily accessible because if MuchCS has any pressing matters that need attending, they can simply ask him before or after class, e-mail him, or during office hours.

Young Students of Nepal – The young students of Nepal will be one of the main users of MuchCS's product. They have no power in the implementation of it, but they will be the ones who are most affected by the decisions that the team makes. They have a strong influence over the actual design phase of the product because MuchCS is trying to design it in a way that would most benefit them. The young students are not very tech savvy so they are not adept at using Google as a resource for finding the information they require. With this product, the team would be helping the young students of Nepal apply for college and scholarships, along with finding opportunities that are available to them outside of Nepal. The students would have a very high interest in the product because it is very beneficial to them. The team members cannot directly speak with the young students, but they can talk to the client who has local contacts in Nepal.

Young Professionals of Nepal – The young professionals of Nepal will be the other main users of the product. They also do not have any power in the implementation of the product, but they are just as affected by the end result of MuchCS's project as the students are. They have a strong influence over the design of this product because the team is trying to tailor it to their needs. Some of these young professionals may also be entrepreneurs trying to start a business and may want to form connections with potential partners. They may not be aware of the opportunities available to them outside of Nepal. MuchCS's product is designed to help them explore all of their available opportunities. They have a very high interest in this product because it is designed to aid them in whatever endeavors they choose to pursue. Again, the team members cannot directly speak with the young professionals, but they can talk to the client who has local contacts in Nepal.

Universities and Nonprofit Organizations outside of Nepal – Universities and nonprofit organizations outside of Nepal have high interest in this platform because it can help students in Nepal and provide international collaboration opportunities. They don't have too much influence in the design because they each have different feature requirements. MuchCS wants this platform to be as generic as possible, so any institutions can use it to seek international students. The engineering team plans to reach out to these organizations via emails.

Local Schools in Nepal – Local schools in Nepal have the power to promote the use of this platform among their students. They have to the power to start local communities to help maintaining and spreading useful information from the platform and create a sustainable learning environment. Their interest level is not as high, since utilizing online educational resources might not be their current priority. MuchCS plans to pass messages to the local school officials through Nitya.

Large Tech Corporations – Companies like Qualcomm and Google have the power to provide hardwares for students to access the the platform. Their interest level is not as high because the platform has not been fully implemented. However, if the engineering team can engage and consult their interests, these companies can be turned into key players and help funding the product. MuchCS plans to contact these corporations through their campus specialists.

Content Creators – People who publish video tutorials and educational resources online have low interest in this platform because they already use existing web platforms such as YouTube and Quora to publish their contents. They also have very little influence over the design of this platform because they are only content creators. The platform will take advantage of existing online contents, but in the future, it can grow its own content creator community that tailors to the user interests. MuchCS plans to reach out to content creators through emails.

Stakeholder Analysis Matrix

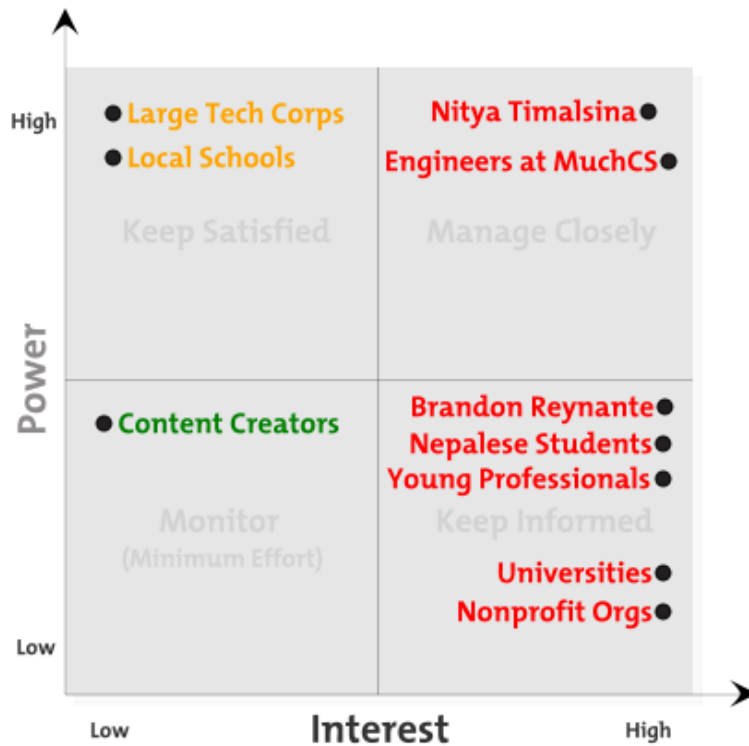


Figure 1

Existing Solutions

Our client wants us to build a website that can be easily used by Nepalis in order to give them an opportunity to explore their interests. Although there are a lot of websites that already exist to give them this type of information, people in Nepal do not know how to utilize these websites. Some are difficult to navigate through and some are too specific to a certain topic which limits the people of Nepal to find what they want to.

Existing Solution	Pros	Cons	Link
Khan Academy	• Variety of tutorials • Educational topics • Provided in different languages	• Solely based on education • Difficult to navigate • Page contains a lot of icons and content that can be confusing	https://www.khanacademy.org/
Google	• Huge search engine • Easy to use • Easy to navigate	• You have to know specific keywords • Translation has glitches	https://www.google.com/
Quora	• Answers from people with experience • Ask questions and receive responses • Receive advice from others	• Can't distinguish between good and bad answers • You have to know an efficient amount of English	https://www.quora.com/
Reddit	• Resourceful page with links on a variety of topics • Simple user interface	• Difficult to navigate • Contains graphic or inappropriate things	https://www.reddit.com/
MySangham	• Simple to understand • Easy to navigate	• Specific to India	https://www.mysangham.com/
Yahoo Answers	• Receive answers from other people • Ask questions you want • Many categories	• Can't distinguish between good and bad answers • Questions are answered by anyone	https://answers.yahoo.com
EngineeringForChange	• Interactive online training for entrepreneurs	• Only targeted towards entrepreneurs • Page contains a lot of content to load	http://www.engineeringforchange.org/

Design Specifications

The client asked for a web application that looks professional, is easy to understand, and is lightweight. Lightweight entails capable of being accessed with low bandwidth and few resources, such as memory. Despite these restrictions the web application is tailored to providing Nepali youth access to resources and opportunities. Design details are flexible and could change in the future due to unforeseen external factors. One of the key design decisions for the web application is to have it be user friendly and utilize basic English. We will also be providing an alternative Nepali interface to help those with no English language skills. This is to ensure that the Nepali youth who are not familiar with technology and English are able to navigate the site. Therefore, the web application will be mainly visual in an attempt to help our users overcome the boundaries of language in accessing the wealth of resources online. Video tutorials will have both English and Nepali subtitles depending on which the user prefers. Another key design decision is making the application lightweight so that it can be accessed via a variety of devices

and bandwidth speeds. The goal is to have sites load within 10 seconds, the limit for keeping the user's attention. This means that under the assumption that the bandwidth in Nepal is 20kbps on average across the country the web page size should be 25kb at maximum to ensure the page loads within 10 seconds (Nielsen). This limitation in web page size can be increased with more knowledge on the bandwidth in Nepal, specifically in villages that the site could be accessed from.

In regards to cost and maintainability of the web application funds will be required to ensure that the site is up and running at all times. We currently do not have a budget to work with but hopefully we will be funded in the future. A virtual private server (VPS) is necessary to host the website and the database that the information is stored. The cost of these can range depending on the features included in the VPS but a basic one from Amazon can be purchased for \$13.14/month. Furthermore to add a database to store data it will cost another \$49.78/month assuming 24 hours/day database usage. It may be possible to mitigate servers costs if the client already has a server setup for their existing website. Furthermore, the client has mentioned wanting locals to help manage the website as an admin or moderator. This would require time to build the appropriate infrastructure to support these features. In addition, those that want to help maintain the site need to be trained and that requires time and funds. Due to the nature of the web application people have to be found to maintain the website on the backend in case that bugs arise. Possible technologies that can be used to create with web application are listed in the appendix. Technology decisions will depend on resources available to the client because some require different levels of maintenance in addition to the varying cost of professionals with the appropriate abilities. It might be possible to find qualified volunteers from universities to help with upkeep but this would require connections on the client's part.

Sustainability Plan

The long term goal for our website is to promote learning by encouraging new ways of thinking and obtaining information. We want to provide the youth and young professionals of Nepal a tool for finding resources to educate them and achieve their larger goals. Our planned design won't function as an answer machine like how Yahoo Answers or Quora operate but will instead lead users to guides, tutorials, contacts, scholarship opportunities and more promoting second order change. Another planned feature of our site is providing resources to young professionals looking to become entrepreneurs. If successful in their endeavors, new businesses and possibly new industries will spring up bringing about third order change.

In order to keep our site to be sustained, we need to be able to change and update what content we deliver to our users. Industries change and new information is available everyday on the internet and we want to make sure our site keeps up with the times. We also want to share ownership of our site with our Nepalese and potentially other under privileged users. In order to

accomplish both, our team is working on a system that allows the users of the site to add content that they find relevant. They would also act as moderators of what can and cannot be put into the site. Moderators will have to be vetted and proven trustworthy for this to succeed which is an issue we need to address. Updates will be handled in a Wikipedia like fashion where users can add or make changes to content but with the approval of a moderator. We will also keep a feedback and suggestion line of communication open so that our group of developers can make changes based on concerns of our users.

While developing our site, we need to make sure that our site is open to and has resources for both men and women. While speaking with our client, we noticed that women specifically were mentioned in lacking the opportunity to attend school due to economic constraints. We also need to note the carbon footprint a website leaves. Our site should be simple enough to be loaded onto any existing devices that our users may have eliminating any need to upgrade hardware. The servers we have planned to host the site on would be owned by a third party where they will be optimally run and managed by a larger experienced team reducing the environmental impact of that aspect of our project. Ideally we could create a negative carbon footprint by promoting a sustainable lifestyle through the content we provide.

In order to measure the long term impact of our site we would need to track the amount of users and how often they return. It isn't enough for a person to visit, they need to come back in order for our tool to have the impact we desire. We would also want to track the educational paths of people who use our tool and see if there is any substantial difference between those who do and don't use the site. Thing we would be tracking would include school attendance rates, graduation rates, college admission rates and other similar statistics. One way of keeping track of theses statistics is by asking users to update their profiles whenever a milestone like a graduation has been accomplished. For attendance rates, we would need to get in contact with the schools in our target areas. Any user given data does come with the risk of incorrect data which we will need to account for. One potential problem our team has identified is the possibility of brain drain, where people leave their homes to study abroad and end up never returning setting up lives in more developed nations. One of the key resources we want to provide to the Nepalese youth are scholarships opportunities so that they can attend Universities. For those who do end up going to Universities, we would want to track where they end up living their lives and if they return home or not.

Project Management

Our team lead is Stephanie Liang. The team lead's duties so far have been to organize communication and plan meetings. The team lead makes sure that fellow team members complete their assigned tasks. The team lead also leads group discussions and takes care of team tasks like group submissions and team building. Our client liaison is Huang Li. Huang has done a great job contacting our client, Nitya, and obtaining the right information to guide our design process. The client liaison maintains a constant line of communication with our client and makes sure that we know the client's needs and expectations. The team lead and the client liaison will be expected to fully perform in their roles throughout the duration of the project.

The rest of our team members will be assigned specific tasks as we go along with each part of this design process. Our team consists of all computer science majors and one cognitive science major. This means that what each team member can contribute to the project will be relatively similar. Our team dynamic is good and we work well together. The proceeding work will be divided based on each team member's availability and workload for that week. This way, no one is burnt out and the work is fair.

Gantt Chart*

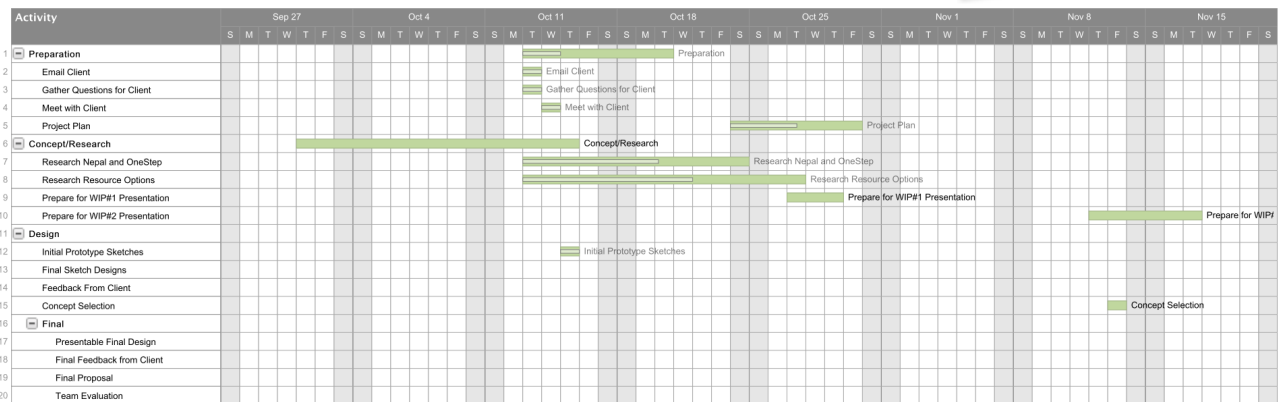


Figure 2

*More detailed Gantt Chart:

<https://app.smartsheet.com/b/home?lx=F4A5yBNRvELW7W6y1t8aQg>

Appendix

Possible Technologies To Implement Web Application

- PHP, Laravel, MySQL
 - Pros: Simple, Fast, Relational, Widely Used, Easy to Deploy, Easy to find people who know it, Supported by many web hosts
 - Cons: Slight learning curve, difficult to maintain/modify, scripts do not hold state
- Node.js, AngularJS, Express, MongoDB
 - Pros: Efficient, Smooth, Non-relational, Front-end, Fast, Supports Concurrency
 - Cons: Requires server, big learning curve, not many web hosts support it (requires server), things move quickly (can break app if dependencies are updated)
- Python, Django, MySQL
 - Pros: Rapid development, Relational, Easy to understand written code, asynchronous
 - Cons: slight learning curve, requires server, lack of mobile support, a little slower
- Nodes.js, AngularJS, Express, Parse
 - Pros: No database server required, others the same as Node.js above
 - Cons: Can get pricey if does very well. Limited storage...

Works Cited

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