Google Glass HUD: Business Plan

ITMD-555: Intelligent Device Application

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I.INTRODUCTION

In this project we have use different kind of modern technologies. We are going to expose what this technologies are, and what are they use for, which is the particular attractive of this project and how can be this project be integrated in the market.

A. Modules explication

We can say that this project is separate in four different modules: The hardware whose mission is make the measurement, the processing, the MongoDB and finally the Google glasses where everything is displayed.

Very first Hardware:

- Sensors: In this particular project four temperature sensors. The kind and the number can be changed in order to meet the client needs.
- Arduino: An open-source platform that will use the measurements of the sensors and sent it to a central office.
- Xbee: A device used by the Arduino to send the data of the sensors to the central computer. The xbee is a Radio module also used to receive the information in the computer.

Processing:

Processing is a software that will be running in the central office. It is based in Java so usually the Java libraries can be used in processing having, this way, a huge amount utilities that can give to our application much strength.

This software will receive all the data by the Xbee, and prepare it to be sent to a data base.

MongoDB:

MongoDB is a document database written en C++. Is a noSQL database and a no document oriented database. It is used to store json files, in a very easy and fast way.

JavaScript can be used to make consults of the database, making in it very accessible from a lot of kinds of applications.

Google Glasses:

It is a device developed by Google in 2011 that its first goal is to display information in an easy way. To interact with them you can do it with the voice or with a tactile panel in the right part of the glasses. So far it is a technology reduced to a few users.

B. The research project

This project can be easily described as a remote monitoring in real-time of a particular situation. The project should not be limit by the measurement, also could be used to remotely control any device from mobile phone.

To make it work, we have assembled the design in four different modules which work perfectly without the other, these modules can be reduced, extended, modified or replaced by others to add new functionality.

The fundamental value we offer is remote control and at real time. Still, there are many attractive beyond this one:

- All the information can be stored in the database, and then used to draw conclusions and correlations, increasing thus the intelligence of any product offered. This information could be also sold.
- The project is fully developed and could be sold directly without external contracts that increase the price of the product.
- All technologies are scalable and can be easily adapted to the needs of each user no matter how big the client is.
- MongoDB is a database very accessible and easy to handle, which means it can be used in many kind of applications.
- Google glasses gives to the application a very strong accessibility that cannot be matched by any other actual device.

C. Current existing market

The idea of the real time monitoring the way we have exposed is a very new market with lots of possibilities and potential. This product can be focused in very different ways. Now, we are going to try to explain in which markets can this project fits giving a useful service adapted to the needs of the client.

First many construction companies may require a real-time monitoring. Building companies for example, need regulation of materials and temperatures. With our solution you will get total control without needing to make the measurements manually.

A possible modification of this project, changing certain modules of the same, could be sending video in real time. Thus it could be a security control in real time of any work or building.

Added to the above, have all the information displayed in the google glasses, is an innovative and intuitive way of doing it, also can be displayed in a mobile phone, or in the browser of a computer. All this possibilities open a huge field of professional solutions. From laboratory control to home security.

The project once designed, requires few modifications, which also facilitates large-scale sales for private use. Without adding to the initial cost, or hiring outside staff. A massive production will make low the price of the production.

There are some companies that offers similar products, which is the different between them and us? Dyometics, Crestron or Insteon are some of the examples. The way we offer our particular solution have a lot of advantages. First of all, the services we give to the client are completely modifiable, you can add or remove every functionality you want. Our solution is not restricted to just one place, or any kind of data, you can choose the number of places you want to have controlled of. The data can be accessed via mobile app, internet or googles glasses too.

Other important area where this product can offer great improvements is the Big Data world. Receiving a data stream so immense and storing it in a huge Data Base can offer lots of possibilities. The first of it is looking for correlations between the external variations and the customer customs. Once you have the correlations you can apply artificial intelligence and improve the server given to the user.

D. Potential market Share

In order to enter into the market this project could be offered in two different ways which will have its own strategy. The product could be focused to individual clients, big companies or both, in each of the cases the functionality of the system will have some modifications.

In the case of following the individual clients' strategy we have to consider that the functionality of the project will be limited to domotic houses or security. In both cases the user will like to have a real-time control of the situation that he consider. About 20% of the people of the world has a smartphone. This product is intended for that 20%. More or less the 40% of the people that will use a domotic house is between 18 and 29 years old, another 44% are between 30 and 44. As this product is very cheap, and gives you access to all the data you consider a good market will be found in people of between 18 and 45 years old, who live in their own houses and placed in big cities.

If we consider the market of selling the product to huge companies the systems is especially attractive to different fields: Military use, farm or factory control, laboratories control, compilation of meteorological data or builder companies.

For military use, the prototype should be improved, normally there is no chance of cellphone networks in military missions which would mean an unsecured connection with a low reliability. One way of improving this failure is using their own radio communication protocol.

In case of factory and farm control our product is the perfect solution. A large number of sensors can be managed by a single terminal, so the client only would need one terminal for each factory or farm. All the terminals could be monitored from any part of the world.

For laboratories control you might need lots of different kinds of data, and a very fast service. The mongoDB offers a very easy, cheap and scalable way of storing all this data. The option of storing the data for a later analysis is a huge benefit. As mongoDB offers a very understandable API, all the data can be moved to be used in any kind of protocol the client might want to use.

In the case off using the product in compilation of meteorological data, our solution may be a little bit more expensive than in the above cases. For gathering the temperature in different point of the earth you will need to place sensors in spaced places and that will force us to install a terminal in each sensor, which will make the project more expensive because the

higher price of the project is installing the terminal, then adding more sensors is the cheapest part.

Finally, builder companies, need reliability and control of the construction, the price of hiring an engineer to verify constantly the variables is huge compared with the price that our system offers. The sensors, as we have said above, are the cheapest part of the project so you could throw them away once you use it. The terminal is reusable for different constructions, so in this industry the potential market is bigger than in the others.

To resume and conclude this introduction, this project offers a very scalable product that can be easy modify to succeed in helping the users with their own needs. Potentially the best market to invest in is the builder companies. Individual clients, factory, farm and laboratory controlling are good fields were the system could make large benefits. In other markets as military or meteorological, this structure might be improve or adapted for fully fit in the client specifications.

II. FINANCIAL

Production cost analysis:

1. MongoDB

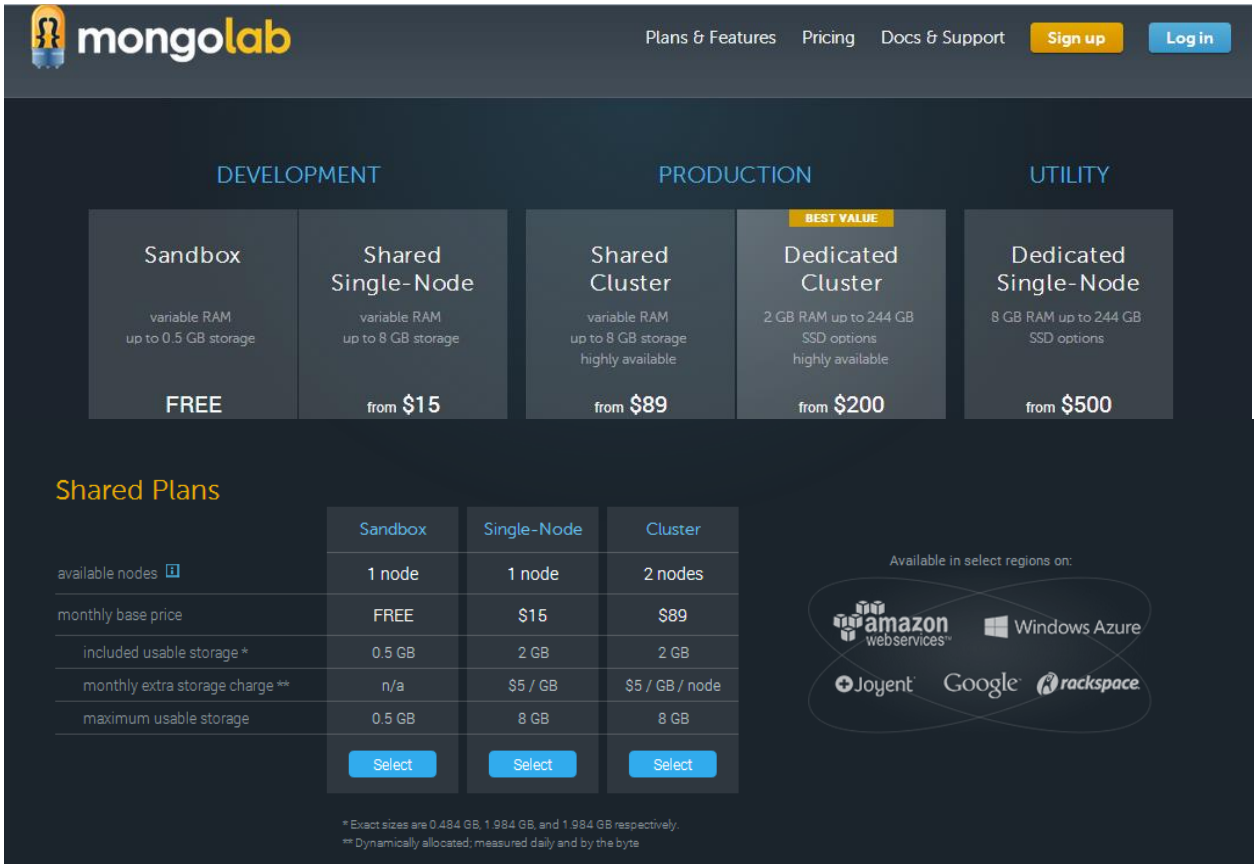
Keeping things in perspective, launch this project may be fairly cheap in a first instance.

Since the product we offer is a cloud service, we should bear in mind the prices of our servers.

To start the deployment, it could be enough with a Sandbox: free monthly base price and 0.5GB storage.

But of course we have to think in a scalable solution, so we can extend the usable storage as much as we need.

The following image shows the future options:



Going to the numbers:

In MongoDB

File size: 0.08 KB

Server size: 0.5 GB

Stored files: 6.250.000 files

If we approach an average of 40 sensors per client we are able to have 100 clients, a pretty good number

We filter the results sent from the sensors, so we only store the data that has really changed from one minute to the next one. This allows us to be receiving data from more than 4.000 sensors and we still don't fill in the who r to launch a close Beta and get valid information.

In addition, and as strength of our project, we have to highlight that the price of this kind of storage is going down every day, and since this is our first tool our expectations are really good at this point.

2. Google Glass:

Our company has arranged a partnership with Google so we will work as a supplier of Google Glass.

This fact assure us a good final price (500$/each) and that we will have enough available units to launch a close Beta for validating the idea and adapting it to the market.

3. Customer side:

We are offering Software as a Service (SaaS) to our clients.

We are going to launch our product with an initial price of $39. There will be a limited times to push the information in our server

Once this threshold is reached, we will offer a dedicated plan to particular customers, with more availability and personal serves with added security, such as replicate servers.

III. PLANNING

A. Strategic planning

To be successful, strategic plans and goals must be put in place.

Some goals that could be set are:

1. To be prepared to have additional space in Mongo DB
2. To open a customer service to resolve problems and doubts
3. To keep the company competitive with the latest technologies.

We have to emphasize that our system is really easy to implement. Once the character of the sensor is known, the only thing left is adapt the Processing program to keep the data sorted as desired in MongoDB.

B. Marketing plan

1. Product evaluation

MongoDB:

- ✓ Is suitable for low-cost data storage for applications that use .JSON files.
- ✓ Is easily scalable to products that provide more data storage and replication

Google Glass

- ✓ Is intuitive for review the data collected from the sensors
- ✓ Is the ultimate technology, a creation made by the giant Google.

2. Research on product

As a company that offers service in the cloud and has a partnership with Google, we are going to announce a special campaign to attract clients.

Our plan is based on the following idea: if you already have a Google Glass, why don't you test our product for free during one month?

If we finally get people by this way, they will keep stuck with us once they have everything up and running.

3. Determinate prime market or markets

Our prime market is the engineering companies which work gathering tons of data and they need to showing the information sorted in order to make an analysis in the shortest possible time. They know exactly what they are looking for and we can deploy it to/with them with a full understanding.

In addition, these companies are the ones who have a lot of money to invest in new products. For sure, they will obtain huge results that allow them to take fast decisions clearly, and all the investment is worth it.

But we can think in a secondary market too: smaller companies or freelance people that already have a pair of Google Glass. They can test our product one month for free. It's a win-win: we get new clients and they get new product.

4. Media Plan:

Our main target are technical people so we will be focusing our media efforts to this population and in order to do this we will discard general media press and focus in a few press but with a huge position in this. We will also focus on the online media because we are a tech company and although our product is very easy to use we are targeting users with at least a medium knowledge of technology.

So our targeted early birds and beta users will be users that read frequently tech online publications such as blogs, watch tech youtube channels, etc, and try to stay up to date to every new gadget available for improving their daily life or their work experience.

We would be splitting our target in two groups, the technical people that will need to implement the 'push API' into their own services, we want the CTOs of our clients companies to now worry about this and let them know that our API is very easy to use and implement so once the engineers ask them for our service they will know that they can implement our system with few effort.

The other group we are targeting is the engineers, the final users of our application, we want them to know how easy their work will be with our system so they wish to work with us and ask their companies to provide them our system.

5. Media selection:

Once we know which are our target we need to define how we are going to get to them. For each group we have defined a different approach and a common one for both of them:

a. Youtube video: We want people to know our product, we want to be known as the company leading the glass revolution in the working environment, so our first step will be creating a video that we can release to the social media so everyone can take a look of what we are doing and the targeted people start asking about us so when we reach them they will be prepared.

b. Tech blogs: We want the tech workers of our clients to know that our service is very easy to implement and to be sure that it will not cost them extra effort and the best way to reach them nowadays are the tech blogs. We will try to get interviews or reviews in some tech blogs, we will reach them as one of **the first company that is finally doing something useful with the google glass** more than just take a selfie or asking Google Maps how to get home. We will ask our partner Google so we both are interested in let people know that Glass are useful and they are the future.

c. Tech events: There are tons of tech events having place in Chicago every week and we will try to sponsored some of them so we can have some time to explain them how we work, how our system works and how they will implement our system in theirs. This is remarkable cheap, just buying some food and drinks and give us a very good position and a slot to talk at the beginning of the event where assistants use to be listening. Some of the events we could sponsor in Chicago are: “Hacker News Chicago Meetup”, “GDG Chicago”, “Chicago Agile Open Space”, “Downtown Chicago Azure Meet-Up”, etc, where assist a lot of software engineers that will be in charge of implementing our system.

d. Engineering press: Once the system engineers know that our system is easy to implement we want engineers to know us so we will be publishing in engineering press, mostly blogs or online publications because we think this is the most effective way and is the kind of press that our team knows.

e. In-situ engineering test: We plan to offer some in-situ test for selected companies that share our vision for the future and that are as much concerned as us for improving the way we work nowadays and try to implement us much technology as necessary in order to improve the productivity of our co-

workers and make their life and work easier. Once the first companies test us and validates our idea we will try to partner with big construction corporation and with this partnerships we will show the world that our system is scalable and that if it is good for this companies why not for them.

f. Our own blog: We will generate our own content with users interview, both sides, final user engineer and system engineer, showing the details of our product, documenting the implementation of our service, etc.

6. Media Budget:

As we are bootstrapping our application and starting with as less money as possible we will try to keep the money for the sponsored events.

We will reach the blogs to show them our product and to try to get a review from them of our product but without buying ads, we will only buy ads in case that we will consider it very necessary and only for engineering press where our final users will be. We will have some pairs of glass for lending them to the beta testers and the blog writers so they can test and review it.

We will empowered the blog reviews with free usage for the first months to every user that already has the Google glass so they can test our service and decide if we are worth to pay us or not, once they have implemented our service in their servers it will be a lot of easier for them to stay than leaving to another service.

7. Deadlines:

As our product is in the final sprint and it will ready for the users soon we can set a basic deadline for the media release:

- First phase: Releasing the video and trying to make it viral so it will reach as much people as possible without expending more money than the necessary for the video production. This phase will be accompanied by the tech blogs approach, introducing ourselves to them and trying to get reviewed their.
- Second phase: Once some blogs reviewed us and some of the tech target persons know about us we will be sponsoring a tech event, or at least trying to, if a week there is not an interesting event we will not sponsor any event just for sponsoring any event, we will save that money.
- Third phase: At this point we hope an interesting percentage of our whole target will, at least, have heard about us. The tech people will be able to find enough

information about us in the internet to discover how easy our service works and engineering people will be willing to try our service. At this point we will try to get publish in engineering media and, in case our actual audience will be consider too small, buy some ads or some paid post in some publication to reinforce our position. This phase will be accompanied by the free usage offer.

8. Review:

We are offering a Software as a Service solution for collecting all the data the nowadays companies generates and sort it so they can use it properly and be able to improve their services or products based on this. This is our core product but we also offered the end-point solutions, a solution from gathering the data from the sensors they have placed and the Google Glass app for displaying the information once it has been collected and sorted.

We are targeting the engineers that will be using the final end, the Google glass app trying to show them how easy their work will be and we are also targeting the people in charge of implementing our gathering data service into their existing servers.

9. Execute the plan:

The plan that we exposed in the previous points is the final plan we are going to execute, at the beginning we were trying to execute a different plan with a different solution in the backend.

In the previous approach our users will be sending us the information gather by them in a file containing a reading per line so this will force us to have a server running in the background processing this file and translating it to JSON format. This could be a good solution for the beginning but for a mid-long term this will not be scalable. This solution will also limit the services from where our clients will be able to push data and will increase the difficulty of pushing the data. We were cutting our own market.

Final approach, after deciding to send the data as a JSON document from the client to our servers we got some advantages:

- We remove a layer from our backend, so maintaining it will be cheaper and easier.
- We make it easier for the clients to implement our service in their existing ones.
- We let know how we want the information to the clients so they will be able to use our service more efficiently.

10. Adjustment in marketing plan:

As we simplified our services and make it easier for the users we want to let them know that know “our service is even easier to use and more efficiently” so we will highlight this words in the press release and in the content we generate in our web.

IV. REVUE AND EVALUATION

We began developing our service from a specific need from a specific industry, the construction engineering needing a way of tracking the temperature of the several concrete area they were working with and the difficult of accessing them.

Once we began developing it and we went out there and start talking about our idea we realize that we shouldn't focus on this tiny market but create a complete data framework so every client can introduce data in our service and have that data convert into information and shown it properly so they can take advantage of it.

Since then we focused on building the framework and make it as accessible as possible and open to any kind of data the clients want to push, more data types we accept more clients we can have.

V. SUMMARY

We are creating a product for a big market, with some interesting markets, trying to take advantage of being the first ones using the Google Glass and with the relevance that it will give us trying to create a win-win partnership with Google so we both get benefits from it.

Our main clients will be big corporations needing our services but we will have a good percentage of small business and single clients that will get benefits from our service.

Our product needs are very low, we just need to keep running the mongoDB server and the initial and free server will let us bootstrap our application enough to know if our product will have future or we need to pivot. So the only initial investment will be sponsoring the tech events.