PROJECT BLACKCARD

SEPTEMBER 2020

BLACKCARD

PROJECT REPORT BY
Thisas & Bilal

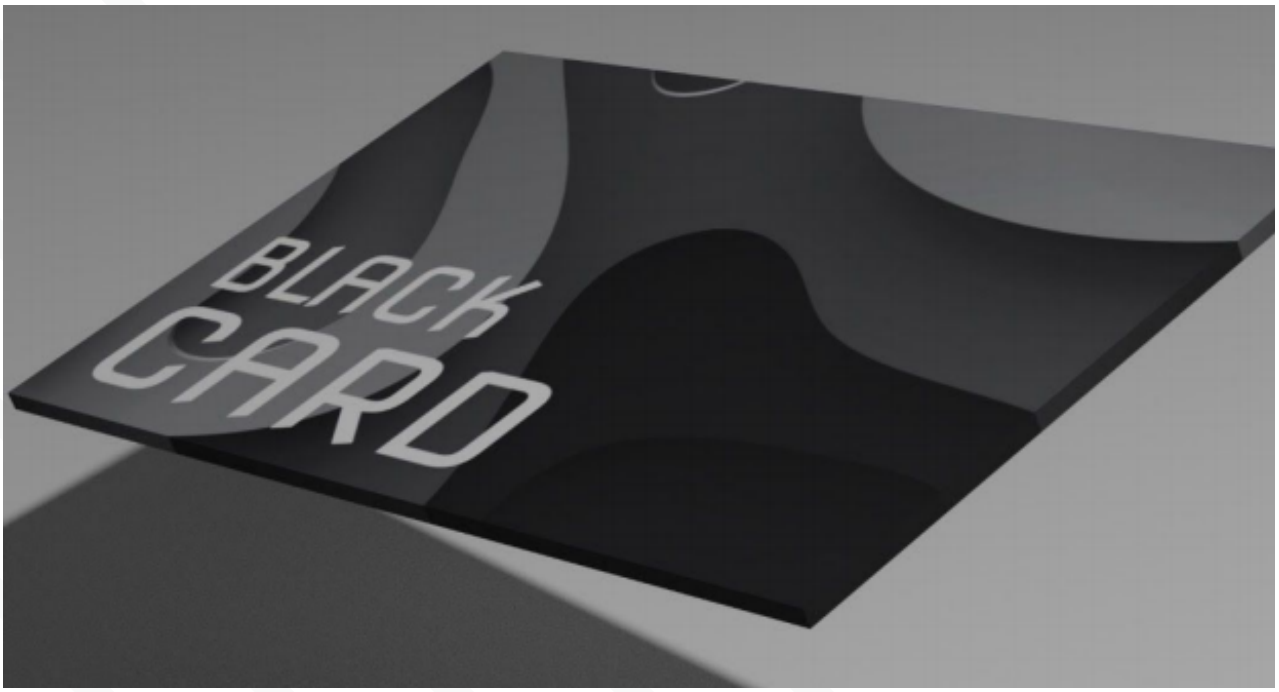
UAE, Dubai

PRIMARY GOAL

Vision and Mission

Empowering our clients

The business card has been around since the 17th century in Europe as they were used to announce the impending arrival of prosperous or aristocratic people to their local town or even their home. They were shaped and sized in a similar way to a playing card and became a staple of the elite by the middle of the century. They are so famous that we still use it to this day by everyone wanting to look professional. The issue with business cards is while the physical aspect of having a customisable card is great, they can only share as much information as can fit in there small size, which brings us to what many people claim is a modern a business card, a website. While websites are interesting they do not, and can not provide a viable method of sharing your information in person as telling people a URL is neither is expecting one to visit one mentioned in a business card. We wanted to combine the physical aspect of a business card and the customizability and flexibility of a digital website, which is how we ended up with the black card. A smart NFC card that is capable of sharing a website to any mobile device with a tap. Off course the card is self is only part of the experience. We designed a selection of templates that can be customised by the customers upon purchase, which then automatically gets activated at a designated by an automated system that uploads it to the cloud.



ALTERNATIVE VENTURES

Our Previous Iterations

Our Incarnations

As the new player in the block we knew we had to do something unique to stick out from the crowd. We had to design a product, and that is exactly what we did, three times to be exact, three iterations of the blackcard that we refined to reach our final iteration that we have here.

ALFA

This was our first approach to creating the blackcard, this version of our product was perhaps the most unique of all and is truly something no other company in existence have sold. We took a total hardware approach. designing the card as a PCB with the bare electronics visible to the customer, it was not just for looking high tech but allowed us to fit an entire microcontroller into card giving it truly smart capabilities. This version would have led screen that could be customised by the user to display anything they would want. We were able to finalise our design but due to Covid 19 and a multitude of other reasons we will detail later on, we halted production and were forced to redesign our product. Nevertheless our ALFA stage provided us with our core features that have lived on with its predecessor.

Lessons Learnt

Our pricing model for our ALFA version was really unique in the sense that it was unlike most companies, we charge a base price for the card itself and then additional for modules we would solder on to the board to give it extra functionalities. The different modules included a wifi module to allow it to host a local webserver that displayed a website to anyone that connects to the card's wifi network, a nfc tag that when you tap on a phone it can perform a function (eg Open a website), a button that would allow a user to scroll through animations and a battery pack. When we were forced to redesign our product the functions of the wifi and nfc module were combined to make an nfc card capable of displaying a fully fledged website by just sharing the link to a website we deploy to the cloud. Through this we were able to take this core concept and develop it into a final product that can work in a production environment.

ALTERNATIVE VENTURES

S.W.O.T Analysis (ALFA)

Strengths

Perhaps our best strength with this iteration was our uniqueness. Our product was something completely different from others available in the market essentially eliminating any and all competition letting us increase our pricing as high as people were willing to buy from us. Another great strength of product is that there was already a robust methods of manufacturing our product through companies like PCB Way allowing us to quickly and efficiently manufacture our product. When doing private surveys with different members, they appeared to generally like our product with only the price being mentioned to be an issue meaning they enjoyed the idea of ALFA and would buy it if the price was affordable enough.

Weakness

Our ALFA version had certain issues that we could have dealt with, but the Covid19 pandemic hammered the the final nail to coffin. Our Pre-Covid19 issues were already proving immensely difficult to overcome, and the increase of pricing due to the shutting down of factories made the version financially impossible. The core issue with this version was the price, the cost of manufacturing was too high for us to burden in the first place. While the board itself would be costing around $1 per board the componentes would cost $10-20 forcing us to manufacture in small batches and increase the pricing so much that our profit margin was around 2%. To add on to the finachical issues, while our initial private surveys indicated people liked the product, further surveys revealed that people were mostly interested in features of some of the modules and not really the card itself making most parts of the card redundant.

Opportunities

Due to our modular design the PCB design allowed us to easily add or remove different parts depending on the functionalities we want to add and the budget we want to adhere to . Due to the production process we were planning on adding another product alongside the blackcard as it uses the unused space on the PCB, the idea of the product was to have a physical version of a password manager that a customer can carry around in their pocket.

Threats

The Covid19 virus proved the biggest threat to the ALFA variant and ultimately is what killed the project. This is due to us relying on chinense suppliers that got heavily affected by covid19, this caused them to significantly increase their pricing for parts and PCB manufacturing that led to a spike in our manufacturing cost that made the project unachievable as it had a large initial investment. The risks associated with such a project and the high cost forced us to search for alternative paths for our enterprise.

ALTERNATIVE VENTURES

P.E.S.T Analysis (ALFA)

Political

Political issues plagued this version of our product, particularly in the aspect of parts supplied by chinese suppliers, while the parts are incredibly cheap, import taxes on importing the goods proved costly and sometimes even impossible as certain chinese shipping companies don't ship to the UAE.

Economical

The economics of our ALFA design plagued in from the start as it costed us an extremely high initial investment for the production of the product as parts and manufacturing was expensive. If we were to go through with the ALFA design, while even if we could be successful it wouldn't have been very profitable as we had very thin profit margins due to the production cost This combined with in increase in price for parts made in china made the endeavour unprofitable and therefore abandoned.

Social

Our enterprise project was one of a kind in our school as it was the first ever to be an actual product instead of selling other products. In that sense it was an untested idea from the start and we were taking a risk trying to achieve it. We could be new trendsetters or be a complete failure. This is why we needed to make our product attractive to our audience. While our bear PCB design is cool and unique, through private research we found that it does not resonate with our core market.

Technological

Our ALFA design is incredibly advance and in essence, was a card sized computer. Due to it containing a microcontroller, its capable of performing complex computational tasks such as in our case, displaying an animation on an led matrix. The microcontroller architecture allowed us to expand our product with modules which give customers to add additional functionalities to our product .

CURRENT ITERATION

S.W.O.T Analysis

Strengths

We have refined our ideas to be as cheap, efficient and attractive as possible to consumers. We were able to develop technology capable of producing and deploying static webpages to the internet with information given by our customers during purchase. We have a proper transaction system in place that allows us to make our purchase and delivery features seamless. We have a partnership program that gives us an auxiliary source of revenue if for some reason we earn insufficient funds from sales of the black card.

Weakneses

The idea of selling of a production with a custom production pipeline and production process is untested and unproven to work specially at such a small scale. This is something that never been done before on campus and we are taking big risks to achieve this. Due to our unproven status customers could be less open to our products as they will have a presupposition that since we are small we are incapable of creating bad quality products. While we have done our risk analytics all we can do in the end is cross our fingers and hope for the best.

Opportunities

Due to Covid19 all businesses that were considering having an in person stall have to move forward with an online business which many businesses struggle to achieve as they do not have the tools necessary to build an online business. While there are website builders our there in the market like wix, all are paid and are therefore out of reach for most if not all businesses. We on the other hand have the expertise of building and deploying websites as that was our business model from the start. To help other businesses and to help ourselves in the process, we created the blackcard partnership program which allows enterprises to partner with blackcard to provide themselves with the tools they need to create an online business.

Threats

Currently our biggest threat is our delivery system due to the Covid19 virus as we are currently planning on accepting transactions on campus. If Covid19 cases go up and we aren't allowed to perform these transactions on campus then this will become a major issue as delivery will take time and money, further online transactions is not possible as it is currently not possible to setup a buisness bank account if below a certain age limit.

CURRENT ITERATION

P.E.S.T Analysis

Political

We had to make sure we followed the rules and regulations of the UAE and our school. This was particularly a hurdle during the development of our website. We had originally implemented an online payment solution using stripe. While the implementation was a success in a technical aspect due to age restrictions in the UAE we were unable to create a business bank account to collect the transaction so we had to shift to a COD (Cash on delivery) system for the transaction. We also still need to follow the school's guidelines of advertising at school and if we can distribute our product at school and distribute in a way that adheres to Covid19 guidelines.

Economical

We had to make sure we wanted to sell our product at an affordable and desirable rate and this caused us problems from the start. Our original iteration of the card had an led screen and a microcontroller to control it, our pricing model was to increment the price with different modules that provide different features to the black card. We had to make sure that our cost of manufacturing would be repaid and give us a decent profit margin. While we designed and prepared for manufacturing, due to covid19, since part of the manufacturing was done in China and the boards themselves were made in china when COVID 19 hit and factories started closing down the cost skyrocketed making the manufacturing of our product not feasible. Due to the circumstances, we took the best from the first design and refocused our attention to the software aspect to reduce the cost of manufacturing and increase our profit margins, resulting in our current iteration. We also took advantage of Covid19 with our partnership program allowing other enterprises to
partner with the Black Card by providing them online components such as a website and payment systems because many of the enterprises that exist in pristine lack the technical expertise to run an online business.

Social

We had a particular market in mind when creating the black card. Our market, due to school restrictions, was students, of which we focused on senior school. Therefore we needed our product to be appealing to that market segment. To achieve this we conducted a number of private polls with select members and social media polls on our official @black_card_official_ Instagram, we were able to gauge the interests of the market to make more appealing designs. We were able to shift from our first iteration of the black card and then to the second iteration by conducting private surveys with members of our target market and collecting information on what they enjoyed best then focusing on those features for the second version which allowed us to not only create a cheaper product but also a more appealing one.

CURRENT ITERATION

Technological

Technology has played a big role in our enterprise as our product is the result of research and development, the product itself is a tech product. Due to this, we have overcome numerous problems throughout our development process. When we created the first version of the project, while our core object was externally the same we achieved it in a much different way. Our original iteration was a PCB based design, it had a led screen that could have customised text displayed on it, it would use a custom microcontroller-based off the Arduino line of hobbyist microcontrollers to control the screen. Later on, we added support for modules that expand the capabilities for the card, this was our previous pricing model, to sell the base card then optional modulus. The modulus ranged widely and the card itself was built for expandability from the ground up so that we didn't have to custom design modules and we can use off the shelf Arduino modules. The technology was there but we faced certain issues with finance as Covid19 hit and social issues as we concluded after research that while appealing to the hobbyist groups the market was too niche. But there was one part of the card our polls indicated that people liked, the NFC that allows for the card to share a website or contact info. We took this idea of our product and decided to iterate on the design, first by removing the necessary features and then shifting from a PCB to a traditional plastic card with NFC, to focus on the features that matter. To enhance the NFC feature we created custom software to create and deploy custom static web pages once the customer sends the information they want to include in their website. We developed our custom solution over a period of two months, streamlining the process to make it as seamless as possible for the customers. This also changed our pricing model from modules to web templates. We will continue to iterate our software to increase
efficiency and reliability.