Professional Issues in IT Business Plan

Project Title:
"signiFY"

Group Members:

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Abdul Majid Hamza Khan	15L-4344

Submitted To:
Mr. Amir Iqbal

Contents

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Department of Computer Science
Lahore, Pakistan

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Department of Computer Science
Lahore, Pakistan

1. Executive Summary

Despite efforts towards the document dematerialization, the necessity for fast and reliable document authentication is still developing in our society. Signatures are usually used to certify the individual's identity in a document. The purpose of our project is to provide a quick, easy to use and reliable application, to check the unicity of a person on the basis of his/her signature analysis. Signatures comprises of graphical figures on its surface in connection to a language. The deviation in signatures can occur with the passage of time. However, signatures are special attribute for a person's identification. At present, especially in economic sectors, many transactions are authorized by means of signatures. That's why, on day to day basis the need for development of such system has increased.

Query signatures are taken as images and validated with the help of digital image processing and neural networks. Acquisition of signature image, processing it, extracting its features from the image and then comparison between query signature and original signature are four main stages in the verification of a signature. We can also improve the efficiency of the system by extracting other features like curvature and slate line tangent angle etc. Using the cited extracted features, signature verification is done by applying deep learning algorithms.

Business Profile

In 21st century, artificial intelligence is gaining increasing significance. It is very efficient to train a good model using Machine learning and allow the model to make judgement. The project addresses the use of signature image data sets to extract feature vectors and process sensory data using ML algorithms, neural networks to be specific. The accuracy of the system depends on the selection of appropriate feature vector and optimal learning algorithms. Our aim is to allow easy and accurate forgery detection.

To summarize, our project aims to provide an easy to use system on smart devices with a capability of identifying a signature forgery even if performed by a skilled forger. Security and privacy of gathered signature data remains a significant concern due to which machine learning techniques such as neural networks have been used. The project goal is developing an android application that provides an interactive interface for testing a signature image (image could be from cheque, contracts, legal documents tec.).

Value Proposition

As for the value proposition, the project attracts users, businesses, courts, banks by letting bogus signatures be discovered, and providing well founded authenticated legal documents and secured

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Lahore, Pakistan

unicity of any person signature, thus providing a more reliable signature and forgery-based application.

2. Opportunity

The Problem

Fluctuations in Computerized and handwritten signatures are so prodigious that it is troublesome for a human being to differentiate the real one from the forged ones as they are of different forms, sizes and movements. Even multiple signatures from same person have very less probability to be exactly same. Therefore, the authentication and substantiation of documents, agreements, business transactions etc. are challenged. To maintain security and verification of documents, we take this challenge of solving problems regarding forgery detection as our goal.

The Solution

Therefore, the purpose of present project is to develop an application that will help users to verify the legality of documents by the examination of person's signature. This can be done by taking into account the acquisition of signature image, processing it, extracting its features from the image and then the comparing between query signature and original signature are four main stages in the verification of a signature.

In addition to that, the identity of signer is a personal piece of data which requires some security measures to be achieved to gain customer's confidence in our application. The project uses techniques of Digital Image Processing and Neural Networks which will help the application to be secure, reliable and easy to use.

Target Market:

Right people and Right places are the most important key questions to have success in an industry. For this, we draw our attention to people we think satisfy our company's requirements and can assists us with the funding sources or capital investment that would be required for our company to grow.

The target market of signiFY includes:

- Android Application Users
- Security Department of businesses

TAM-Total Available Market:

- Mobile Users

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Lahore, Pakistan

SAM-Segmented Available Market:

- iPhone or Android phone users.

SOM-Share of Market:

The signature and forgery detection tools or plugins have revolutionize the whole world. Now-a-days, people from different companies and banks are using it to gain user trust, providing unicity of legal documents, and to increase robustness. Electronic signatures are the most common these days as they are cost efficient and help in accelerating transaction policies.

Key Customers:

- Banks
- Businesses

Competition:

No such application is present currently in the market.

- Forgery detection plugins

Future Products and Services:

The future products and services depends on the success of startup. We are focusing to expand the startup by including some more detailed technologies which include

- Fuzzy Algorithms.
- And etc.

3. Execution

Marketing and Sales

We intend on adapting a cost-plus marketing plan for marketing. In this plan the all costs of making this product are added. This number is then increased by 10% for profit. One might argue that a 10% profit is not sufficient, however, to ensure the success of our product, comprises on profit have to be made.

We also made an endeavor to advertise our product. Earlier we mentioned that this application will attract clients such as banks, hence, we contacted Business incubation centers to arrange meetings with bank representatives. Furthermore, following are the ways in which signiFY aims to market its start-up:

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Department of Computer Science
Lahore, Pakistan

- **Bank visits:**

  We plan to visit Banks to target bankers and market our product, satisfy their curiosities, get their feedback and ultimately enhance our user base.

- **Tech Expert reviews:**

  We will contact technically sound writer or teams such as Tech juice for technical reviews.

Our ability to expand our services is dependent on consumer demand and expenditure, because businesses must be profitable to successfully expand their resources. We wish to expand our project on platforms other than Android. We also want to make improvements to our training model as the time goes. Secondly, we aim to extend our services geographically and reach out to worldwide audiences

Positioning

The application is not free to use.

Pricing Model

Value based pricing model is used for the startup.

Promotion

For promoting application, we will use some methods

- **Social Media Advertisements**

  We will try to communicate people by using Facebook page, Instagram and Twitter account.

- **Teasers**

  We will make short videos that will describe what application will do and what it is trying to solve.

- **Pitching Idea**

  We will pitch the idea in front of people like investors to share the problem we are trying to solve and to gain their common knowledge and interest.

Operation

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As far as the operational development of the application is concerned, it is completed 90% and now we are focusing in the remaining part of the application that will be carried out with quality of giving results at minimum time of 5 seconds. After that, we will try to increase our target audience and also will be introducing new people to the company.

4. Team and Company:

signiFY is a startup and has three founding members who belongs to same department (Computer Science) in same university. None of the members have any prior experience. Their roles are:

- **CEO:**

  Ishwa Obaid is the Chief Executive Officer, the optimist, having idealistic approach that led her to came up with the startup idea, willing to take this project a success and has strong communicational skills.

- **CTO:**

  Amna Asad is the Chief Product Officer who is responsible to fix issues related to technical field, look for new technologies, hire contemporary people and bring them into the team and look after value proposition

- **CSO:**

  Abdul Majid is the Chief Sales Officer and is responsible for managing capital investments and keep a check on all profits gained, having the ability to take along this startup to notable platforms.

Vision Statement
Our vision statement is:

"We recognize imitations that you cannot."

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5. Financial Plan

We expect this product to be lucrative since the development costs are not that high. Most costs range from travelling expenses to get to meetings and for entertaining clients. This will also be a limited liabilities adventure.

Other Costs include hosting our website as well as servers that are essential for app functionality. Servers will contain important client data hence we needed a security budget. Most of these costs were covered by grants and individual donations. Plan9 (business incubation center) helped with expenses that were not covered by the previous mentioned grants and donations.

As far as the area is concerned for the startup, we need a fully furnished office large enough to have two meeting rooms, a basic lounge for working and vehicles parking area for now as we may move to another office if startup demands more employees to work on.

Computer or Laptops are the basic necessities needed these days to develop applications or website and many more things so we will be requiring laptops for employees having 128 GB RAM, octa-core processors.

Capital Requirement

- Office Setup
- Internet 24/7
- Computers/ Laptops
- Hardware cost
- Advertisement cost

For Income Statement, Balance sheet and cash flow statement, refer to appendix.

6. Damage Control Plan

A lot of work was put into formulating a strategy to launch the signiFY. It is clear that under some unforeseen circumstances the development and deployment of the system can be halted. To cater such issues a damage control strategy was devised. In case the financial targets start to drop from a certain threshold of about 5-7% following measures will be taken:

- **Sustaining Investments:**

  It is a big challenge for a startup to retain investors trust for obtaining future investments. To guarantee this trust, proper communication between investor and our company is established. In case of an extreme scenario of loss, a board position will be reserved for the investor.

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Department of Computer Science
Lahore, Pakistan

- **Unacceptable return on equity:**

  It must be realized that at first it might appear that an organization possesses right around 100 percent of its offers and investors a measly portion, however as time advances , financial investors may wind up obtaining a greater number of shares than proprietor so either an adapted progression of cash is formulated or its rehearsed that organization be made into a steady startup with a decent fortification in industry as then holding less offers than financial specialists in a billion dollar organization is still a decent arrangement over the long haul.

7. Funding Sources:

Funding sources include all possible investors who would agree to provide seed money, proper guidance and a stable work environment. Some of these are:

- **Plan9 (Punjab Information Technology Board)**

  Plan9 is most well-known incubator. They provide the support required for a startup. Proper work space and a stipend is given to the team. Moreover, funding for the project and certain extent of guideline is also provided. It is one of the best options. Our team also visited this incubation center and discussed our project.

- **Takhleeq**

  Takhleeq business incubators are invested in building strong entrepreneurial community. They have 2 incubation cycles with a duration of 6 months each. They help startups reach a point where they are able to launch their product in the market. They also provide mentorship from the industry and help in connecting the startups to angel investors. Proper office and gaming room is also provided to the teams. Moreover, legal guidance including company registration, legal structure and Ip advice is also given. The best part is the zero equity from the startups.

- **NIC (National Incubation Center)**

  NIC provides startups with a number of facilities to help them build their business. These facilities include creative co-working space, mentorship and coaching. Design, Marketing and legal advice is also given to the teams. Moreover, there is a custom-designed curriculum for every startup. They help the startups with commercialization and building a good network in the industry. Grant opportunities are also available. This platform provides the startups an access to the investors.

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Department of Computer Science
Lahore, Pakistan

Plan for Initial Capital

The team went to plan9 to summarize the startup and to gain knowledge of their funding process. The meeting went well with the business development head of plan9 who introduces the Launchpad to us and described about its features. The funding is 2.5 million rupees with a 6 month training session including work space, Internet 24/7 and much more. To nurture our idea, the incubation center assist us in arranging several meeting with the Tech Experts and businessman so that we can pitch our idea to them can raise more capital.

8. Pitching at Incubators

For the commercialization of the application, to check if there is market worth of it or not and to acquire it through practical approach our team visited an incubation center located in Lahore. Our primary goal was to discuss the idea in such a way that we get more knowledge needed for it and certain possibilities that might be introduced into the startup and some funding process that helps the startup to accelerate and making growth at industry level. The response from incubation center is as follows:

- **Plan9 (Punjab Information Technology Board):**

  To discuss the problem and the solution of signiFY, its demo was presented at Plan9 at Information Technology University in front of Plan9 Business Development Head, Sarmad Hafeez who was quite optimistic about the idea and thinks for it as a possible task. The market value of the startup and its growth was also debated. He also said that the application should involve such mechanisms or algorithms that should not include hassle and time for matching images from whole dataset and must include API's for communication between user and servers. He also said that before starting the startup, the application should be tested on at least 200 users. He also introduced us to LaunchPad'14 which is a phase of 6 months training after which funding from bigger companies will be expected that were invited by Plan9 and who evaluates the startup.

9. Client Based Sample Project:

"Cheque fraud emerges as fastest growing financial crime"-the Nation (2016)
Despite having laws that protect banks from cheque fraud, the crime still plagues all banks in Pakistan. State Bank of Pakistan (SBP) realizes this threat and has taken steps to solve this problem. These steps help detecting forgery at the cost of convenience. A mobile application that

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Department of Computer Science
Lahore, Pakistan

can solve this problem makes detecting forgery a lot more convenient and thus save time and money. Therefore, we think that SBP could prove to be a lucrative opportunity where the capability of our product could be substantiated.

Milestones

- Schedule meetings with possible clients
- Acquire a request for Proposal from SBP
- send quote to SBP
- negotiate and finalize quote
- Examine client audit
- Agree on terms and conditions
- Issue an invoice
- Product development and installation
- Order completion
- Provide user manual
- Feedback
- Maintenance

Individual Milestones (team structure)

Ishwa Obaid	Amna Asad	Abdul Majid Hamza
Schedule meetings with possible clients		
Acquire a request for Proposal from SBP		
		send quote to SBP
		negotiate and finalize quote
		Examine client audit
		Agree on terms and conditions
		Issue an invoice

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Department of Computer Science
Lahore, Pakistan

	Product development	
	Product installation	
	Order completion	
	Provide user manual	
Feedback		
	Maintenance	

10. Appendix

Balance Sheet

<table>
<tr><th colspan="5">Balance Sheet</th></tr>
<tr><th>Assets</th><th>Year 0</th><th>Year 1</th><th>Year 2</th><th>Year 3</th></tr>
<tr><td>Long Term Assets</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Area and building</td><td>30,000</td><td>40,000</td><td>42,000</td><td>44,000</td></tr>
<tr><td>Furniture</td><td>80000</td><td>(60,000)</td><td>(160,000)</td><td>(320,700)</td></tr>
<tr><td>Equipment's, Computers/ Laptops</td><td>130000</td><td>(7,405)</td><td>(165,210)</td><td>(321,998)</td></tr>
<tr><td>Advance Rent (already paid)</td><td></td><td>85,000</td><td>-</td><td>-</td></tr>
<tr><td>Total</td><td></td><td>67,405</td><td>325,210</td><td>642,698</td></tr>
<tr><th colspan="5">Current Assets</th></tr>
<tr><td>Cash</td><td></td><td>812,595</td><td>2,000,100</td><td>4,256,780</td></tr>
<tr><td>Accounts</td><td></td><td>-</td><td>-</td><td>-</td></tr>
<tr><td></td><td></td><td>812,595</td><td>2,000,100</td><td>4,256,780</td></tr>
<tr><td>Total Assets</td><td></td><td>881,260</td><td>1,723,256</td><td>3,612,125</td></tr>
<tr><th colspan="5">Liabilities</th></tr>
<tr><td>Long Term Liabilities</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Notes Payable</td><td></td><td>500,120</td><td>1,464,316</td><td>981,125</td></tr>
<tr><td>Current Liabilities</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Trade Payable</td><td></td><td>-</td><td>-</td><td>-</td></tr>
</table>

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Department of Computer Science
Lahore, Pakistan

Total Liabilities		500,120	1,464,316	981,125
Equity				
Share Capital		2,456,123	2,456,123	2,456,123
Retained Earnings		945,129	2,346,124	4,500,128
Total Equity		3,401,252	4,802,247	6,956,251
Adding equity and liabilities		3,901,372	6,266,563	7,937,376

Table 1: Balance Sheet

Income Statement

Income Statement					
	Growth Rate	Year 0	Year 1	Year 2	Year 3
Revenue					
Subscription / year	15%		8900	9660	11,200
Price per subscription	10%		130	142	156
Revenue (by Subscription)			1,126,120	1,265,211	1,532,521
Application advertisements	15%		85	92	100
Price / Application advertisements	10%		51,200	55,500	60,125
Revenue (Application advertisements)			4,320,000	4,762,890	5,934,960
Total Revenue			**5,506,435**	**6,093,495**	**7,539,056**
Income Tax	3.50%		130,255	155,965	190,436

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Department of Computer Science
Lahore, Pakistan

Revenue After Income Tax			5,376,180	5,937,530	7,348,620
Cost of Operation					
Utility Bills	10%		745,100	826,128	912,987
Maintenance cost of Application	9.50%		121,200	131,890	143,122
Devaluation of Equipment	4%		50,000	50,000	50,000
Devaluation of Computers/ Laptops	9%		68,320	68,320	68,320
Profit of Operation			**4,391,560**	**4,861,192**	**6,174,191**
Administrative Costs					
Salaries	10%		3,850,200	4,236,500	4,815,620
Rent	12%		1,320,200	1,610,100	1,752,900
Promotion cost	15%		110,000	129,000	155,200
Earnings before interest rate and taxes			888,840	1,114,408	549,529
Interest			320,897	264,190	192,126
Profit Before Tax			**1,209,737**	**1,378,598**	**741,655**
Tax	12%		1,064,569	1,213,167	652,657
Net Income (Profit before tax - tax)			**145,168**	**165,431**	**88,998**

Table 2: Income Statement

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Cash Flow

Cash Flow Statement				
Cash	**Year 0**	**Year 1**	**Year 2**	**Year 3**
Starting Cash	4,90,165	-	815,125	1,899,258
Net Cash	-	1,320,124	1,989,346	2,439,670
Loan Payback		490,100	467,129	491,102
Capital Expenditure	4,90,165	-	-	-
Ending Cash	-	830,024	2,337,342	3,847,826

Table 3: Cash Flow Statement

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Amna Asad <l154364@lhr.nu.edu.pk>   Oct 11, 2019, 7:09 AM (6 days ago)   ☆   ↩   ⋮
to incubator.pitb ▾

Dear Sir,
It is to request that we be allowed a short visit to your incubation center to pitch an idea and get some in sight into the incubation process, criteria's and funding sources etc.
Our Professional Issues in Information Technology course project deems that we go to practical limits to acquire information to get young entrepreneurs a push into the right direction.
We would be very appreciative if you could give us a bit of your valuable time . Any time on weekdays before 16th October would work for us .

Regards,
Amna Asad
Fast-Nuces, Lahore

Sarmad Hafeez | Assistant Project Manager <sarmad.hafeez@pitb.gov.pk>   Oct 14, 2019, 3:45 AM (3 days ago)   ★   ↩   ⋮
to Maham, me, PLAN9 ▾

Dear Amna,

We have a packed day tomorrow, you can visit on 16th Wednesday - 12:00 (noon) .

Please send details of name CNICs buses etc (if commuting via them).

@Maham please coordinate with her for the visit.

Sincere Regards,
Muhammad Sarmad Hafeez
Business Development Head
PLAN-9

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Amna Asad <l154364@lhr.nu.edu.pk>   Tue, Oct 15, 12:59 AM (2 days ago)   ☆   ↰

to Sarmad ▾

Dear Sir,
Thankyou for your response. Here are the names and CNIC.

Amna Asad (_____)
Ishwa Obaid (_____)
Abdul Majid (_____)

Regards,
Amna Asad

Sarmad Hafeez | Assistant Project Manager   Oct 16, 2019, 1:28 AM (1 day ago)   ☆   ↰   ⋮

to PLAN9, me ▾

AoA,

Dear Amna,

As the meeting went very well and the Plan9 team wishes you guys all the best for your innovative startups (Twitter Tag News and SignSys).

Please apply for Launchpad 14 at the link : plan9.pitb.gov.pk/thelaunchapad

And as per discussion, please feel free to contact me anytime for any Business related query on my personal watsapp number :03328921248

Hoping to see you at the Launchpad-14

Best Regards
Muhammad Sarmad Hafeez
Business Developer
Plan9

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Lahore, Pakistan