Quick Resume (QR)

Team 12
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Executive Overview

Section 1 - Nik Thota

In this report, we will be discussing the development of our professional networking application that uses QR codes to exchange important career information in person such as resumes, CVs, brochures, and business cards in an effort to reduce paper waste at networking events such as career fairs. Our goals are to reduce paper waste at large networking events such as career fairs, maintain a large user base, and partner with professional networking organizations.

We estimate the cost of this project to be $566,618 and we plan to work on the application for one year from 5/01/2020 - 5/01/2021. Our project is limited by the willingness of a large majority of attendees at professional events to use the application. Our development time is also restricted by the dates that any specific event is taking place as we must be done with any outstanding work by then. The rest of this document is going to cover: our problem statement, how we organized our approach, our solution, our tasklist, the required resources, costs, our schedule, our communications plan, the business justification, risk and mitigation, our balanced scorecard model, our SWOT model, and our Briggs-Meyer Team Indices.

Problem Statement

Section 2 - Ben Kenkel

Many colleges and universities across the country host career fairs for their students to network with all sorts of companies. These institutions normally offer one or two fairs a year so that students can regularly meet companies in order to form job opportunities. Historically, Iowa State University has hosted one of the largest indoor career fairs in the country for their engineering students. These career fairs often have as many as 350 companies and a majority of Iowa State University's 8778 engineering students. A very important part of the networking is for the students to leave the employers with a lasting memory of their meeting. What they say to the companies definitely matters, but with how many different people the companies are talking to, they need something written down to remember everyone by. Resumes can be a great method for detailing all of the important information that a company needs when they are considering whether to hire someone.

However, this can be a huge waste of paper when used at large events such as a career fair. For example, if half of Iowa State University's 8778 engineering students bring twelve resumes each, there would be 52,668 sheets of paper, or 106 reams of paper being used for resumes for one career fair. Then, there is also all of the paper that is being used by the companies. On average, each student that attends the career fair will leave with six handouts from companies. That comes out to another 26,334 sheets of paper per career fair on average. Unfortunately, almost all of that paper becomes waste. By moving to a digital solution, a significant amount of that waste can be reduced by allowing students and employers to easily share important information digitally.

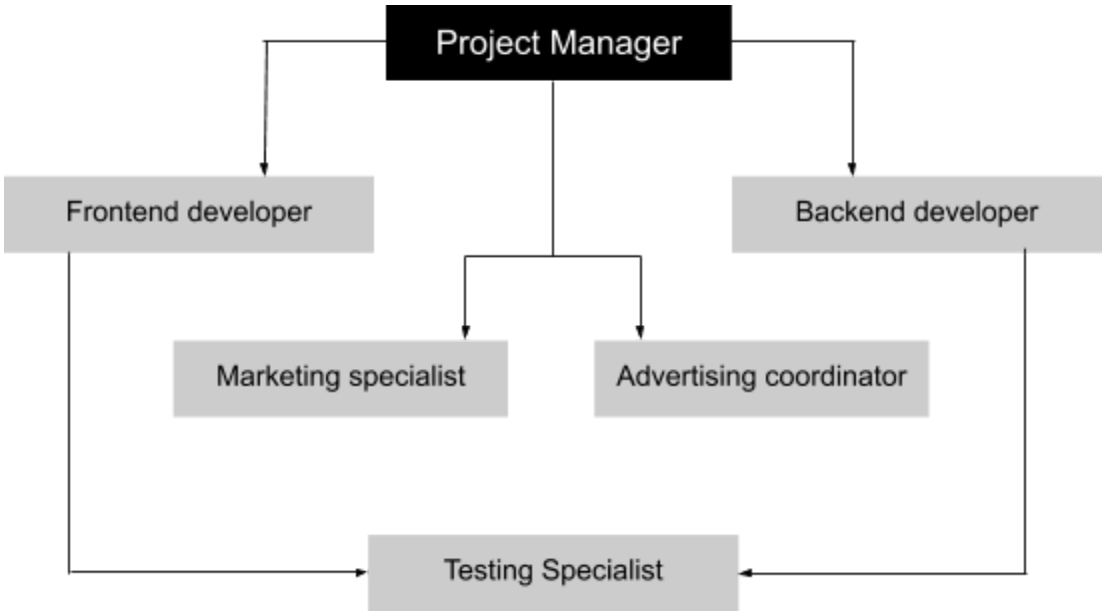
Project Organization

Section 3 - Vatsal Bhatt

As this is a small scale app development project, the optimal team size is 6 people.
Here is the team structure for our Project:

- 1 Project Manager / Lead
- 3 Software Developers
    - 1 Front-End Developer
    - 1 Back-End Developer
    - 1 Product testing specialist
- 2 Sales Specialists
    - 1 Advertising and Marketing expert
    - 1 After Sales support specialist

Structure:



Roles:

Specific skills needed to execute the Project Plan:

- **Software Project Manager:**
    - Plan, lead, and execute deliverables
    - Coordinate activities
    - Identify needed resources
    - Set milestones and maintain communication with stakeholders
    - Make sure project goals are delivered on time and on budget
- **Software developers**
    - General roles:
        - Build modular layouts, reusable code and libraries for future use
        - Integrate code to connect frontend with backend pieces
        - Optimize application for maximum speed and scalability
        - Collaborate with other team members and stakeholders
    - Frontend developer:
        - Develop user-facing features
        - Ensure technical feasibility of UI design
    - Backend developer:
        - Create, integrate, and manage databases
        - Create backend frameworks
        - Develop security settings
    - Testing specialist:
        - Develop unit tests and UI Integration tests respectively, for both backend and frontend code after development
        - Push code to production after being successfully tested
        - Coordinate with specific personnel to review code in case of any bugs or errors
- **Sales Specialists:**
    - Marketing specialist:
        - Brainstorm and develop ideas for creative marketing campaigns
        - Coordinate content development and optimization, advertising, and event planning
        - Deal with any customer complaints and resolve issues as necessary

- Advertising Coordinator:
    - Plan and execute initiatives to reach the target audience through various channels
    - Build relationships with customers while advertising the product.
    - Follow up with customers to make sure that they are satisfied with the product

Commitment:

Role	Hours per week	Total weeks	Total hours
Project Manager	40	52	2080
Frontend Developer	40	52	2080
Backend Developer	40	52	2080
Testing specialist	40	40	1600
Marketing specialist	40	52	2080
Advertising coordinator	40	52	2080
Total working hours			**12000**

As this project will take 52 weeks, i.e., 1 year to be completed, the above jobs will be salaried yearly. Cost estimates, specifically, salary costs can be found on Page 12 under topic Cost Elements.

Solution Approach

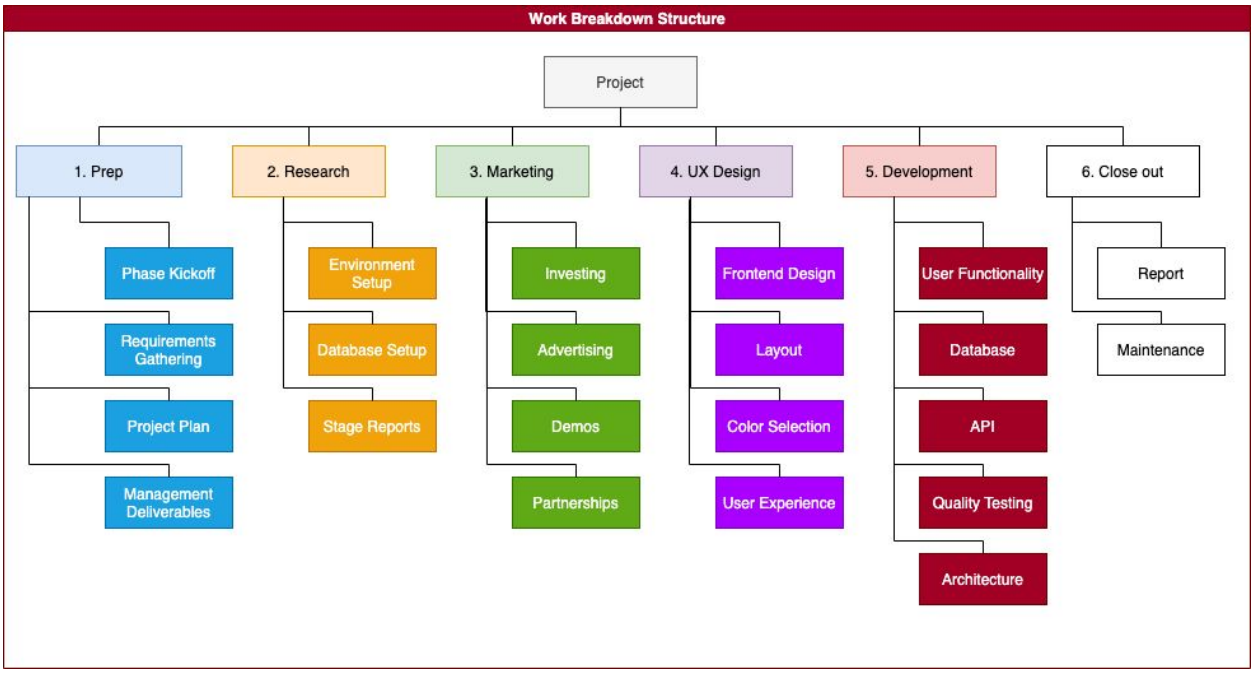
Section 4 - Gavin Monroe

With three thousand plus people who attend the Fall Engineering Career Fair at Iowa State University all print out just five resumes, there are roughly fifteen thousand plus pieces of paper that will all eventually become clutter or waste. To solve this problem and help reduce this unnecessary waste of paper. Our solution by implementing a QR code-based phone app that allows employers and applicants to exchange information, including resumes, portfolios, and references, with their phones. The use of existing third-party login (Okta, Google, etc) would require API access to certain platforms. Other than that, everything would be developed and built with custom software solutions by the team.

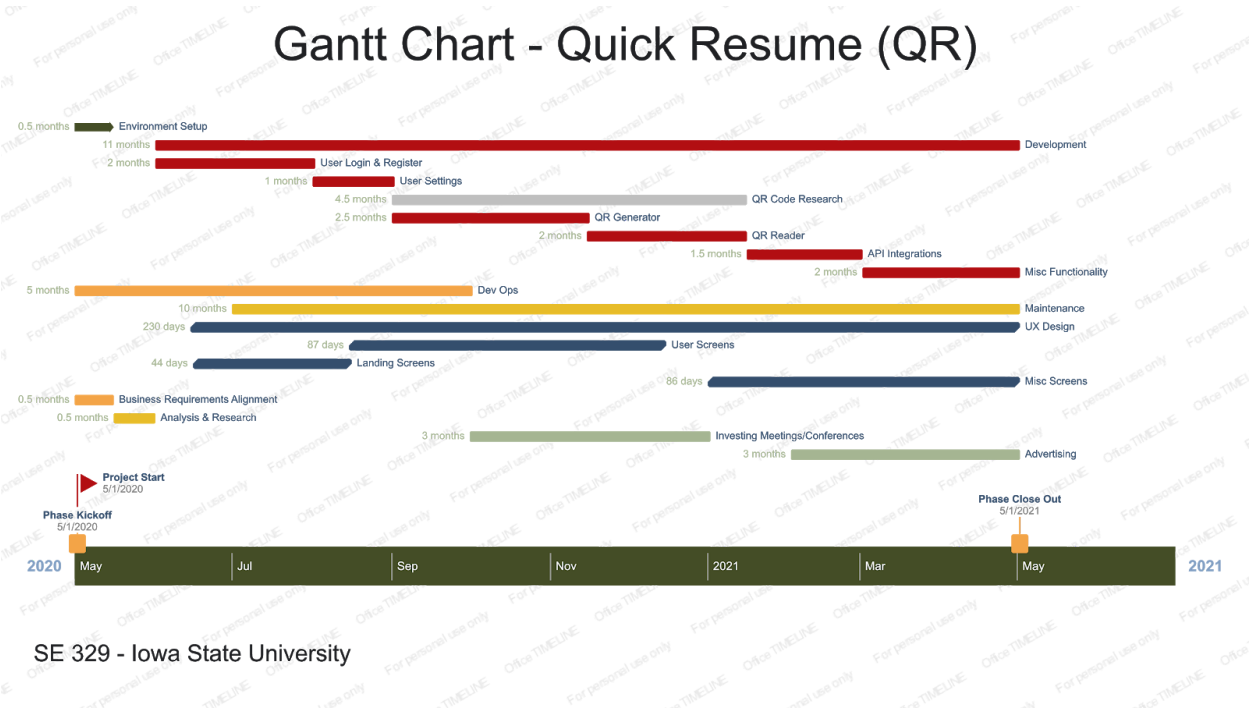
Our team is split up into two marketing professionals, and four software engineers. With this type of team structure, it gives us an advantage to overall allow the individuals within the team to work on their strengths instead of some individuals doing everything. One of the risks currently involves keeping user data privacy and safety a priority. We can easily introduce software solutions that overall encrypt the user information along with allowing permissions for the end-user to be able to control the flow of other people accessing their information. With marketing, we can solve our problems with investments. As our software team focuses on development we have our marketing team working on promoting the product. With the major risks covered, developing this product in a justifiable timeframe shouldn’t be a problem.

Description of Tasks

Section 5 - Gavin Monroe



The above figure you can see the work breakdown structure. This figure follows the phase kick and out structure; In between is the sections that will overall change depending on the project itself. With our project it has four major phases that overall cover research to development.



The above figure is the Gantt Chart for the project. There are four major sections that come with this chart: Development, Marketing, Design, and Maintenance.

Description of Resources

Section 6 - Isaac Spanier

Employees

1 Project Manager/Lead-

Years of experience with mobile development and strong understanding of both the software and business sides of developing a product. Ability to lead development and make crucial decisions in terms of architecture and resource allocation.

3 Software Developers -

Proficient in mobile development and strong understanding of basic computer science fundamentals. Experience with languages such as Swift, Ruby, Python, and C++, as well as UI/UX design. Ability to work in an agile style environment with two week sprints and hard deadlines.

2 Marketing Professionals -

Knowledge of the product, and the ability to market and sell product to customers and universities. Excellent sales experience and ability to communicate and build rapport with customers and developers. Knowledge of government regulations concerning the selling of software applications to public and private universities.

Equipment

6 Laptops -

Dell G315 Gaming Laptops are great for development and being able to handle large tasks that will prove useful for the project. $1,000 each

4 Development Phones -

Google Pixel 4, great for developers to test production code on an actual device. $500 each

6 Extra Monitors -

Dell 24 Monitor: SE2419H monitors to give each employee dual screens to improve productivity. $160 each

6 External Keyboards - Logitech K120 keyboard for use as an additional keyboard to the laptop’s keyboard as a preference to the employee. $ 9 each

6 Mice - Logitech Mice for use as an additional mouse to the laptop’s trackpad as a preference to the employee. $10 each

6 Whiteboards - Basic large whiteboard for next to our behind the desk of each employee to serve as an idea board for them to draw out ideas and be able to firmly lay down ideas. $50 each

6 Desks - Metal desks from the Iowa State University surplus store. $50 each

6 Desk Chairs - Chairs from the Iowa State University surplus store. $25 each

1 Table - A general table for meetings of the software team, as well as the entire project team. $320

6 Table Chairs - Chairs for around the general table that can be used for general meetings to get away from everyone's desk and come in with a fresh perspective. $30 each

2 Desk Phones - Cisco 8861 model of phone. Phones for the sales team to be able to reach out to universities and potential clients. This is for everyday work and needs to be of high quality. $300 each

1 Printer - Used for printing important documents for the sales team as well as general meetings. Used day to day should be medium quality. $650

Cost Elements

Project Manager will be paid $40/hr for 2080 hours resulting in a $83,200 yearly salary.
Software Developers will be paid $30/hr for 2080 hours resulting in a $62,400 yearly salary.
Sales Team Members will be paid $17/hr for 2080 hours resulting in a $35,360 yearly salary.
Other Equipment prices were calculated using the overhead cost in addition to the price of gas taken to get such items and depreciation is accounted for in the G&A section.

Element	Price Per Item	Quantity	Price
Project Manager	$83,200	1	$83,200
Software Developers	$62,400	3	$187,200
Sales Team Member	$35,360	2	$70,720
		Salary Costs:	$341,120

Element	Price Per Item	Quantity	Price
Laptops	$1,200	6	$7,200
Development Phones	$500	4	$2,000
Extra Monitors	$160	6	$960
Keyboards	$9	6	$54
Mice	$10	6	$60
Whiteboards	$50	6	$300
Desks	$50	6	$300
Desk Chairs	$25	6	$150
Table	$320	1	$320
Table Chairs	$30	6	$180
Desk Phones	$300	2	$600
Printer	$650	1	$650
		Overhead Costs:	$11,024

Element	Price Per Item	Quantity	Price
LLC	$100	1	$100
Driving	$3	150	$450
Bank Charges	$100	1	$100
Insurance	$3,000	1	$3,000
Security Camera	$840	1	$840
Rent	$850	12	$10,200
Taxes	$2,000	1	$2,000
Depreciation	$1,500	1	$1,500
Professional Services	$2,500	1	$2,500
		G&A Costs:	$20,690

Salary Costs:	$341,120		
Equipment Costs:	$11,024		
G & A Costs:	$20,690		
Total Cost:	**$372,834**		
Total Revenue:	**$450,000**		Percent Profit
Total Profit:	**$77,166**		**20.70%**

Tasks:

Sprint = 2 weeks => S#

Month = 4 weeks => M#

1. **Preparation (S1| M1)**:
    a. Local Environment Setup
    b. Docker Setup
    c. Database Setup
2. **Research (S2 | M1) - 2 Marketing & 3 SE, 1 Team Lead**
    a. Library
    b. API
    c. Documentation
    d. Requirements
3. **Marketing (S3-26 | M2-M12) - 2 Marketing**
    a. Investing
    b. Advertising
    c. Partnerships
    d. Conferences
    e. Demos
4. **UX Design (S3-24 | M2-M11) - 2 Software Engineers**
    a. Frontend Design
    b. Layout Information
    c. Color Selection
    d. User Experience
    e. Selective Response Info
5. **Development (S3-26 | M2-M12) - 3 Software Engineers - Team Lead**
    a. User Functionality
    b. Database Design
    c. API Controllers
    d. QR Generator & Reader
    e. And more.
6. **Testing & Maintenance (S5-26 | M3-M12) - 3 Software Engineers - Team Lead**
    a. Unit Testing
    b. Blackbox & Whitebox Testing
    c. Documentation
    d. Database & Query Opt.

Business Requirements Alignment	2 Marketing	T	05/01/2020	05/15/2020	0.5 months	%
Dev Ops	Team Lead(SE)	T	05/01/2020	10/01/2020	5 months	%
Environment Setup	4 Software Engineers	T	05/01/2020	05/15/2020	0.5 months	%
Phase Kickoff	2 Marketing, 4 Software Engineers	M	05/01/2020	05/01/2020	-	%
Project Start	N/A	M	05/01/2020	05/01/2020	-	%
Analysis & Research	2 Marketing, 4 Software Engineers	T	05/16/2020	05/31/2020	0.5 months	%
Development	4 Software Engineers	T	06/01/2020	05/01/2021	11 months	%
User Login & Register	2 Software Engineers	T	06/01/2020	08/01/2020	2 months	%
UX Design	2 Software Engineers	T	06/15/2020	05/01/2021	230 days	%
Landing Screens	2 Software Engineers	T	06/16/2020	08/15/2020	44 days	%
Maintenance	Team Lead(SE)	T	07/01/2020	05/01/2021	10 months	%
User Settings	2 Software Engineers	T	08/01/2020	09/01/2020	1 months	%
User Screens	2 Software Engineers	T	08/15/2020	12/15/2020	87 days	%
QR Code Research	4 Software Engineers	T	09/01/2020	01/15/2021	4.5 months	%
QR Generator	2 Software Engineers	T	09/01/2020	11/15/2020	2.5 months	%
Investing Meetings/Conferences	2 Marketing	T	10/01/2020	01/01/2021	3 months	%
QR Reader	2 Software Engineers	T	11/15/2020	01/15/2021	2 months	%
Misc Screens	4 Software Engineers	T	01/01/2021	05/01/2021	86 days	%
API Integrations	4 Software Engineers	T	01/16/2021	03/01/2021	1.5 months	%
Advertising	2 Marketing	T	02/02/2021	05/01/2021	3 months	%
Misc Functionality	4 Software Engineers	T	03/02/2021	05/01/2021	2 months	%
Phase Close Out	4 Software Engineers, 2 Marketing	M	05/01/2021	05/01/2021	-	%

Communication Plan

Section 9 - Vatsal Bhatt

Communication Goals:

- Keep stakeholders informed of project timeline, budget and project needs
- Provide clear insight into budget changes, deliverables to be approved or roadblocks
- Keep the team synchronized with stakeholders and itself
- Provide opportunities for frequent feedback from stakeholders
- Keep stakeholders in the loop to gain acceptance of the project

Communication Technology:

To communicate with the team, project lead, and the stakeholders, these technologies are going to be used in different levels of urgency and hierarchy:

- Urgent matters that require interactive communication:
    - Phone calls
    - Video conferences

- Non-urgent matters that do not require instant attention or action:
    - Email
    - Text messaging

- Documentation and backend updates for internal teams
    - Online repositories
    - Workspace communication tool

Communication Types:

- **Weekly Check-ins**
  Weekly phone calls with Project manager and Communication coordinator to go over progress, roadblocks, questions, and share any important updates.

  Discuss:
    - ❏ What's been completed
    - ❏ What's in progress
    - ❏ Any deliverables needing approval
    - ❏ Questions about deliverables
    - ❏ Timeline and roadblocks

- **Bi-weekly email reports**
  Reports sent out every two weeks to the Project Manager and the stakeholders to relay timeline, budget changes, and milestone approximation.

  Includes:
  - ❏ Timeline specifics
  - ❏ Links to deliverables to be approved
  - ❏ Any milestones completed
  - ❏ Anything that needs to be reviewed
  - ❏ List of next steps

- **Daily end-of-day updates (agile):**
  Takes place on the online workspace communication tool to track daily individual updates for development teams.

  Discuss:
  - ❏ Development progress
  - ❏ Milestones reached
  - ❏ Roadblocks, if any
  - ❏ Next steps list

Contacts:

Stakeholder touchpoints:

Name	Role	Frequency	Format/Channel	Notes
-	Sponsor	Bi-weekly	High-level timeline, progress update, budget changes via email report	Prefers detailed reports with links to deliverables
-	Communication Coordinator	Weekly	Weekly check-in meetings, and important emails as needed	Midpoint and go-to contact for needs, and questions about reaching out to someone

Team touchpoints:

Name	Role	Order	Format/Channel	Notes
-	Project Manager	First Contact	Meeting / Phone / Email	Roadblock discussion, technical issues
-	Product testing specialist	Second Contact	Meeting / Phone / Email	Roadblock discussion, technical issues

Business Case

Section 10 - Jonathan Greazel

Scope:

Acceptance Criteria:

- Cloud oriented Android mobile application
- Accessible by students and employers through created personal accounts
- Personal information / resumes can be easily transferred by scanning QR codes
- Students can manage jobs they've applied to and follow up with employers through the app
- Employers can manage students who've applied for jobs and follow up with them through the app

Deliverables:

The mobile app, along with appropriate documentation, will be delivered to Iowa State University for the negotiated price of $450,000. ISU's Engineering Career Services will be consulted throughout the project in order to deliver all necessary features.

Goals:

Upon delivery our app will:

- Allow students and employers to swap resumes and personal information in an instant
- Store account information and collected contact data via cloud servers
- Have functioning messaging features to allow for instant contact between students and employers for follow ups, interviews, and job offers
- Greatly reduce the paper waste produced annually by traditional resumes

Risks:

- Security is our foremost risk as personal information can be sensitive, and stolen personal information could threaten individuals' safety in extreme cases
- Some competition already exists in this market, but only with barebones features
    - Ex: CyHire's QR resume scan feature, LinkdIn's QR scan feature
- Lack of investors and early adopters could harm our app's success and relevance to the hiring process

Cost:

Direct Cost:

- Wages:
    - Our project manager will receive and hourly rate of $40/HR
    - Our three developers will each receive an hourly rate of $30/HR
    - Our two marketing employees will each receive an hourly rate of $17/HR

    - At the project's estimated length of 72 person-months this will accrue a direct cost of $341,200

Indirect Cost:

- Acquiring an LLC for our company will cost $100 in Iowa
- Renting our 1000 Sq. Ft. office will cost us $10.25/SF/YR = $10,250.00/YR850
- 6 Dell G3 15 Gaming Laptops will be purchased at $999.99 each = ~$6,000
    - ~$1,200 depreciation / year
- 6 metal desks will be purchased from ISU's surplus store at $50 each = $300
- After contacting local utility distributors, we estimate utilities for a 1,000 Sq. Ft. office (including internet, phone, electric, heat, water, and sewer) to be ~$250/Month = ~$3,000/YR
- A 16-channel security camera system including a 3TB hard drive will be purchased for security reasons at $699.99
    - ~$140 depreciation / year
- After consulting an insurance agent, liability insurance will cost us ~$3,000/YR

Total Anticipated Cost / Year: ~$364,550.00

Profit:

If our app is sold to universities at a rate of $450,000, one sale / year will cover expenses and grant ~20% profits. Our marketing team is responsible for ensuring sales, but with 4,298 universities in the U.S., potential profit will sustain business long into the future.

Risk Identification & Mitigation

Section 11 - Jonathan Greazel

IRE

Potential risks are ranked by which will impact business the most. Lower numbers indicate higher priority/likelihood:

Risk Desc.	Mitigation	Relative Probability	Relative Severity	Severity X Probability	Relative Ranking
Data hacked	Use encryption methods to protect data	7	1	7	2
Scheduled deadline becomes unrealistic	Monitor progress continuously, carefully consider developers and past project deadlines to make accurate estimations	3	3	9	3
Loss of Key Personnel	Ensure all work is well documented (code comments & project documentation)	6	2	12	4
Loss of data	Back up project files regularly, utilize version control	5	4	20	6
Crippling bug	Write thorough test cases, test code consistently	4	6	24	7
Devs lack experience	Consult outside sources or other developers	2	7	14	5
Requirements altered / Client unhappy with deliverables	Develop criteria closely with client, consult client throughout project	1	5	5	1

Risk Based Contingency Budgeting

Risk Desc.	Probability	Probability	Relative Severity	Cost in Thousands
Data hacked	7	0.32	1	25
Scheduled deadline becomes unrealistic	3	0.25	3	8
Loss of Key Personnel	6	0.10	2	10
Loss of data	5	0.01	4	15
Crippling bug	4	0.2	6	15
Devs lack experience	2	0.08	7	18
Requirements altered / Client unhappy with deliverables	1	0.65	5	12

Average probability: 0.23

a = 1.2 x n x p + 3.5

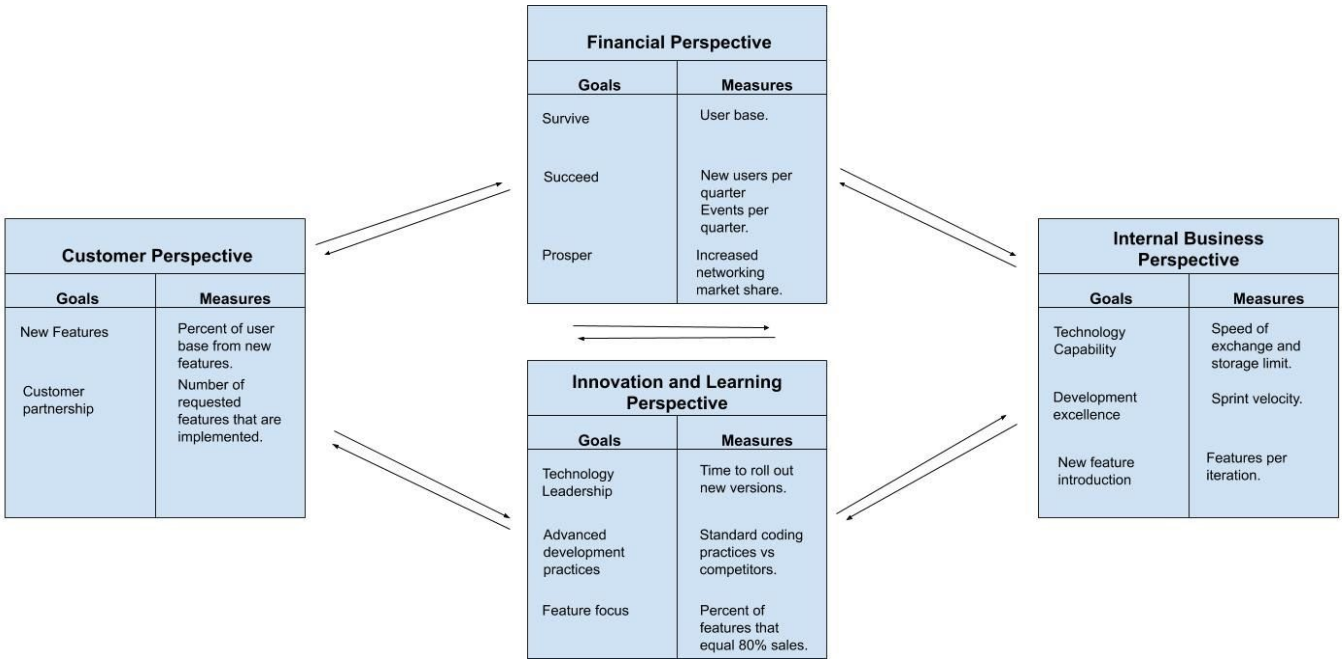
Where a = # of risks to provide for, n = total # of risks considered, p = avg.of firing probabilities.

a = 1.2 x 7 x 0.23 + 3.5 = 5.432

From the above equation, we should financially account for the top 6 risks.
12 + 18 + 8 + 15 + 10 = 63
So our contingency fund should contain $63,000.

Balanced Scorecard Model

Section 12 - Nik Thota



The balanced scorecard model shows our project goals and how we will measure the success of each goal. The goals and measures are separated into categories based on the viewing perspective.

SWOT Model

Section 13 - Ben Kenkel

Strengths	Weaknesses
- Team is familiar with the target events - Good base understanding of what the users would expect	- Need to be able to handle large bursts of network traffic - With a small team, there may not be an expert in all necessary tasks
Opportunities	**Threats**
- Many opportunities for expansion to other career fairs - Target events happen frequently	- Existing Competition - Data Security - Large amount of communication is required between the team, the hosting university, students, and attending companies - Hard Deadlines set by the event schedule

Briggs Myers Compatibility Matrix

We all took the Briggs Myers Test, from the website https://www.16personalities.com and here is our results after taking the exam:

Member	Personality
Ben	ISFJ
Gavin	INTP
Isaac	INTP
Jon	INTJ
Nik	ENFJ
Vatsal	ENFJ

Then we can use a compatibility chart for developing this matrix:

	Ben (ISFJ)	Gavin (INTP)	Isaac (INTP)	Jon (INTJ)	Nik (ENFJ)	Vatsal (ENFJ)
Ben (ISFJ)						
Gavin (INTP)						
Isaac (INTP)						
Jon (INTJ)						
Nik (ENFJ)						
Vatsal (ENFJ)						

Key:	Could Be Bad(0)
	Not Ideal(0.17/0.33)
	Acceptable(0.50)
	Very Good (.67/.83)
	Ideal(1)