

## 2016 Company Report



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School: Mounds View High School

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A special thanks to our advisor **Ishan Jaithwa** from Cummins for his passionate guidance and to the members of *Junior Achievement* who have helped us along the way.





## EXECUTIVE SUMMARY

### Overview

Rhidian Tech is a student-run company specializing in solutions to educational problems through technology. Our firm seeks out unsolved problems and looks at them from a unique perspective. We offer solutions through mobile applications developed in Ionic using HTML5 technologies. Our first commercial product is expected to be released in May 2016.

### Our Mission

Rhidian Tech has a three-fold mission: to improve education through efficiency, expose our team members to the inner-workings of an actual startup company, and share what we have learned in order to empower individuals throughout the community to take initiative and explore technology.

**Improving education through efficiency:** True to our name, we bridge the gap between students, parents, teachers, and schools. We do so by seeking out unsolved problems within education and offering simple, technology-infused solutions.

**Exposing team members to startups:** Utilizing a dynamic system of management, our firm successfully acts as a teaching company as well as a real-world startup. On a daily basis, the entire team is exposed to problems actual startups face, and actively participates in devising innovative solutions.

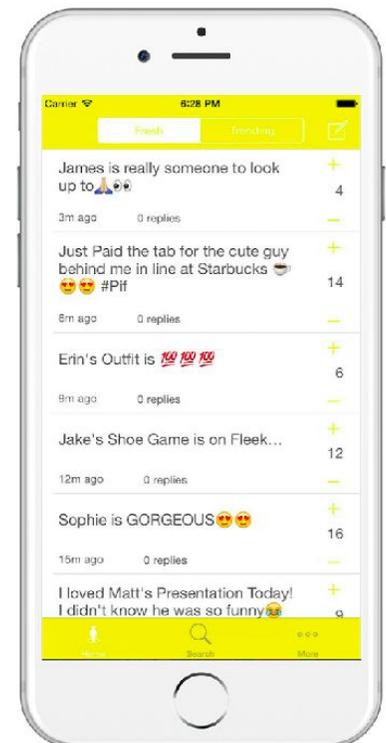
**Empowering our community:** Our website offers a free guide to mobile-programming and shares all of our extra-curricular projects with the world. Furthermore, we sponsor and organize comprehensive hack-a-thons to show our community the full scope of computer science.

Our threefold mission strives to impact our team members, community, and education, all while adhering to our company philosophy of social entrepreneurship and corporate responsibility.

### Our Products

Rhidian Tech offers simple yet comprehensive answers to common educational problems. Our team identifies problems, creates and verifies key assumptions, and delivers simple solutions for our clients through our integrated, 7-step production process. Current projects include Math Paths, MVPass, Pay it Forward, and BusTracker.

6th	Middle School Math 2	standard	6th	Middle School Math 2	accelerated	+
6th	Middle School Math 2		6th	Middle School Math 2		-
7th	Middle School Algebra		7th	Middle School Algebra		
8th	Intermediate Algebra		8th	Intermediate Algebra		
9th	Geometry		9th	Acc. Geometry / Adv. Algebra		
10th	Advanced Algebra		10th	Acc. Precalculus with Statistics		
11th	Precalculus		11th	AP Calculus 1		
12th	AP Calculus 1		12th	AP Calculus 2		





 MVPass	Mounds View High School will introduce a weekly free hour system to allow students latitude to make up work during the school day in 2017. Initially utilizing a paper-based system, a test-run of the program demonstrated that keeping track of students was logistically challenging. This mobile and web application allows students to check into different places within the school on the fly, and instantly aggregates the locations of all the students for the administration.
Math Paths	Navigating the Mounds View Schools' math curricula can be difficult. By interactively mapping out course sequences and allowing side-by-side comparisons between them, we make this process easier for students and their families.
 PiF	PiF, which is short for Pay it Forward, aims to encourage positive interaction among students. By allowing students to freely share encouraging, uplifting messages with their community anonymously, this app spreads positivity.
 BusTracker	Buses are prone to lengthy delays and are a constant source of worry for students and parents. By relaying the exact location of students' buses and presenting an estimated time to arrival, BusTracker will help students save time and alleviate parents' concerns. This project is currently on hiatus.

### Financial Summary

Rhidian Tech sold the original version of MVPass for \$500, one edition of Math Paths for \$600, and a website design service for \$150. The company totalled a net profit of \$993, resulting in a 635.6% return on investment on each \$5.00 stock. We will reinvest profits to grow the company and exponentially increase ROI for shareholders. Rhidian Tech uses a vesting system to compensate employees, whereby each employee will gain shares of stock based on how long he or she has been in the company, with offered shares starting after one year.

### Company Performance

Overall, Rhidian Tech soared beyond typical JA goals and objectives. By launching the company as an actual startup with a sustainable long-term vision, company members were exposed to the real-workings of an early-stage startup. The obstacles we encountered taught us to be organized, work cohesively, and allow logic to prevail over impulse. This rollercoaster journey has taught and instilled entrepreneurial values and skills that will be immensely applicable to our future endeavors.

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## INTRODUCTION

### Identity

The origin of our name, Rhidian Tech, was the result of lengthy deliberation. The etymology of “Rhidian” stems from the ancient Welsh word *Rhydian*, which translates into *ford*, or a bridge between two bodies of water. This reflects our mission to connect communities through comprehensive problem-solving. The transition from *Rhydian* to *Rhidian* reflects our philosophy of thinking outside the box, and symbolizes our distinctive nature. “Tech” is a natural addition to “Rhidian,” as our firm aspires to devise and deliver technological solutions to the problems we encounter. Overall, the name, “Rhidian Tech,” reflects a crisp, unique, and mission-oriented company.

### Our Story

Our company started with meetings after last year’s National Student Leadership Summit. We knew immediately from the beginning that we wanted to launch something bold, new, and risky: an actual startup. Once the school year started, we hit the ground running, and our team grew significantly. From embracing the idea of a “lean startup” to forming authentic relationships with advisors, venture capitalists, and industry experts, as well as establishing a mobile production team from scratch, we learned entrepreneurial principles first-hand.

Another focal point for our company was social entrepreneurship. We wished to eliminate financial barriers associated with learning computer programming. Therefore, our production team developed an online curriculum using videos and live forums to share what we had learned to students all over the world. Furthermore, our company is currently working with the Mounds View Coding Club to sponsor the very first MV Hackathon.

As our company solidified, we began to encounter the drastic turbulences of a startup. One of our most pivotal moments came when we connected with an established mobile development firm, who sent us our first investment offer, with a valuation of slightly over \$100,000. However, upon further investigation, we discovered we were far from the optimal stage for angel investing, and decided to defer the offer.

Despite all the hard work we accomplished, while we were in discussion with The Blake School in Minneapolis for a partnership, we discovered that we would be unable to continue with the production of the School Bus app due to liability concerns for the JA Company Program, as our app would have utilized GPS software.

Although we were continuously developing our secondary projects, it seemed at the time that we had lost our short-term vision. Team momentum plummeted as the shock temporarily apprehended us. However, despite our initial disappointment, we recalled our commitment to being a real startup, and brushed off the roadblock as one of many we would face. For the next two days, our team engaged in extensive debate over our next move. We decided to pivot quickly, and accept our principal’s offer to work with him to innovate an application for the high school’s ReFLECT system, an hour every week allocated for completing missed tests and schoolwork. Additionally, students are able to meet with their deans, send in transcripts, and complete other hard-to-schedule items. We began brainstorming ideas to bring his proposal into reality, taking into account security concerns, student flow, and time usage. Hence, MVPass was born.

### Facing Obstacles

Obstacles are an inevitable part of the startup process. Although frustrating at times, our firm fully embraces the rollercoaster ride entrepreneurship offers. Rhidian Tech encountered



communication and motivation problems from its genesis due to our large team size. We successfully addressed these issues by utilizing online calendars, deadlines, well-structured physical meetings, as well as secondary Skype and Google Hangout meetings. Yet we soon discovered that communication and attendance issues could not be resolved without addressing low motivation. Therefore, we implemented a comprehensive team-building exercise, a “Scrum,” into all of our meetings to counteract low motivation, and augment our overall drive. These were simply two of several problems that arose during the course of our company’s development. Each challenge we encountered was met with a cohesive brainstorm for solutions. We decided on the best, most rational route and followed it together. This process proved versatile, effective, and useful for our newfound team.

## **CORPORATE PRINCIPLES**

### **Rhidian Tech Vision Statement**

We aspire to make education more efficient and technology-oriented as the world becomes increasingly virtual. We believe that we can tackle unsolved problems in education by devising creative solutions from a student perspective.

### **Fundamental Corporate Principles**

Customer Satisfaction - Rhidian Tech understands the importance of fully understanding our consumers through extensive market research and interviews. Our integrated production process reflects our desire to continuously build a mutually beneficial relationship with our customers. Everything we do in market research, development, and reiteration ultimately strives to meet the consumer’s exact needs and wants.

Realistic Learning Environment - One of the initial goals of Rhidian Tech was to teach our team members not what it was like to work at a corporate company, but at an actual startup. Our management process actively reflects our desire to engage team members and enable them to experience the various dynamic elements of a startup company.

Corporate-Social Responsibility - All of us at Rhidian Tech recognize the necessity of staying true to ourselves and impacting the world in a positive way. Through sponsoring a hackathon, developing virtual guides, and sharing what we have learned, we believe that we can have a large impact on the way young programmers learn in our community.

Shareholder Returns - In order to maximize profits and maintain responsibility to our shareholders, we greatly embrace the idea of a “lean startup,” and make purchases only when they are necessary. At our present stage of development, we reinvest all profits back into the company to further grow the company and to enlarge future ROI for shareholders.

Creative Approach - From our unique team meetings to our distinctive management structure, we emphasize creative thinking in everything we do. In doing so, we are able to think outside the box while facing challenges, and devising innovative solutions.

## **BUSINESS PLAN AND FUTURE POTENTIAL**

### **Business Strategy**

The Rhidian Tech business strategy is reliant on developing authentic relationships, as education is a heavily referral-oriented sphere. We’ve been actively working with our principal and school board members to test and develop our products. Establishing genuine relationships with potential principals is the cornerstone of our strategy. Leveraging our principal’s connections has allowed us to speak to our local rotary club, and speaking at the annual Minnesota Association of Secondary



School Principals event in the summer. Furthermore, we will be demoing MVPass and ReFLECT to representatives from the Mahtomedi School District in late May.

### **Future Potential**

Teacher workshops are a lucrative market in which existing solutions approach the topic from an incorrect perspective. An estimate by the New Teacher's Project places annual spending of professional teacher development of \$8 Billion dollars in just the 50 largest districts. There are over 14,000 public school districts across the US. We believe they have strayed too far from the root of the problem. Instead of asking "*Why aren't students learning?*", they are asking "*How can we improve grades and test scores?*". Engagement and intellectual curiosity are necessary prior to addressing grades and test scores. According to interviews and research we have seen, the primary reason why kids aren't learning is "school isn't relevant". They can't see the real-world connection.

Our solution lies in Virtual Reality to give students a fully immersive educational experience so they can experience the relevance of their subject first-hand, in real time. We have been working with current teachers and students to further develop the idea.

In the meantime, we will pursue expansion of the MVPass and BusTracker apps to increase revenue flows. Overall, our short-term goals include utilizing apps such as MVPass and BusTracker to fund the research and development of our long term vision of developing virtual reality software in order to revolutionize the face of modern education.

### **Marketing**

Thorough market research is vital to the success of any company. Our marketing team's strategy, a critical part of the Rhidian Tech integration model, is composed of five major parts:

- A) Target Market Assumption → Background information on the specific product field is conducted using search engines like Google to narrow down the scope of our research and assume a specific target market.
- B) Assumption Proof and Consumer Interviews → Consumer interviews are conducted in our assumed target demographic to either verify or disqualify the assumption.
- C) Consumer Needs and Wants → The problem-in-progress is then further specified and the consumer's niche needs and wants are found through open-ended interviews.
- D) Consumer Interest → Samples of target consumers are then surveyed to gauge consumer interest and determine the feasibility of the proposed solution by comparing our results to industry standards.
- E) Data Analysis → A specified solution is devised and the product details are then forwarded to the Rhidian Tech Production Team to finalize and begin development.

To best determine what products would be viable in the education system, our Marketing department was able to conduct market analysis with schools in our district to identify four target groups: students, teachers, parents, and school administrators.

Our first large-scale project was BusTracker. To assess the market, we surveyed middle and high school students in the Mounds View district. A survey of nearly 100 middle school students showed that 95 percent of these students that ride the bus would download this app. A similar survey conducted at the high school level yielded similar results, with 84 percent of people indicating they would download and use this app. Despite our accumulated breakthrough rate of 89 percent, product development was halted due to liability concerns.



For our other major projects, the MVPass and Math Paths apps, we conducted market research through meetings with key school administration members to develop the base ideas for these apps.

## MANAGEMENT AND LEADERSHIP

### Leadership Structure

Organized leadership is vital to any business venture. Like a heart, it must efficiently and effectively pump vital information throughout a complex body in order to prosper. At Rhidian Tech, we wanted to craft our own innovative approach to leadership; we wanted to maximize each student's unique skills and interests while offering the most opportunities to learn. As such, after hours of idea-bouncing, we implemented what we call an "Extrinsic for Intrinsic" system.

Unlike conventional methods that denote specific leadership positions at the beginning of a company's life – a method that can often restrict a young entrepreneurs' curiosity and contributions – our approach allowed each individual to acclimate to entrepreneurship and find their own niche within the company. At the early stages, we *intrinsically* encouraged our employees to seek out and focus on their passions within the company, which gave us a nice distribution of activity across our main sectors – Production, Marketing, and Finance. Of course, a preliminary guiding-body was still necessary to keep the company afloat, which led us to assemble a three-member "Core Board" with a lead board member based on previous leadership experience within *Junior Achievement*.

By utilizing this method, we ensured that our employees were genuinely invested in the company and not simply driven by the resume-benefiting allure of a leadership position. Our employees quickly proved themselves to be driven, intelligent, and impressive. After roughly four months of Rhidian Tech, we felt comfortable transitioning to the *extrinsic* stage, where leadership positions became available and were solely dependent on each individual's amount of effort and work.

### Our Team

A typical startup often has the luxury of selecting a team of 3-4 members. However, we were faced with a different situation. From the start, Rhidian Tech has been comprised of nearly 20 team members, many of whom had never met before. We discovered no matter how great each individual member may be, chemistry is vital to any team. Therefore, a "Scrum" was incorporated into the beginning of every meeting. Stemming from the famous Rugby huddle, scrums target three factors of a team: Relationship building, memory optimization, and goal realization.

Relationship Building → Team chemistry is vital to any team. The first element of the scrum composes of every team member standing in a circle and disclosing a "vulnerability moment," for that week; something that was bothering them and they had to get off their chest. This sense of transparency greatly improved the team's emotional bond.





Memory Optimization → Neuroscience has shown that humans’ memories are optimized when combined with auditory, visual, and physical components. Each week, a different comprehensive sign was used to transition from one portion of the meeting to the next.

Ex. (Saying “Waaaa Bam!” with a single large clap).

Goal Realization → It’s important for every team member to know what they would like to accomplish in Rhidian Tech as well as personally. Team members stood in a circle and drew an imaginary bow-and-arrow back. They were then asked to picture two things: their Rhidian Tech and personal goals for the week. The imaginary arrow was then let go. This brief moment of self-reflection led to keen actualization of personal direction and ambition.



Although the team faced challenges in regards to internal comfortability, the implementation of the scrum and the passage of time counteracted any internal roadblocks we encountered. We pride ourselves on creating a team culture in which each member is able to genuinely be themselves.

### COMMUNITY INTERACTION AND EMPOWERMENT



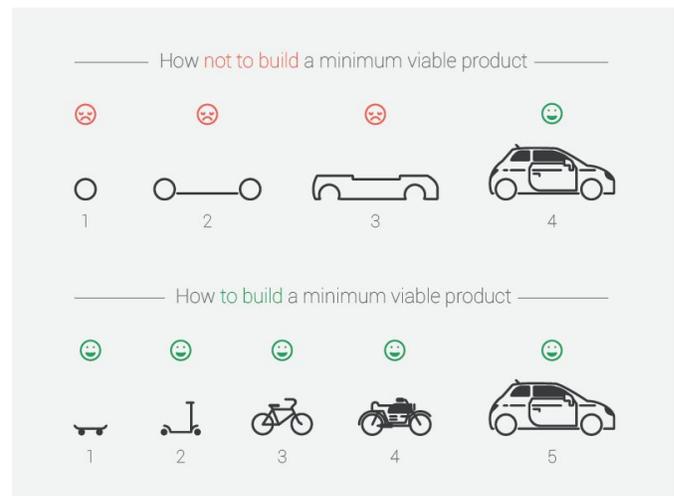
With our mission always in mind, we seek out every chance to interact with and serve our community. Our team makes video tutorial series in order to share all of the programming knowledge we gained throughout the production process. In addition, Rhidian Tech has given \$250 in sponsorship of MV Hacks, a district-wide

hackathon event put on by the Mounds View Coding Club, and the entire team will be volunteering our time and expertise with local middle and high schoolers at the event. Furthermore, Rhidian Tech is in contact with dozens of possible volunteers and speakers to provide a memorable, educational experience for young programmers this May. By investing back into our own community, we continuously foster the development of new talent and facilitate the solution of new problems.

### PRODUCTION AND TESTING

#### Overview

Our production team is a tight-knit group of enthusiastic programmers. While the team reflects a wide range of programming experiences and skillsets, everyone was new to mobile development at the beginning of the year. We familiarized ourselves with native application development before ultimately moving to a hybrid application development paradigm, both of which have served us well. We have also leveraged powerful, open-source frameworks in order to



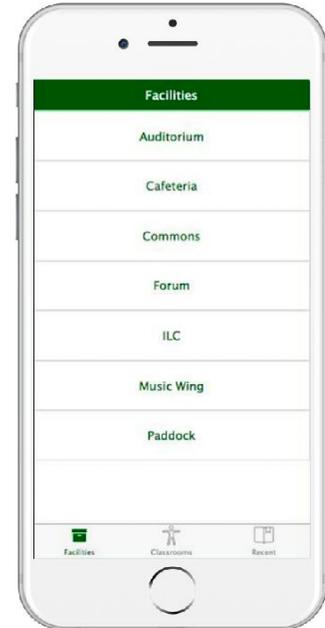


make our applications responsive and user-friendly, while at the same time completely avoiding licensing fees for development tools.

The team meets every Wednesday to reflect on the previous week's successes and shortcomings, discuss progress, allocate tasks for the coming week, and troubleshoot unexpected or tricky bugs as a team. By cultivating a healthy and collaborative meeting environment, each team member brings their own unique ideas and skills to the table, which allows problems to be solved much more quickly and effectively as well as establish a well-informed consensus within the team.

During the week, we use the collaborative code-sharing software service called GitHub to develop multiple parts of our products simultaneously, in addition to group communication programs to continue collaboration and synergy within the team beyond the meetings.

Throughout the development process, we are constantly pushing the envelope. As the end users of our apps are students, we conduct iterated rounds of testing with students to determine which features are most useful and detect shortcomings in design. The result is a product designed by students, for students, in keeping with our mission.



### **Rhidian Tech Integrated Production Process**

At Rhidian Tech we utilize a standardized, comprehensive production process to develop all of our products. These steps are iterated as many times as needed to produce an application that meets our high standards of responsiveness and user friendliness.

1. *Key assumptions* — The production and marketing teams collaborate to develop an understanding of the end user's desires for a product. Before we can create a solution to a problem, we have to fully understand the problem itself. These assumptions are developed alongside and evolve with our market research.

2. *Design* — Once the problem's scope and impact are well understood, we devise a solution and describe its implementation. This results in a project outline and design documentation, and takes financial feasibility into account.

3. *Implementation* — The steps to create a specific application are outlined in detail and followed in an iterative process. Each task from the first line of code to the last is carefully formulated to build constructively upon those prior, so that every step taken is tangible and testable.

4. *Testing* — Since our implementation process produces a continuously functional project, we also continuously test both within the production team and with end users. By observing the way in which users interact with our apps, design flaws and bugs can be easily spotted and fixed.

5. *Release* — Once a product has been built and tested, it's ready to go to the end user. We release our products in a variety of ways: on each platform's official app store, deploying to websites, as well as through our own private channels in the case of support software.

6. *Consumer Feedback* — Feedback is collected post-launch in collaboration with the marketing team to seek out major consumer dislikes through open-ended interviews with customers.

7. *Reiteration* — After consumer feedback has been collected following initial launch, the data is analyzed, and the marketing and production teams work together to decide what to



implement in order to cater to consumer needs. Steps 2-7 are continuously repeated to consistently cater to the consumer's wants.

**FINANCIALS**

Category	Amount	Details
Total Sales	3	From Financial Statement
● Pass System (MVPass)	1	
● Website	1	
● Math Paths	1	
Total Sales Revenue	\$1250	From Financial Statement
● MVPass	\$500	
● Website	\$150	
● Math Paths	\$600	
Total Revenue	\$1400.00	From Financial Statement
Expenses	\$157	We paid \$7 a month for 3 months for hosting on Github and \$12 for one year for owning the domain rhidiantech.com.
● Github \$21		
● Domain \$12		
● Android \$25		
● iOS \$99		
Charitable Givings	\$250	See Community Hackathon
Taxes Paid	\$0	From Financial Statement
Gross Profit Margin	\$1243	Total Revenue - Sales Tax - Expenses on Material
Net Profit	\$993.00	From Financial Statement
Return to Shareholders	635.6%	From Financial Statement
Break Even Point	1.29 Units (Average)	Fixed Costs / (Unit Selling Price - Variable Costs)



Revenue	
Total Sales Revenue	\$1250.00
Sponsored Contributions	\$100.00
Other Contributions	\$50.00
<b>Total Revenue</b>	<b>\$1400.00</b>

Expenses	
<u>Sales Tax Calculation</u>	\$0.00
Local & State Sales Tax (7.125%) (Sales Revenue ÷ (1 + Tax%)) × Tax%	
App Store Fees	\$124.00
Hosting Expenses	\$33.00
Charitable Donations	\$250.00
<b>Total Expenses</b>	<b>\$407.00</b>
<b>Net Profit</b>	<b>\$993.00</b>

Capitalization	
Net Profit	\$993.00
<b>Total Shareholder Equity</b>	<b>\$993.00</b>
Shares of Stock Sold	27
Dividend per Shareholder	\$36.78
Stock Price	\$5.00
Return on Investment (ROI)	635.6%

### Final Reflection

Over the course of this year, Rhidian Tech has truly emerged as a fully-functional startup. Our team members have developed an arsenal of entrepreneurial skills, and establish authentic relationships with one another. In the near future, we expect to incorporate, seek starting capital, and further expand Rhidian Tech in the hopes of transforming the face of modern education.

### Financial Forecast

We plan on scaling up the price for the MVPass starting at \$3000 for the next three districts for second-round testing and \$5000 after that for the fully-developed system. We plan on selling the next three pass systems by the end of June this year, and five more full pass systems by September of this year. There are currently 1188 public high schools in Minnesota. With these data, we can earn up to \$593,400 in revenue if we capture 10% of the market, and up to \$5,934,000 in revenue if we capture the entire market. Our Bus Tracker App is currently evaluated at \$102,400. We plan on developing the minimum viable product for this app throughout the summer after incorporation this year, and sell it to three test schools for \$2000 each to collect data and further iterate the product.