

ViaBlaze Feasibility Summary

1. What are you building and for whom?

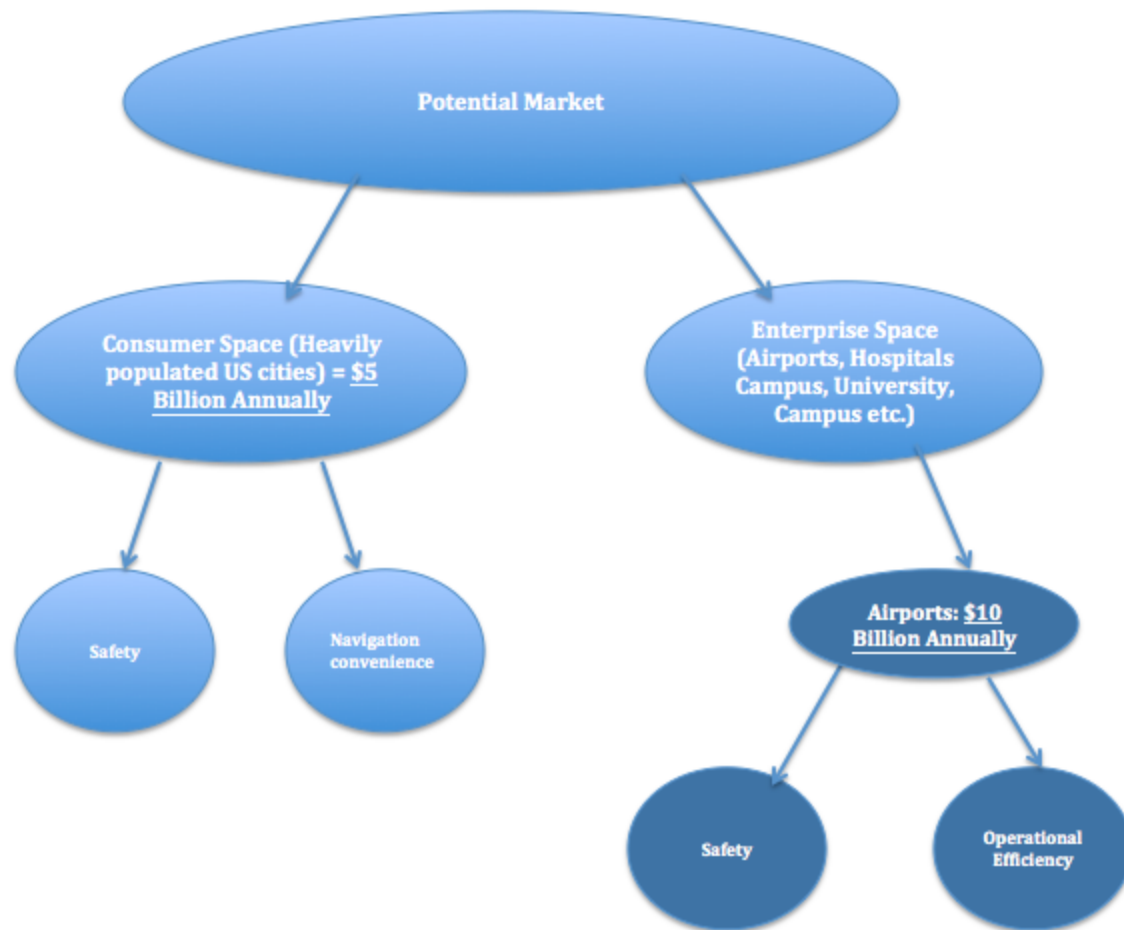
ViaBlaze is building a collision avoidance system that leverages proprietary communication technology to smartly analyze the environment and prevent accidents. The potential market consists of drivers residing in heavily populated US cities. The first target market is the aviation industry in which we can equip GSEs (“Ground Support Equipment”) with a state of the art collision avoidance system and eliminate accidents caused by human error, poor visibility, and malfunctioning equipment. This ensures safety of ground staff and prevents damages to the GSEs. We also offer solutions for operational efficiency of airport fleet management. ViaBlaze is easy to install and manage with our remotely controlled command center.



ViaBlaze Visual Communication System for GSE

2. Who are your customers?

Our potential market includes the Consumer space, with a \$5 billion market, as well as the Enterprise Fleet space. Our strategy is to focus on one enterprise market - aviation - and scale out to other markets that involve fleet management or a campus environment. The size of the potential market of the Aviation Ground Support Equipment space is \$10 billion.



In the Aviation Space:

- The three groups of customers who own / manage GSEs are: (https://en.wikipedia.org/wiki/Ground_support_equipment)
 - Airports
 - GSE Handling Agents
 - Airline Operators

Examples include DAL Global Service, Envoy Air, Regional Elite Airline Service, Universal Aviation, Worldwide Flight Services and American Eagle in the US

- Market Size (For airport fleet management):
 - Number of GSE at each airport is ~100 [The number of GSEs at SFO, one of the larger airports, is 200] <http://media.flysfo.com/media/sfo/about-sfo/ground-support-equipment-safety-inspection-program-2014.pdf>
 - Number of public airports in US: 5,145 (2014) http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transpiration_statistics/html/table_01_03.html
 - Potential Market size in US = \$200 X 100 X 5145 = \$106 Billion
 - Spread over 10 years the annual market size of \$106 B /10 = \$10.6 Billion
- Demographics of target market (of GSE Operator):

- Revenue: Operators with revenues over 100M
- Geography: GSE operators operating in extreme climate conditions area such as snow, poor visibility, and extreme heat.
- Number of potential users: Potential users would range from 500 for small size GSE operator to 10,000 for a large sized GSE operator
- Number of potential buyers: There are about 10-15 GSE agents in the USA who currently have existing operations in airport
- Description of a typical customer
 - The operations manager at a GSE Handling Agent corporation

3. How will you win?

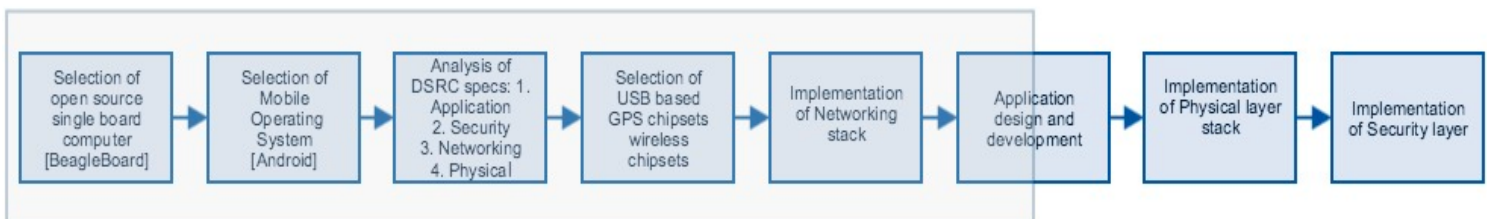
- The current players in the DSRC Consumer market space. (Their solutions are still in the lab/research phase. No product has been deployed in the market yet and the reason is the inability to penetrate due to lack of network effect.)
 - Toyota
 - Chrysler
 - Savari Networks [Startup in Silicon Valley]
- The Current Fleet Management companies in the Aviation space :
 - Zebra: Asset tracking
 - I.D Systems : Location tracking functionality
 - Sabre Airlines Solution: GSE planners consulting company
 - LAS USA: Wireless fuel management
 - Base Engineering Inc.: Builds wireless emergency stop watch
 - SCI Distribution: Wireless fuel management
- Who could be your competition in the future: Toyota and Chrysler both of which have DSRC solutions created in their lab
- What are your competitive (dis)advantages
 - Advantages: Innovative wireless technology, specifically designed for communication between moving vehicles. Experience implementing and designing DSRC wireless protocol stack
- How are you positioned with respect to competition?

| Solution provided by Zebra | Solution provided by I.D Systems |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Mainly concerned with high utilization of GSEs and fleet size reduction based on a <i>central electronic visualization system</i> showing location/status of GSEs on a digital map <ul style="list-style-type: none"> - No solution for turn-around time reduction - No solution for safety applications • Modified Wi-fi based technology (2.4 GHZ) causing serious problems like <ul style="list-style-type: none"> - Interference of out-of-band spurious signals with aircraft signals - Overloading of cellular towers • No GSE to GSE wireless communication possible • Non-dynamic method of geo-fencing <ul style="list-style-type: none"> - Based on installed special zones in telemetry devices which require regular monitoring and changes • Accident prevention mechanism is not present.. • Very Limited ability to improve operational efficiencies of Ground Support Services since coordination between vehicles not possible | <ul style="list-style-type: none"> • Mainly a location tracker with sub-optimal and costly safety and security solutions <ul style="list-style-type: none"> - Does not have a solution for turn-around time reduction and fleet size reduction - No solution for collision avoidance, safety • High installation and maintenance costs due to requirement of various types of equipments <ul style="list-style-type: none"> - Device on GSEs, Antennas on buildings, speed and impact sensors on GSEs • No GSE to GSE wireless communication possible • Non-dynamic method of geo-fencing <ul style="list-style-type: none"> - Requires changing of electronic map installed on device, each time the off-limit areas changes • Can't prevent GSE-to-GSE and GSE-to-Aircraft accidents. • Very limited ability to improve operational efficiencies of Ground support services since coordination between GSEs not possible |

- What barriers to entry will protect you?
 - Technology advantage
 - Access to aviation market

4. Are there key differentiators/elements of your business worth protecting?

- Is it proprietary? Are there patents?
 - Proprietary technology: The DSRC channel environment is very different from that of WiFi. WiFi is designed for moving devices. Additional complexity is caused by vehicle density, vehicle velocity, path-loss, electromagnetic interference etc. We are adding the ability to change the PHY parameters of the wireless channel using the application layer
 - Are there patents? No patents filed yet
- Are there key milestones in terms of prototype development or product testing?: Implemented the sections included in the grayed box.



- What are the technology risks?
 - Need to make sure that the communication technology cannot be attacked (cyber attack) or abused
 - Potential large doppler spread and multipath delay spread need to be minimized

5. How do you communicate and get the solution to your customers?

- How does the product get from my company to the customer?:
 - Direct sale to customers via a salesforce.

| <i>Our Sales Model/ Characteristics</i> | <i>Relationship</i> |
|------------------------------------------------|-------------------------------------------------|
| Sale to End User | Direct |
| Growth Indicators | Number of Accounts, Average account value |
| Sales/Marketing Ratio | 80/20 |
| Primary Marketing Tactics | Trade Shows, PR, Direct Mail, Cold Calling |
| Titles of Sales Employees | Account Executives, Inside Sales, Road Warriors |
| Connection to End User/Consumer | Tight, Close, Personal |
| Customer Service Model | Ongoing, Dedicated reps |
| Offering | Customized/ Complete |

- How do you get, keep, and grow customers?
 - 50% retention and 50% new customer acquisitions: We will be selling additional safety solutions and fleet management solutions for optimizing turnaround time to existing customers in addition to acquiring new customers.

6. How do you make money from each customer segment?

- What will the customer pay? How do you know? :
 - Our price would be \$200 per GSE. (The physical form factor and the display screen of the visual communication system is similar to that of an existing GPS navigation unit which has an average price of \$200)

- Customers pay through a long term service contract based on the GSE fleet size

7a. What are the most important actions you take to create and deliver your value proposition?

- Obtain the key statistics around the number of collisions and delays with existing technology
 - Value proposition can be demonstrated by showing the loss or revenue due to delays
 - With highly accurate collision technology the delays can be avoided in addition to reducing the fleet size with increased accuracy and improved productivity

7b. What assets are required by the business to deliver your value proposition?

- Demo units with equipped with sensors(can also be through dummy moving vehicles)

7c. What are the costs incurred by creating and delivering value, maintaining relationships, and generating revenue?

Product development costs incurred:

Prototype Creation:

Team members required to complete prototype creation: 6

Time required: about 6 months

Funds needed: \$500,000 [Assuming a salary of \$150K, and a duration of 6 months]

Full production creation:

Team members required to complete prototype creation: 15

Time required: about 12 months

Funds needed: \$2 Million [Assuming a salary of \$150K, and a duration of 12 months]

8a. Who makes up your management team?



Ishita Sharan

Founder, CEO, [ViaBlaze](#)

Ishita has a Masters in Computer Engineering She is an inventor and Entrepreneur. She has been awarded many patents for her inventions in wireless technology area. She is a leader and worked in various roles including, sales, product development, marketing and strategy.



Prashant Tiwari

CTO, [ViaBlaze](#)

Prashant has an PhD & MS. He is an inventor and had awarded many patents for his inventions. Prashant has proven recognition in the industry and published numerous papers in the field of physics and technology and . He oversees the design and advancing for GE Aviation thermal system design



Santosh Shankergowda

CMO, [ViaBlaze](#)

Santosh has an B.S Engineering degree in Computer science. He is an Entrepreneur and Marketing technologist. He is an industry visionary, advisor to fortune 500 companies on emerging technologies and marketing, combining unique approaches to technology business and marketing strategies

8b. Who are the vendors?

- We have talked with some existing companies who are manufacturing electronic widgets in Asia. In our product offering, in addition to services we need a display unit, which can be configured with an onboard GPS display GSE we have. We have partnerships with Sirf Technology and Vincotech for prototype development but need manufacturing partnership for the proprietary DSRC sensors we will require.

9. What have you done so far? How have you tested your assumptions?

- Market Survey performed for Consumer Space
- Aviation Customers interviewed:
 - Bradley J Mitchell, Senior Architect, Boeing
 - Pradipta Kanjilal, Associate Director at United Airline: [Please see Appendix.](#)
- Patents: Patents not filed yet
- Prototypes: In development
- Minimal Viable Product: In development
- Partnerships: Sirf Technology Inc., Vincotech

10. What are you worried about? What do you plan to do about it?

- GSE and Airport segment is highly regulated industry and hence high barrier to entry
 - We plan to mitigate the risk by building partnership with GSE manufacturers (e.g. Boeing)

- With significant emphasis on driverless cars and drones market is poised to explode so speed is critical
 - Potential for partnership with existing players Google X, Apple
 - Potential for partnership with NASA which is working on collision free drone technology
- If there is substantial customer interest, would need the capability to scale out rapidly which could imply hiring, production, and operational challenges.

11. Are there analogues in the industry or other industries that validate your business model?

- Who are they, and have they been successful: **ID System's Avramp**

I.D. Systems, Inc. is an American company headquartered in Woodcliff Lake, New Jersey, that produces wireless asset management systems for industrial trucks, rental vehicles, and transportation assets. The company utilizes wireless communication technologies—including radio frequency identification (RFID), Wi-Fi, ultrahigh-frequency (UHF), satellite, and cellular—as well as sensor technology and proprietary software to manage high-value corporate assets, such as forklifts, airport ground support equipment, rental vehicles, dry van trailers, chassis, refrigerated trailers, flatbeds, railcars, and intermodal containers.

I.D. Systems' solutions consist of hardware, software, maintenance, support, and consulting services.

- How are they valued? : Their revenue was \$45.6M in FY14
- Have there been successful exits? Multiples?: I.D. Systems, Inc. was founded in 1993 and went public in April 1999 (\$14MM IPO; Price / cash flow = \$494), followed by a follow-on offering that closed in March 2006 (\$58.6MM); (<http://financials.morningstar.com/valuation/price-ratio.html?t=IDSY>)

12. Pete Thiel's 7 Questions Every Business Must Answer

- Can you create breakthrough technology? **Yes**
- Is now the right time to start your business? **Yes**, since Obama administration is fast-tracking talking car mandate this year.
- Are you starting with a big share of a small market? **No** we are starting with a small share of a big market
- Do you have the right team? **Yes**
- Do you have a way not just to create but to deliver your product? **Yes**
- Will your market position be defensible in 10-20 years? : **Yes** in 4-5 years. Hard to say for 10-20 years down the road
- Have you identified a secret opportunity that others don't see: **Yes**

Appendix:

Report prepared by Associate Director, United Airlines

- Human factors + litigation = even more costs- Apart from the financial costs there are also the human costs, and the consequential lingering threat of litigation both against individuals and by them. Human factors influencing performance of activities in the ramp area have acquired proportionately more significance than they have in most other fields of the air transport industry, with the obvious exceptions of cockpit flight crew and airport security staff. Human behavioural factors are allocated at least as much weight as are organisational/systemic ones in training programmes and embrace, inter alia:
 - The perceptual, mental, physical capabilities of people;
 - The interaction of individuals with their jobs and working environments;
 - Influence of equipment and system design on human performance;
 - Organisational characteristics which influence safety-related behaviour at work
- Consortiums (like Star Alliance or One world for airlines) in Ground Handling are still in a nascent stage and hasn't started in most parts of the globe
- Better need for Project & Program Management - Ground handlers marginally price contracts on the back of other contracts; they assume that everything will go according to plan by adding 5% for margin and nothing at all for a contingency when things don't go according to plan. So, when things inevitably do go wrong, then it's a scramble for the poor ramp and check-in and boarding teams to cope with something that wasn't ever on the plan in the first place
- Scheduling the right food for catering at the right airport
- Trade-off between Cost Efficiency and Time Efficiency
- Ground operations companies have been using a multitude of operational procedures, instead of standardizing the way they operate globally
- Handling concession/licence-limited duration and unfavourable terms and conditions
- Economic conditions-volatile exchange rates reduced cargo and passenger volumes and pressure to cut costs
- Equipment serviceability and maintenance-spares and mechanics shortage
- Ground handling licences and concession is a thorny issue at the bidding process: During the course of a license, the civil aviation regulator exerts pressure to ground handlers to ensure compliance with safety and security matters. This is causing handlers to invest in training and equipment so to meet safety and security requirements. As per summary of respondents contracts with airlines is not a very big challenge; it is only a challenge when airlines put pressure on ground handlers to review their rates downwards and in the case of dispute resolution.