Business Plan
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Virtual Ink Corporation is a computer peripherals company whose lead product automatically transcribes what users write on existing chalk or whiteboards, thus enabling automatic, inexpensive, error-free, real-time transcription of handwriting and sketching. Virtual Ink was the first place runner-up in the 1997 MIT Entrepreneurship and Business Plan Competition for its primary product, the ***e•pen***™*. **e•pen**™ is a labor-saving, productivity and communication enhancement tool that could enable the automatic capture of valuable shared thoughts communicated daily between millions of office and academic users.*

EXECUTIVE SUMMARY

**What is the product ?*

e•pen™ is a patentable human-computer interface tool that converts any common writing surface as large as 10 meters x 16 meters into an electronic transcription device. **e•pen**™ links the writing instrument wirelessly to a personal computer replacing the need for subsequent manual transcription. Hand sketches and notes can be captured accurately, rapidly, and automatically during brainstorming sessions and incorporated directly into documents.

**What is the market size ?*

The estimated 50 million white-collar offices world-wide with both a personal computer and either a chalk or whiteboard are potential **e•pen**™ sales candidates. We anticipate initial adoption by several hundred thousand team-oriented professionals such as management consultants, design engineers, academics, and industrial designers. Over time, the direct electronic capture of written group meeting notes will be as indispensable as a common conference call or document photocopying.

**What are the startup costs ?*

Virtual Ink anticipates initially requiring $320,000 to complete the beta prototype of the **e•pen**™, provide for legal and infrastructure expenses related to startup and to cultivate potential customers. To finance start-up we intend to seek initial capital from venture capitalists and corporate partners. Further investment of $2.0 million is needed for finalizing the product, further setting up company infrastructure, lining up lead vendor-channel relationships, landing significant corporate accounts, and accelerating global marketing efforts.

**What is the payoff ?*

Virtual Ink anticipates break-even within 2 years. In addition to our product sales, we expect royalty revenue from licensing our position sensing and software technology. Within 3 to 5 years, Virtual Ink anticipates an IPO or sale of the company to fuel further growth and to offer liquidity to investors.

** Management Team*

The technology component of the management team consists of MIT-trained engineers: Yonald Chery (product conceiver and Chief Technology Officer), William Moyne (Software Development Lead), Andrew Kelley (Manufacturing Development Lead), and Matthew Verminski (Hardware Development Lead). The business component of the management team currently consists of MIT Sloan-trained finance and marketing members: Michael Dixon (Chief Financial Officer) and Rosaline Gulati (Marketing Director). We are currently recruiting a chief executive officer and directors for our corporate board.

1. THE COMPANY & THE PRODUCT

1.1 Overview

Virtual Ink Corporation is a privately held computer peripherals company founded by a group of MIT graduate students in engineering and business. We have worked to design a prototype system and business strategies, consulting with numerous academic and professional contacts to assess the feasibility and utility of our product and business model. Virtual Ink won $10,000 in cash and $15,000 in in-kind services from professional services firms as the first runner up in the 1997 MIT Entrepeneurship and Business Plan Competition for it's primary product, **e•pen**™. In July 1997 Virtual Ink developed and tested the first fully functional proof-of-concept prototype model.

The **e•pen**™ is an electronic transcription system that retrofits conventional whiteboards to automatically capture and transcribe handwritten text from the whiteboard to a personal computer, solving the problem of capturing and storing meeting notes or lecture notes on a whiteboard or chalk board. Imagine how valuable it would be to immediately store in manipulable form the notes generated in brainstorming sessions, reminders of things to do or even design sketches. Imagine how a device that allows one to do so effortlessly by retrofitting existing whiteboards and marker pens could revolutionize the way office workers interface with their computers and each other.

1.2 Business Model

Our business model is clear. Our value proposition is to provide an affordable, comprehensive electronic transcription system that allows for accurate, immediate data transcription of notes and sketches written or drawn on a conventional dry erase whiteboard and the ability to archive to a personal computer the captured data in manipulable form. Our promotional proposition is to sell through large office products stores, computer stores, mail order and specialty retailers, as well as to bundle with various hardware manufacturers and conventional whiteboard manufacturers. We intend to generate profits by producing products that will be augmented by software modules permitting handwriting recognition, the development of user tool kits and web-direct transcription. We anticipate that our pen product alone will be profitable, however, we perceive substantial opportunities in software application extensions for the **e•pen**™ Electronic Transcription System.

Existing technologies to solve this problem have only focused on providing digitized writing surfaces such as electronic whiteboards or smart boards. These boards either photocopy the entire writing surface or serve as the actual input devices or electronic templates. As a result, they are large, cumbersome, expensive, and often immobile.

We see the **e•pen**™ as a catalyst for revolutionizing data capture technologies. The **e•pen**™ is not merely an innovative product substitute for electronic whiteboards, it is a comprehensive electronic transcription and data acquisition system that captures the image in manipulable form, not merely a bit map rendition. Therefore, users may manipulate the stored data in many popular computer applications, such as word processing or presentation software. Coupled with hand writing recognition software, the E-Pen will revolutionize the way people interface with their computers.

1.3 The Product

Our system consists of an electronic position-detection stylus-holder that holds either a conventional dry-erase marker pen or piece of chalk, a minimum of three position detection sensors that are mounted on the conventional surface and proprietary software and drivers to enable hand writing recognition and data manipulation amongst other features. Once activated, the stylus-holder transmits its position to the detection sensors placed around the edges of the writing surface. These sensors then wirelessly transmit the digital information to your existing computer. The stylus will be designed to be unobtrusive and require no specialized training to operate.

Aside from your existing personal computer, no additional hardware will be required to operate the E-Pen System. Further, the detection sensors are designed to be easily removed and remounted elsewhere, making the E-Pen System readily portable. Furthermore, we intend to bundle several compelling software applications with the pen product targeted to unique market segments and their needs. For example, through additional software and Internet access, the device may be configured to transmit from its host computer to a network server, allowing for distance learning, data conferencing, or distributed collaborative work.

On May 14, 1997, the intellectual property law firm of Wolf, Greenfield & Sacks filed a provisional patent application for using pen-based position detection technology for electronic transcription on behalf of the officers of Virtual Ink Corporation. On July 26, 1997, Virtual Ink tested the first operational proof-of-concept prototype system. We are presently filing a non-provisional patent application and applying for a registered trade mark.

1.4 Product Value

The value of any product is the functionality users derive from its use. Some **e•pen**™ users may prefer to capture graphical images as opposed to transcribed text; some users may prefer to be able to review, screen by screen, various stages of meeting notes to retrace the development of a critical idea or recapture a train of thought. Yet still, other users may wish to annotate their meeting notes with descriptive reminders of important developments or to highlight in some way certain passages of notes. To serve these varying levels of needs we will introduce two models of the **e•pen**™, the Consultant's Tool bundled with a full complement of our software for more demanding commercial use and the base product for less demanding commercial or recreational use, suitable for the conventional whiteboard in an individual office. We will also market easy-to-use software applications to allow users to manipulate their archived data and exchange these files with popular software applications.

Portability and ease of use will enable executives to replace their flip-charts and easels when attempting to record meeting notes. Immediate data transcription will allow managers to automatically record their written notes, whether it be in an office or a board room, and scroll through those notes at a later date to annotate with highlights or other descriptive information. Portability will also allow consultants to carry an **e•pen**™ in their briefcase and companies to easily share the devices without being tied geographically to one location.

Our system can also be used as a videoconferencing/productivity tool, allowing users to work simultaneously while in different locations. Lastly, our attractive price point combined with business-critical functionality will allow companies to own several **e•pen**™ units and for the E-Pen System to be as ubiquitous as laser printers or facsimile machines. Consequently, the market for the E-Pen is the intersection of every computer owner and dry erase whiteboard owner in America and the World.

1.5 Market Entry and Growth Strategy

Given our proximity to MIT, we are developing relationships with professors to commit to using prototypes of the **e•pen**™ in their lectures. We intend to secure product endorsements from respected faculty members to use as part of our marketing efforts.

We intend to direct sell our product to strategy consulting firms as early adopters of this technology. Consultants are team-oriented professionals who use whiteboards to develop business critical ideas and strategies. The ability to capture this data, transmit it wirelessly to a PC and transcribe the drawings into text will greatly enhance their productivity. Further, adoption of our technology will allow them to differentiate themselves from their competitors and make them likely candidates to be early adopters of our technology. Dominance in this niche market will lead to other niche markets through custom applications and a consulting service to design, implement and train users of custom transcription and productivity enhancement systems for new niche markets. Businesses in which the ability to capture and

store notes and renderings written on the whiteboard will derive value from using our system. Examples of alternate applications include graphic design, engineering, videoconferencing, shared whiteboard, medical records annotation, and electronic signatures for electronic commerce and legal documents.

We intend to secure product endorsements from our early technology adopters as valuable references to our early majority market. The early majority market is executives and managers who, by virtue of their positions in their organizations, work collaboratively and capture their whiteboard notes. Strategy consultants will serve as valuable references to this early majority market. The late majority market will include home and recreational use, less demanding commercial use such as personal calendar, scheduling and notes, and class room use.

We intend to develop relationships with manufacturers of conventional dry-erase whiteboards and overhead projectors to determine whether or not there are any opportunities to bundle our product with the conventional board or overhead projector to tap the mass market more directly. We also intend to explore possibilities for bundling our product with manufacturers of scheduling and contact management software to provide the ability to convert any writing surface into an electronic template which may directly input information to the computer. For example:

- a white board with a template of a calendar may be used to directly and more readily input information to the scheduling software,
- project managers may more readily input project schedules and Gantt charts to the scheduling software,
- graphics artists may more readily capture their sketches drawn with a marker as opposed to a mouse.

We plan to distribute our retail products through all major channels including distributors such as Merisel and Ingram as well as retailers such as CompUSA, Egghead Software, Computer City, Staples, Office Max, and other discount office supply retailers. Our initial plans include demonstrating our prototype at the major computer peripherals trade shows and to buyers for leading retailers. We have already initiated conversations with corporate buyers from Staples and Office Max. A detailed schedule of our implementation plan and product roll out is found in Section 4, Design and Development.

We will stimulate demand and attract buyers through aggressive advertising and promotional campaigns and WWW-based media channels. We plan to continually develop and introduce new compelling software applications for the **e•pen**™ System. We see our core business in the electronic transcription industry as designing custom productivity enhancement systems employing electronic transcription, offering implementation consultation services and repackaging custom applications for the mass market.

As we realize capital gains from the sale, license and royalty fees of our product, we hope to align, partner and possibly become acquired by a leading manufacturer of a competing or related product.

2. MARKET RESEARCH AND ANALYSIS

2.1 Market Definition

The market for the E-Pen Electronic Transcription System is the global installation of dry erase whiteboards. We estimate there to be 140 million dry erase marker boards in the world. However, the E-Pen System will require one personal computer to store the data. Therefore, the market of E-Pen users is the intersection of personal computer owners and dry erase marker board owners. According to the Computer Industry Forecasts 96Q2 report, the installed base of personal computers reported in published journals since July 1995 is 170 million, with an annual replacement rate of 40 million. We estimate that approximately 1/3 of this base represents non-commercial owners. Therefore, we estimate the market size for the E-Pen to be 66% of the 170 million personal computers existing today, or 112 million units. At an average retail price of $419 per unit, this results in a $47 billion global market.

2.2 Research Methodology

We reviewed several market research data sources, including International Data Corporation (IDC), Information Access Company's (IAC) Market, Business and Computer Insite databases, ABI-Inform, and extensive on-line WWW-based searching, to determine the potential markets and sales for the **e•pen**™.

As part of our ongoing marketing research we have profiled dozens of MIT students, faculty and staff to understand how consumers might react to a really new product. Our responses have been overwhelmingly positive. We believe the value proposition is real, most immediately in the professional group meeting or conference setting where it is critical that information generated in brain storming sessions be accurately transcribed. However, the ability to manipulate this stored data using existing software applications such as word processors and not graphics applications will make this System useful for a much broader market.

2.3 Market Size

As mentioned above, our market boundary is defined as the intersection of the global installation of dry erase marker boards and personal computers for commercial use, estimated by proxy to be 112 million units. At an average price of $419 per unit we estimate the global market size for the **e•pen**™ to be $47 billion.

Concerning our technology adoption rate and market penetration, we feel our product is comparable to the QuikCam, an inexpensive digital camera personal computer peripheral, manufactured by the Connectix Corporation. Connectix's Macintosh and IBM-PC utility software products have produced impressive revenues of $45 million in 1995, with hopes of doubling sales in 1996:

"This company has come out of the blue to take the lead in this category [digital camera] shipping nearly 200,000 digital cameras last year. Most other computer/camera solutions are expensive and require a special [interface] board. QuikCam attaches to a standard parallel port…"

[-Jess Berst, PC Week, Feb. 5, 1996 [Vol. 13, No. 5, p. 57]

We believe that Connectix's success is in part due to their product positioning. Like a $99 QuikCam, **e•pen**™ is an affordable, easy-to-use peripheral that also provides more than comparable functionality without the need for additional hardware. Accordingly, we anticipate rapid adoption of our technology and fast market penetration.

2.4 Marketing Strategy

Our strategy is to develop leadership in several initial markets and leverage this leadership to the mass market. Our initial target market is business management consultants because they are team-oriented professionals who often work at a client site and collaborate to develop business strategies and other important ideas using whiteboards. In addition, these professionals often review their projects with colleagues located across the country or across the world. Therefore, the ability to electronically capture and transcribe data written on a whiteboard, and then transmit this data via the Internet or Intranet to allow for real time collaboration solves a business critical problem consultants presently face.

According to *Consultants News*, the definitive industry publication, the 40 largest consulting firms in the world generated over $33 billion in revenues in 1994. With a global total of 120,000 professionals, the average revenue per consultant is approximately $281,000 per year. We intend to sell direct to this market at a price point of $1,095, for a market size of $131 million. This compilation includes accountants, benefits, information technology and generalist/strategy consultants. We focus specifically on strategy consultants because they work in a collaborative manner that most lends itself to our product. Strategy consultants develop ideas in group brainstorming sessions. These ideas are their business product and the ability to retrace their development is valuable. In addition, the ability to use a portable system that can be easily used at a client site or the home office to directly link the writing surface to a PC and eliminate the need for further manual transcription is also valuable. For these reasons, our initial targeted niche market is strategy consulting firms.

We selected the 12 strategy consulting firms with the highest revenues per consultants [See Figure 1 on the following page]. These firms had a total of 51,042 professionals as of the August 1995 publication, providing for a market size of 51,042, or $55.9 million. Assuming a 1% penetration rate in the first year, we project rapid adoption of our product over the following three years to achieve a market leading share of 61% by the end of the fourth year of operations. These projections account for the historic market growth of the management consulting industry of twice GNP, or approximately 6%, and a three year replacement cycle.

We anticipate several benefits to result from achieving a dominant position in this niche market:

1. securing valuable product references to our early market of executives and managers who use whiteboards;
2. developing a consulting practice for designing productivity enhancement systems using electronic transcription which will create new niche markets that we can dominate with customized whole product solutions; and,
3. refining our whole product solution for the mass market.

We anticipate that success in our targeted niche market will lead to greater adoption in the mass market of office workers with a whiteboard and a PC.

Figure 1 - Early Adopter Market Segment Profile

Consulting Market Penetration Analysis

	Cum. Total	Market Size	Replacement	Total Market	% Penetration
Year 1	482	51,042		51,042	1%
Year 2	6,319	54,105		54,105	12%
Year 3	24,375	57,351		57,351	43%
Year 4	37,463	60,792	482	61,274	61%
Year 5	41,782	64,439	5,837	70,276	59%
Total					
Market Size Present		51,042			
Product Life		3 Years			
Annual Replacement		Assume full replacement after 3 years			
Historic Market Growth		6%			

Note	Targeted Consultants			
Management Consulting includes	Total	51,042		
CPA	Firms	Consultants	Firms	Consultants
Benefits	Andersen	27,563	CSC	2,850
Information Technology	Arthur D. Litt	1,575	Gemini	1,700
Generalist/Strategy	AT Kearney	1,007	Marakon	135
	Bain	1,030	McKinsey	3,156
Source: Consultants News 8/95	BCG	1,125	Mercer	8,251
Published by Kennedy Publications	Booz Allen	2,200	Monitor	450

2.5 Competitor Profile

The whiteboard industry is currently limited to providing "low-tech" capture mechanisms or costly "high-tech" products solutions to capture handwritten data. "Low-tech" solutions are limited to various forms of manual transcription, e.g. stenography, tracing, or photographing/photocopying the handwritten information. "High-tech" product solutions are instances of active and passive electronic whiteboard technologies. Active electronic boards are projection-screen devices where the user writes on the surface with some special stylus. Passive electronic boards make use of large, expensive, board-sized photocopying mechanisms.

As shown in the Table 1 below, electronic white boards range in price from $500 to $50,000: $500 provides a 2 foot by 3 foot whiteboard electronic template, $40,000 provides a conventional-sized whiteboard electronic template. Therefore, these existing products are either too small to be useful or too expensive to be practical. Our product is both affordable and capable of providing a writing surface more than double the size of a conventional whiteboard. Not only do we aim to provide the same, if not several more, benefits -- we aim to do so at a retail price point of approximately $500.

Table 1 - Competitor Profiles

Product Name	Manufacturer	Features	Retail Price
Ibid	Microtouch	2' x 3' electronic whiteboard	$499
LiveBoard	LiveWorks, Xerox subsidiary	67" rear projection screen	$32,000 - $42,000
Smart Board	Smart Technologies	72" electronic whiteboard	$4,899
Softboard Systems; 200 & 400	Microfield Graphics (** 7/97: 3M is an OEM Manufacturer)	5' x 8' portable electronic whiteboard; Self enclosed 35" x 47" rear projection system	>$3,000
e•pen™	Virtual Ink	Scaleable, portable, system to retrofit conventional white board, 10 meters x 16 meters	$599 - $1,095

2.6 e•pen™'s Competitive Advantages

The **e•pen**™ provides several advantages over competing products:

1. It is a comprehensive data acquisition and electronic transcription system that is portable and will not necessitate infrastructure changes. Electronic whiteboards, in contrast, are not readily portable, store data as bitmaps and often require specialized support hardware. The **e•pen**™ System is designed to retrofit existing boards and not require any major modification to a user's normal writing pattern or environment

2. It is WWW-ready with additional software to provide data transcription directly to a web site via a company intranet or the Internet. **e•pen**™ can also be utilized with other web enabled technologies. Some competing products act as multi-conferencing tools but also at substantially higher costs.

3. It will conform to standard input specifications, making it both Java and network-computer compatible, unlike the competition. Electronic white boards are not yet included in the specifications for Java and must utilize proprietary drivers. Therefore, as the computer industry trends towards Java-based network computing, electronic whiteboard manufacturers will have to endure the slow process of specification adoption Java and conform their product to existing input specifications. In contrast, our product is designed to be Java and network-computing compatible. This is significant because many sources estimate that there will be over 40 million network computers in the next 5 years. **e•pen**™ permits this market to adopt our technology.

4. It is an order of magnitude less expensive than the most relevant competitor. **e•pen**™ will be marketed at a retail price of approximately $500, while electronic marker boards retail for approximately $3,500. Plus, electronic whiteboards may require expensive infrastructure changes, such as removing existing white boards and installing an electronic board. So, while cost advantages are not sustainable competitive advantages, this inherent cost advantage should last for some time.

5. It is substantially smaller and easier to use than the competing products. As a result, the ease of use, openness of platforms, size and portability will enable **e•pen**™ to reach a far broader market than electronic whiteboards. We believe that **e•pen**™'s market is the intersection of the global installation of dry erase white boards and personal computers.

6. Its core technology is patentable because position detection based imaging systems have not been developed for transcription. We intend to leverage this core technology across a broad product platform as new applications and uses arise.

2.7 Marketing Plan

We believe there is a market for an inexpensive handwriting transcription tool with software modules to provide handwriting recognition, web-accessibility, and data teleconferencing capabilities. Our marketing strategy is to position the **e•pen**™ as an affordable alternative to electronic whiteboards, that also offers portability, scalability and greater ease of use. We intend to offer two **e•pen**™ products, a base model retailing at $599 and a higher-end model with a full complement of our software modules for $1,095. Individual software modules will retail between $200 and $250.

We will distribute our base model, which will come bundled with handwriting recognition software and necessary drivers, through all major channels including distributors such as Merisel and Ingram, as well as retailers such as CompUSA, Egghead Software, Computer City, Staples, Office Max and other office discount office supply retailers. The E-Pen System will retail for $599, with a retailers' discount of 30%, or wholesale prices of $419 for the base model.

We will direct sell to consulting companies the higher end model, which will be bundled with teleconferencing, web direct transcription and data management software, for $1,095. In addition, depending on the size of the order, we will provide site licenses for our software and the hardware at negotiated bulk rates to volume purchasers. We will continue to seek out opportunities for customizing the **e•pen**™ to address business problems faced by specific industries and provide productivity enhancement consulting and customized product applications.

Lastly, we intend to offer promotional packages such as rebates and experiment with software product bundles to introduce new products and extract more consumer surplus. Follow on products include E-BRUSH, an extension of the basic pen idea that will allow artists to digitally capture their brush strokes on a surface.

Administratively we are presently interviewing candidates to serve as director of sales and oversee regional sales districts and coordinate sales efforts within these regions. We plan to support an 11 member sales and customer service staff by the end of the fourth year of operation. On the marketing side, we have recently added a marketing director to develop our distribution channels and ultimately oversee a staff of four product managers. Please refer to page 7 (The Hiring Plan) of the financial statements in the Appendices for more detail.

3. FINANCIAL STATEMENTS

We have developed the following pro forma financial statements to project the financial performance of Virtual Ink Corporation through the first five years of operation: Assumptions and Summary, Pro-Forma Income Statements, Balance Sheet and Statement of Changes of Cash Flow, Sales & Projected Revenue Model, Other Operating Expenses, and Hiring Plan and Wages. These statements may be found in our appendices.

Below we have summarized the pertinent facts. Given our gross profit margin of 87%, marketing strategy and anticipated product demand, we project break-even within the first 16 months of operation, or Spring 1999. We will require $320,000 in seed funding and a first round investment of $2.0 million. Based on first year projected sales revenue of $2.4 million, we estimate our pre-money valuation to be 3 times that, or $7.3 million by the end of the first year of operation and growing to $353.7 million by the end of year four. This is equivalent to a return to our initial investors of 5.9 times at the end of the second year, 17.41 times at the end of the third year, and 31.28 times at the end of the fourth year.

Figure 2 Financial Statements Summary

Sales Initiate	Sep-98			
First Month Sales:		**Cost of Goods**	**Retail Price**	**Discount**	**Wholesale**
Consultants Tool	103 Units per month	$ 80.00	$ 1,095.00	0%	$ 1,095.00
Mass Market Product	850 Units per month	$ 45.00	$ 599.00	30%	$ 419.30
Teleconferencing	10% of Mass market product	$ 25.00	$ 199.00	40%	$ 119.40
Web Direct Transcription	30% of Mass market product	$ 25.00	$ 199.00	40%	$ 119.40
Data Management	50% of Mass market product	$ 25.00	$ 199.00	40%	$ 119.40
Developers Tool Kit - 3D	1% of Mass market product	$ 35.00	$ 259.00	40%	$ 155.40

	Year 0 1997	**Year 1 1998**	**Year 2 1999**	**Year 3 2000**	**Year 4 2001**	**Year 5 2002**
Annual Sales	-	4,093	28,396	82,850	169,635	323,639
Monthly Growth		5%	11%	8%	5%	5%
Revenues	$ -	$ 2,435,532	$ 18,309,751	$ 54,002,897	$ 97,037,332	$ 173,430,531
Gross Profit	$ -	$ 2,151,966	$ 16,312,162	$ 48,162,144	$ 85,368,578	$ 151,419,149
Total Expenses	$ 569,188	$ 2,258,813	$ 5,587,804	$ 9,454,838	$ 13,447,676	$ 17,365,030
Pre-tax Profit	$ (569,188)	$ (106,848)	$ 10,724,359	$ 38,707,307	$ 71,920,902	$ 134,054,119

Valuation	Year 1	Year 2	Year 3	Year 4	Year 5
Pre-Money Valuation	$ 7,306,596	$ 43,124,881	$ 127,192,804	$ 228,551,633	$ 408,480,226
Amount Invested/Worth	$ 2,000,000	$ 11,804,371	$ 34,815,887	$ 62,560,362	$ 111,811,369
Post-Money Valuation	$ 9,306,596	$ 54,929,252	$ 162,008,692	$ 291,111,995	$ 520,291,594
Percentage Dilution	21.49%	21.49%	21.49%	21.49%	21.49%
V.C. Equity Value	$ 2,000,000	$ 11,804,371	$ 34,815,887	$ 62,560,362	$ 111,811,369
V.C. ROI	1.00 x	5.90 x	17.41 x	31.28 x	55.91 x

Investors		* Pre-money valuation = 3 times revenues
Seed Funding	$ 320,000	Seed Funding received: 10/1/1997
First Round V. C.	$ 2,000,000	First Round Funding received: 1/1/1998

Equity Plan	
Founder's Stock	40%
Investors	40%
Reserved for Employees	15%
Reserved for Directors	5%

4. DESIGN AND DEVELOPMENT PLANS

4.1 Development Status and Tasks

The **e•pen**™ System is currently under development. The base design has been completed and a fully functional proof of concept implementation has been completed. Implementations provide valuable feedback when evaluating high level design decisions. We are currently in the initial feedback stage which entails evaluating the alpha prototype to test and enhance the design. **e•pen**™ consists of four main functional components: a sensor interface unit, a range computation unit, a computer interface, and a software driver. Work is currently focused on improving the data capture speed, developing software applications for annotation and playback, and improving overall functionality of the implementation.

4.2 Current design goals are:

- Evaluate current prototype.
- Determine desired component specifications based on feedback from prototype.
- Create subsystems for beta prototype.
- Individual testing and modifications of subsystems to meet specifications.
- Integrate subsystems into beta prototype.
- Resolves system level issues.
- Evaluate beta prototype's performance in target environment.
- Refine prototype as needed.

4.3 Difficulties and Risks

A brief summary of the design issues involving the modules of the **e•pen**™ is presented below. Through the use of abstraction and clearly defined interfaces, modules can be designed independently and simultaneously. This eases the impact of difficulties with any one module.

4.4 Sensor Interface Module

The first component is the Sensor Interface. This circuit is intimately tied to the ultra-sonic detectors and is responsible for amplifying and converting these signals into a sensor-neutral format used by the other components. The reason for this abstraction is to make the product as flexible as possible to component changes. This allows the other blocks to remain unchanged in the event of a sensor change.

The search for an appropriate ultra-sonic sensor has proved to be one of the most challenging tasks of the hardware construction. Specifications on available sensors is often misleading or incomplete. Sensors from various vendors are currently being considered. The final selection will be made based on performance in the areas of range, accuracy, size and cost.

4.5 Range Computation

The range computation module takes the data provided by the sensor module and computes the absolute position of the pen relative to the 3 ranging devices. The accuracy of this computation is essential to the operation of **e•pen**™. Issues such as noise and faulty sensor data must be addressed in order to provide robust operation under various operational environments. This module will also help compensate for limitations in the sensors by intelligently filtering the raw ranging data.

4.6 Computer Interface

The **e•pen**™ System will use a standard serial interface to the host computer. The advantage of this is that serial ports are standard on all computers and other network devices. The main concern with this component is size and price. These components are readily available and should not present a problem.

This module may also be replaced to support other computer interfaces such as "firewire" or USB. These technologies are growing in popularity and may eventually represent an important market.

4.7 Software Driver

Software is often the most crucial component of a computer hardware product. Availability and stability are of great importance. We intend to address these issues on two fronts. First, for development and testing, a custom driver will be written that provides easy access to the hardware. This driver will enable the hardware components to be viewed from a system level. Issues such as hardware accuracy and overall robustness will be tested.

Once the hardware has been thoroughly tested using the custom driver, the serial interface (hardware) will be configured to use standard serial input protocols. Two common protocols in use today are mouse and drawing tablet. Using these standards the **e•pen**™ System can use existing (and stable) software drivers that have been proven robust through years of development. This approach also enables the E-Pen System to interface with virtually any equipment designed for either of these devices without requiring software or hardware modifications.

4.8 Product Improvement and New Products

Now that the initial implementation of the **e•pen**™ System has been completed and tested, work will begin on enhancing the product. Initially, effort will focus on improving and simplifying the hardware to increase stability and decrease manufacturing cost.

Software applications will be the second phase of enhancements. Specialized applications that highlight the unique capabilities of the **e•pen**™ System will be designed. Representative applications include:

- Shared whiteboard (with Internet functionality)
- Character recognition
- Video conferencing applications
- Java based **e•pen**™ API

4.9 Proprietary Issues

The **e•pen**™ System will adhere to open design and interface standards. The computer industry has embraced standards to enable interoperability between devices from different vendors. The **e•pen**™ System has been designed from the ground up to communicate with existing software and hardware. This will become more important as the **e•pen**™ System is used with more and varied systems.

5. MANUFACTURING AND OPERATIONS PLAN

5.1 Development Status: Alpha Prototype

The current **e•pen**™ physical implementation consists of several sub-units. The main sub-units are the shell, electronics and detectors. See the **e•pen**™ Alpha Prototype Assembly drawing on the next page for the current physical implementation.

The **e•pen**™ shell will easily attach to markers, pens, pencils and even chalk. The electronics will be pre-packaged and then inserted into the shell for protection. Detectors will be affixed to wallboards with adhesives or clips.

The first **e•pen**™ shell will be made using laminated-object-manufacturing and cost approximately $400. This shell can be used to make soft tooling that will suffice for resin casting. Silicone rubber molds will be used in the resin casting process. Short production runs up to 15 units have been priced by Curci Models at less than two hundred dollars per shell. The first detectors will be made in similar fashion at similar cost.

e•pen™ product literature including pamphlets, instructions, and warranty information will be provided by an as yet to be selected publisher. Internal and external packaging will be supplied by Collins Box Company for less than one dollar per unit.

5.2 Strategy and Plans: Production Model

The shells and detectors will both be made from high impact strength thermoplastic resin for durability and long life.

Hard injection mold tooling is most suitable for making large numbers of shells and detectors. Twenty thousand parts can be made from one machined and polished injection mold. One mold will be required for making shells and another for making the detectors.

A mold for making the shells can produce 4 units in approximately 10 seconds. During that time, molten plastic is injected into the mold, allowed to cool and ejected ready for the insertion of an electronics package. Over 2,800 shells can be made in one 8 hour shift with a dedicated molding machine. The plastic detectors will also be manufactured using an injection molding tool. Approximately 1,000 detectors can be molded in an 8 hour shift.

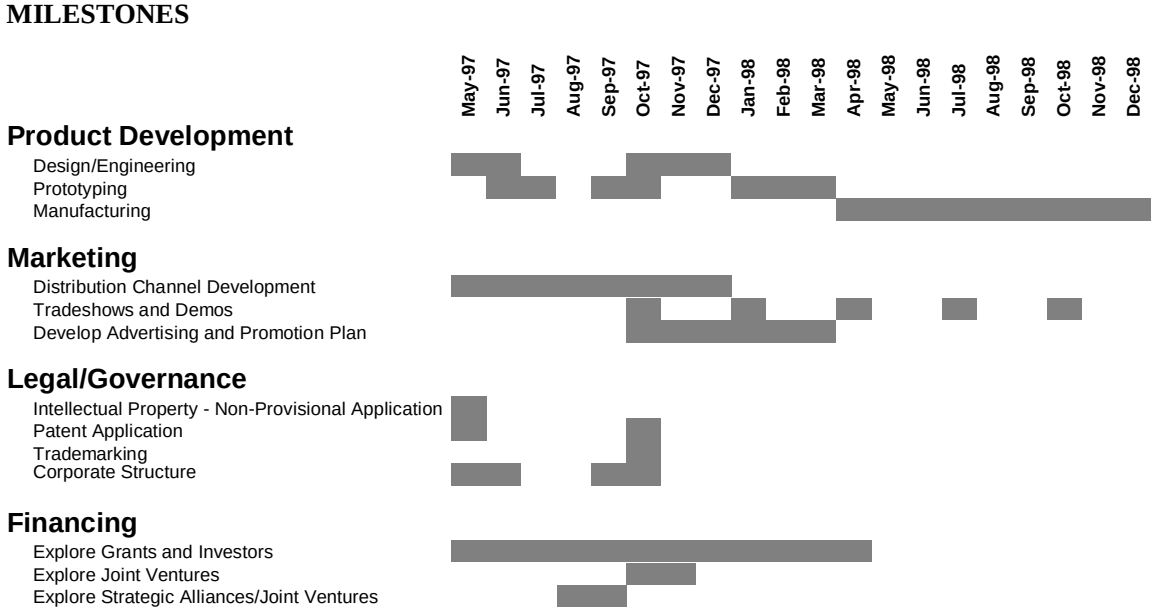
Each mold will cost less than $10,000 including special rework and polishing. Therefore, the total up front cost will be less than $20,000 for both molds. The incremental cost of a shell or detector will be about $0.10 once production begins.

Lead times of 9 months are not uncommon for plastic injection mold tooling. This time constraint is being compressed by concurrently consulting with toolmakers during prototype development. As soon as the prototype design is frozen, we plan to switch to injection molding tooling which has a very attractive marginal cost.

Industrial design consultant Anthony Pannozio is being sought to provide insight on increasing **e•pen**™'s consumer appeal.

Figure 3 - Alpha Prototype Assembly Drawing

Figure 4 - Implementation Schedule



6. MANAGEMENT TEAM

Virtual Ink Corporation was founded in the spring of 1997 by a group of MIT graduate students in business and engineering. The product idea was conceived by **Yonald Chery**. Mr. Chery will serve as Chief Technical Officer and President of the Company. He will be responsible for software and hardware development as well as overall responsibility for the strategic direction of the company. He will also oversee new product development. Yonald, a Ph. D. candidate in Electrical Engineering at MIT, brings a combination of award winning experience in digital systems along with successful grant writing skill to the organization. Past experience includes VLSI research and development at Hewlett Packard and supercomputing optimizing compiler work at Motorola.

Michael Dixon will serve as Chief Financial Officer. He will lead the development of appropriate financing strategies, financial projections and business plan development, and assist in marketing strategies. A former municipal finance investment banker, Michael brings six years of professional financial management experience to the organization. He is also a Series 7 and Series 63 certified Registered Representative of the National Association of Securities Dealers. Michael is an MBA candidate at the Sloan School of Management at MIT concentrating in financial management and corporate strategy.

Rosaline Gulati will serve as Marketing Director. She presently works as a product manager at a major software company and has experience incorporating, founding, and managing small technology companies. Her industry experience includes hardware and software engineering as well as large project management. She holds both an MBA from MIT Sloan and a Master's degree in engineering from MIT.

Andrew Kelley will serve as Manufacturing Director. Andrew brings product design and development experience sharpened by work at Lucent Technologies and Procter Gamble. He is currently a research assistant in the Laboratory for Manufacturing and Productivity at MIT and a candidate for the Master's Degree in Mechanical Engineering at MIT.

William Moyne is the Principal Software Architect. His past experience includes a joint project between Stanford and MIT, focusing on distributed collaborative work using the Internet and the World Wide Web. He is a Ph. D. candidate in Electrical Engineering at MIT.

Matthew Verminski will serve as Principal System Architect. He brings an excellent mix of hardware and software skills to the organization. Matthew's current research involves implementing Web-enabled software systems. He has a wide variety of industry programming experience at both Dow Corning Corp. and Electronic Press, Ltd. Matthew recently completed the Boston marathon and is a candidate for a Master's Degree in Electrical Engineering at MIT.

Appendices

Assumptions and Summary

Sales Initiate	Sep-98				
First Month Sales:		**Cost of Goods**	**Retail Price**	**Discount**	**Wholesale**
Consultants Tool	103 Units per month	$ 80.00	$ 1,095.00	0%	$ 1,095.00
Mass Market Product	850 Units per month	$ 45.00	$ 599.00	30%	$ 419.30
Teleconferencing	10% of Mass market product	$ 25.00	$ 199.00	40%	$ 119.40
Web Direct Transcription	30% of Mass market product	$ 25.00	$ 199.00	40%	$ 119.40
Data Management	50% of Mass market product	$ 25.00	$ 199.00	40%	$ 119.40
Developers Tool Kit - 3D	1% of Mass market product	$ 35.00	$ 259.00	40%	$ 155.40

	Year 0 1997	**Year 1 1998**	**Year 2 1999**	**Year 3 2000**	**Year 4 2001**	**Year 5 2002**
Annual Sales	-	4,093	28,396	82,850	169,635	323,639
Monthly Growth		5%	11%	8%	5%	5%
Revenues	$ -	$ 2,435,532	$ 18,309,751	$ 54,002,897	$ 97,037,332	$ 173,430,531
Gross Profit	$ -	$ 2,151,966	$ 16,312,162	$ 48,162,144	$ 85,368,578	$ 151,419,149
Total Expenses	$ 569,188	$ 2,258,813	$ 5,587,804	$ 9,454,838	$ 13,447,676	$ 17,365,030
Pre-tax Profit	$ (569,188)	$ (106,848)	$ 10,724,359	$ 38,707,307	$ 71,920,902	$ 134,054,119

Valuation	Year 1	Year 2	Year 3	Year 4	Year 5
Pre-Money Valuation	$ 7,306,596	$ 43,124,881	$ 127,192,804	$ 228,551,633	$ 408,480,226
Amount Invested/Worth	$ 2,000,000	$ 11,804,371	$ 34,815,887	$ 62,560,362	$ 111,811,369
Post-Money Valuation	$ 9,306,596	$ 54,929,252	$ 162,008,692	$ 291,111,995	$ 520,291,594
Percentage Dilution	21.49%	21.49%	21.49%	21.49%	21.49%
V.C. Equity Value	$ 2,000,000	$ 11,804,371	$ 34,815,887	$ 62,560,362	$ 111,811,369
V.C. ROI	1.00 x	5.90 x	17.41 x	31.28 x	55.91 x

Investors		
Seed Funding	$ 320,000	Seed Funding received: 10/1/1997
First Round V. C.	$ 2,000,000	First Round Funding received: 1/1/1998

* Pre-money valuation = 3 times revenues

Equity Plan	
Founder's Stock	40%
Investors	40%
Reserved for Employees	15%
Reserved for Directors	5%

Proforma Income Statements

	1997	1998	1999	2000	2001	2002
Revenue						
Hardware						
Consultants Tool		$ 527,790	$ 6,391,515	$ 19,771,320	$ 14,331,360	$ 4,729,305
Mass Market Product		$ 1,514,092	$ 9,458,989	$ 27,168,124	$ 65,640,157	$ 133,890,876
Software						
Teleconferencing		$ 43,115	$ 269,354	$ 773,640	$ 1,869,171	$ 3,812,681
Web Direct Transcription		$ 129,346	$ 808,063	$ 2,320,921	$ 5,607,514	$ 11,438,042
Data Management		$ 215,577	$ 1,346,772	$ 3,868,202	$ 9,345,856	$ 19,063,404
Developers Tool Kit - 3D		$ 5,611	$ 35,057	$ 100,690	$ 243,274	$ 496,223
Total Revenue		$ 2,435,532	$ 18,309,751	$ 54,002,897	$ 97,037,332	$ 173,430,531
COGS		$ 283,566	$ 1,997,588	$ 5,840,753	$ 11,668,754	$ 22,011,382
Gross Profit		$ 2,151,966	$ 16,312,162	$ 48,162,144	$ 85,368,578	$ 151,419,149
Expenses						
Engineering	$ 505,625	$ 1,229,958	$ 1,485,625	$ 1,055,625	$ 1,254,844	$ 1,503,867
Marketing	$ 21,563	$ 331,000	$ 962,750	$ 3,461,250	$ 5,559,250	$ 5,559,250
Sales		$ 384,057	$ 1,934,879	$ 1,854,318	$ 1,374,215	$ 1,222,886
Admin	$ 42,000	$ 313,797	$ 1,204,550	$ 3,083,645	$ 5,259,367	$ 9,079,027
Total Exp	$ 569,188	$ 2,258,813	$ 5,587,804	$ 9,454,838	$ 13,447,676	$ 17,365,030
Pre-tax Profit	$ (569,188)	$ (106,848)	$ 10,724,359	$ 38,707,307	$ 71,920,902	$ 134,054,119

Balance Sheet & Statement of Cash Flow

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Assets														
Cash	$ 320,000	$ 298,438	$ 10,375	$ 1,852,313	$ 1,729,250	$ 1,580,146	$ 1,431,042	$ 1,281,438	$ 1,131,833	$ 946,882	$ 716,328	$ 565,117	$ 406,006	$ 454,184
Accts Rec.	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 561,852	$ 591,860
Inventory	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 197,738	$ 207,298
Total Assets	**$ 320,000**	**$ 298,438**	**$ 10,375**	**$ 1,852,313**	**$ 1,729,250**	**$ 1,580,146**	**$ 1,431,042**	**$ 1,281,438**	**$ 1,131,833**	**$ 946,882**	**$ 716,328**	**$ 565,117**	**$ 1,165,596**	**$ 1,253,342**
Liabilities														
Accts Payable	$ -	$ 266,500	$ 136,500	$ 101,500	$ 117,000	$ 117,000	$ 117,500	$ 117,500	$ 123,139	$ 168,742	$ 89,399	$ 90,110	$ 422,632	$ 208,787
Bank Loans	$ -												$ -	
Total Liabilities	**$ -**	**$ 266,500**	**$ 136,500**	**$ 101,500**	**$ 117,000**	**$ 117,000**	**$ 117,500**	**$ 117,500**	**$ 123,139**	**$ 168,742**	**$ 89,399**	**$ 90,110**	**$ 422,632**	**$ 208,787**
Stockholders Equity														
Paid-in Capital	$ 320,000	$ 320,000	$ 320,000	$ 2,320,000	$ 2,320,000	$ 2,320,000	$ 2,320,000	$ 2,320,000	$ 2,320,000	$ 2,320,000	$ 2,320,000	$ 2,320,000	$ 2,320,000	$ 2,320,000
Retained Earnings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Current Earnings	$ -	$ (288,063)	$ (446,125)	$ (569,188)	$ (707,750)	$ (856,854)	$ (1,006,458)	$ (1,156,063)	$ (1,311,306)	$ (1,541,860)	$ (1,693,071)	$ (1,844,994)	$ (1,577,036)	$ (1,275,445)
Total S.E.	**$ 320,000**	**$ 31,938**	**$ (126,125)**	**$ 1,750,813**	**$ 1,612,250**	**$ 1,463,146**	**$ 1,313,542**	**$ 1,163,938**	**$ 1,008,694**	**$ 778,140**	**$ 626,929**	**$ 475,006**	**$ 742,964**	**$ 1,044,555**
Total Lia & S.E.	**$ 320,000**	**$ 298,438**	**$ 10,375**	**$ 1,852,313**	**$ 1,729,250**	**$ 1,580,146**	**$ 1,431,042**	**$ 1,281,438**	**$ 1,131,833**	**$ 946,882**	**$ 716,328**	**$ 565,117**	**$ 1,165,596**	**$ 1,253,342**
CASH FLOW														
Beginning Cash		$ 320,000	$ 298,438	$ 10,375	$ 1,852,313	$ 1,729,250	$ 1,580,146	$ 1,431,042	$ 1,281,438	$ 1,131,833	$ 946,882	$ 716,328	$ 565,117	$ 406,006
Profit (Loss)		$ (288,063)	$ (158,063)	$ (123,063)	$ (138,563)	$ (149,104)	$ (149,604)	$ (149,604)	$ (155,243)	$ (230,554)	$ (151,211)	$ (151,923)	$ 267,957	$ 301,592
Change in A/R		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (561,852)	$ (30,008)
Change in Inventory		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (197,738)	$ (9,561)
Change in A/P		$ 266,500	$ (130,000)	$ (35,000)	$ 15,500	$ -	$ 500	$ -	$ 5,639	$ 45,602	$ (79,343)	$ 712	$ 332,522	$ (213,845)
Change in Loans		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ending Balance	$ 320,000	$ 298,438	$ 10,375	$ 1,852,313	$ 1,729,250	$ 1,580,146	$ 1,431,042	$ 1,281,438	$ 1,131,833	$ 946,882	$ 716,328	$ 565,117	$ 406,006	$ 454,184

Sales & Projected Revenue Model

	1997	1998	1999	2000	2001	2002
Unit Sales						
Hardware						
Consultants Tool		482	5,837	18,056	13,088	4,319
Mass Market Product		3,611	22,559	64,794	156,547	319,320
Software						
Teleconferencing		361	2,256	6,479	15,655	31,932
Web Direct Transcription		1,083	6,768	19,438	46,964	95,796
Data Management		1,806	11,280	32,397	78,274	159,660
Developers Tool Kit - 3D		36	226	648	1,565	3,193
Total Units of Hardware		4,093	28,396	82,850	169,635	323,639
Wholesale Price						
Hardware						
Consultants Tool	$ 1,095.00	$ 1,095.00	$ 1,095.00	$ 1,095.00	$ 1,095.00	$ 1,095.00
Mass Market Product	$ 419.30	$ 419.30	$ 419.30	$ 419.30	$ 419.30	$ 419.30
Software	$ -					
Teleconferencing	$ 119.40	$ 119.40	$ 119.40	$ 119.40	$ 119.40	$ 119.40
Web Direct Transcription	$ 119.40	$ 119.40	$ 119.40	$ 119.40	$ 119.40	$ 119.40
Data Management	$ 119.40	$ 119.40	$ 119.40	$ 119.40	$ 119.40	$ 119.40
Developers Tool Kit - 3D	$ 155.40	$ 155.40	$ 155.40	$ 155.40	$ 155.40	$ 155.40
Revenue						
Hardware						
Consultants Tool	$ -	$ 527,790	$ 6,391,515	$ 19,771,320	$ 14,331,360	$ 4,729,305
Mass Market Product	$ -	$ 1,514,092	$ 9,458,989	$ 27,168,124	$ 65,640,157	$ 133,890,876
Software						
Teleconferencing	$ -	$ 43,115	$ 269,354	$ 773,640	$ 1,869,171	$ 3,812,681
Web Direct Transcription	$ -	$ 129,346	$ 808,063	$ 2,320,921	$ 5,607,514	$ 11,438,042
Data Management	$ -	$ 215,577	$ 1,346,772	$ 3,868,202	$ 9,345,856	$ 19,063,404
Developers Tool Kit - 3D	$ -	$ 5,611	$ 35,057	$ 100,690	$ 243,274	$ 496,223
Total Revenue	$ -	$ 2,435,532	$ 18,309,751	$ 54,002,897	$ 97,037,332	$ 173,430,531
Unit Costs						
Hardware						
Consultants Tool	$ 80	$ 80	$ 80	$ 80	$ 80	$ 80
Mass Market Product	$ 45	$ 45	$ 45	$ 45	$ 45	$ 45
Software						
Teleconferencing	$ 25	$ 25	$ 25	$ 25	$ 25	$ 25
Web Direct Transcription	$ 25	$ 25	$ 25	$ 25	$ 25	$ 25
Data Management	$ 25	$ 25	$ 25	$ 25	$ 25	$ 25
Developers Tool Kit - 3D	$ 35	$ 35	$ 35	$ 35	$ 35	$ 35
Cost of Goods						
Hardware						
Consultants Tool	$ -	$ 38,560	$ 466,960	$ 1,444,480	$ 1,047,040	$ 345,520
Mass Market Product	$ -	$ 162,495	$ 1,015,155	$ 2,915,730	$ 7,044,615	$ 14,369,400
Software						
Teleconferencing	$ -	$ 9,028	$ 56,398	$ 161,985	$ 391,368	$ 798,300
Web Direct Transcription	$ -	$ 27,083	$ 169,193	$ 485,955	$ 1,174,103	$ 2,394,900
Data Management	$ -	$ 45,138	$ 281,988	$ 809,925	$ 1,956,838	$ 3,991,500
Developers Tool Kit - 3D	$ -	$ 1,264	$ 7,896	$ 22,678	$ 54,791	$ 111,762
Total COGS	$ -	$ 283,566	$ 1,997,588	$ 5,840,753	$ 11,668,754	$ 22,011,382
Operating Profit	$ -	$ 2,151,966	$ 16,312,162	$ 48,162,144	$ 85,368,578	$ 151,419,149

Other Operating Expenses

	1997	1998	1999	2000	2001	2002
Engineering						
Tech Supplies	$ 7,500	$ 30,000	$ 37,500	$ 46,875	$ 58,594	$ 73,242
Misc	$ 15,000	$ 60,000	$ 75,000	$ 93,750	$ 117,188	$ 146,484
Licensing MIR	$ 100,000	$ -	$ -	$ -	$ -	$ -
Research & Development	$ 265,000	$ 180,000	$ 225,000	$ 281,250	$ 351,563	$ 439,453
Manufacturing	$ 75,000	$ 660,000	$ 300,000	$ 375,000	$ 468,750	$ 585,938
Total Eng	$ 462,500	$ 930,000	$ 637,500	$ 796,875	$ 996,094	$ 1,245,117
Marketing						
Promotions	$ -	$ 56,000	$ 384,000	$ 2,640,000	$ 4,608,000	$ 4,608,000
Trade Shows	$ -	$ 20,000	$ 20,000	$ 30,000	$ 40,000	$ 40,000
Advertising	$ -	$ 140,000	$ 300,000	$ 360,000	$ 480,000	$ 480,000
Total Mktg	$ -	$ 216,000	$ 704,000	$ 3,030,000	$ 5,128,000	$ 5,128,000
Sales						
Travel ($3k per emp)	$ -	$ 81,000	$ 321,000	$ 396,000	$ 396,000	$ 396,000
Commission (5% Rev)	$ -	$ 166,495	$ 988,566	$ 716,568	$ 236,465	$ 85,136
Total Sales	$ -	$ 247,495	$ 1,309,566	$ 1,112,568	$ 632,465	$ 481,136
General & Admin						
Rent	$ 6,000	$ 24,000	$ 24,000	$ 36,000	$ 48,000	$ 48,000
Office Machines/Utilities	$ 6,000	$ 42,000	$ 48,000	$ 60,000	$ 72,000	$ 72,000
Legal/Venture Start-up	$ 30,000	$ -	$ -	$ -	$ -	$ -
Warranty Claims	$ -	$ 121,777	$ 915,488	$ 2,700,145	$ 4,851,867	$ 8,671,527
Total G&A	$ 42,000	$ 187,777	$ 987,488	$ 2,796,145	$ 4,971,867	$ 8,791,527
Total Non-Salary Expenses	$ 504,500	$ 1,581,271	$ 3,638,554	$ 7,735,588	$ 11,728,426	$ 15,645,780