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*The Heart of Medical Advances.*

September 22, 2007

Dr. Andrew Rawicz  
School of Engineering Science  
Simon Fraser University  
Burnaby, British Columbia  
V5A 1S6

Re: ENSC 440/305 Proposal for a Wireless Heart Attack Detector

Dear Dr. Rawicz,

The enclosed document recapitulates a proposal for Precision Lifestyle Technologies' capstone design project. PLT's focus is on developing simple medical products to be used as diagnosis tool in everyday health check or exercise problems. Our principal objective is to implement a wireless heart attack detection device, called PULZE™ that uses the user's cell phone to alert a possible heart attack to a base station. We have just completed a feasibility study of the product and believe that it is a worth while venture to pursue. Furthermore, this product has a great impact on people with high heart attack risk.

The intention of this proposal is to provide an overall overview of our device including; our proposed design solution, budget and funding and sources of information. Also, we have deliberated our planning strategies and team organization to construct a working device by the specified deadlines.

PLT's talented and motivated team of senior engineering students includes Piraj Fozoonmayeh, Mojtaba Gharehbaghi and Sara Moghaddamjoo. Despite the small size of our team we are extremely confident about our proposed project and are willing to put great effort to achieve our mutual goal of building a working prototype. For further information or any concern please do not hesitate to contact me by phone at (778) 883-2424 or by email at [ensc440-psm@sfu.ca](mailto:ensc440-psm@sfu.ca).

Sincerely,

A handwritten signature in black ink, appearing to read "Sara", written over a horizontal line.

Sara Moghaddamjoo  
CEO  
Precision Lifestyle Technologies Inc.

Proposal for:

# Wireless Heart Attack Detector

Project Team:

Piraj Fozoonmayeh  
Sara Moghaddamjoo  
Mojtaba Gharehbaghi

Contact Person:

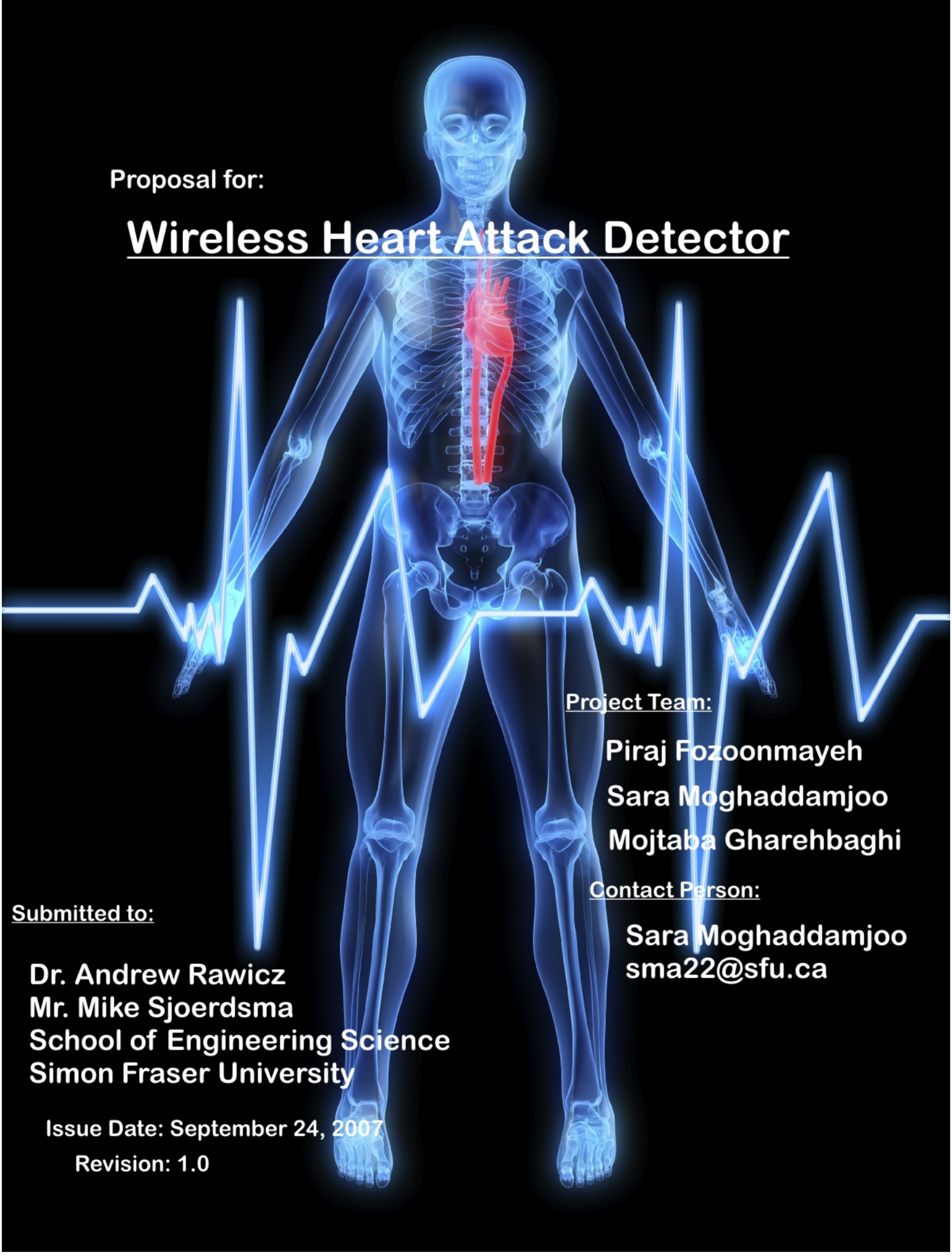
Sara Moghaddamjoo  
sma22@sfu.ca

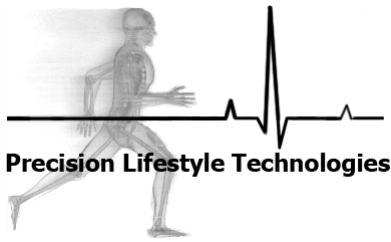
Submitted to:

Dr. Andrew Rawicz  
Mr. Mike Sjoerdsma  
School of Engineering Science  
Simon Fraser University

Issue Date: September 24, 2007

Revision: 1.0





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## **Executive Summary**

According to the World Health Organization report of 2002, 59% of deaths were the result of non communal conditions. Of which, 29% of deaths were related to cardiovascular complications. To attain a better visual of this percentage, approximately 10 million people in a year die resulting from cardiovascular complications.

It is perceived that the elderly are more prone to heart attacks; however, many cardiovascular diseases are hereditary. Therefore, anyone regardless of age should take significant precautions in order to prevent a heart attack and adapt to a healthier life style.

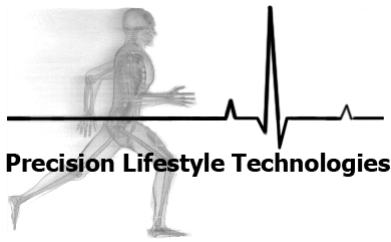
Regardless of how many precautions are taken to prevent heart attacks, the fact remains that it is still the leading cause of death. Most heart attacks could be somewhat maintained if the patient is to receive the needed medical attention in time. However, not everyone knows what a heart attack is like or what to do in case of such an emergency; hence a lot of heart attacks amount to death due to either the patient not being aware or not being able to seek medical attention in sufficient time.

Our company's main objective is to design a functioning device that would alert the emergency personnel when a person is having a heart attack in the shortest time possible in order for them to promptly receive medical assistance. This device is attached to the user and will detect the heart attack and send a signal to the user's cell phone wirelessly in just seconds which is then transmitted to emergency personnel. This innovative product is compact and portable and can be used easily by a wide variety of people, ranging from athletes to seniors.

Existing solutions include a portable hand held ECG monitor which records a person's cardiac functions and displays the data on the monitor of the device. This device monitors the heart beat constantly but does not have the ability of alerting emergency personnel. This product's main objective is to record various heart readings that can be presented to the doctor to monitor a patient's heart abnormalities.

Precision Lifestyle Technologies is a Bio-medical engineering company founded by three senior Simon Fraser University engineering students dedicated to innovating and pioneering telemedicine equipments. By incorporating leading edge technologies and medical sciences, we hope to open up novel horizons not only to patients in need but also to healthy individuals to prevent health complications. We believe well-being is a right and we strive to offer the most practical and smartest solutions.

We have forecasted a tentative budget of \$585 for this thirteen week project, and we at Precision Lifestyle Technologies will make our greatest attempt at completing this project within the allocated budget if not under.



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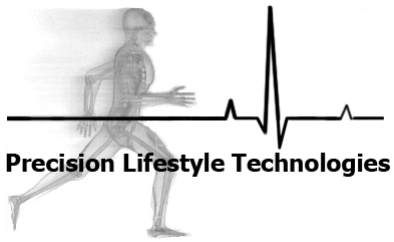
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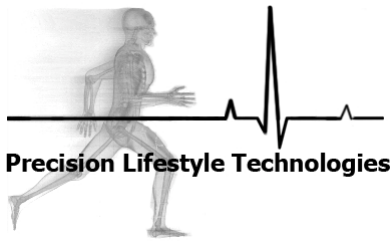
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## **Glossary**

PLA: Precision Lifestyle Technologies Inc.

ECG: Electrocardiogram.

NDA: Non Disclosure Application.



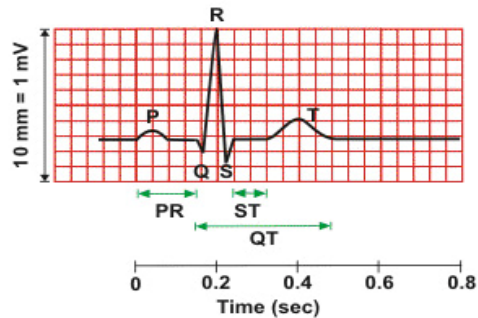
## 1.0 Introduction

Telemedicine is a new advancement in delivery of clinical care through information technology and communication devices. This technology could be used immensely for disease detection and therapeutic purposes. It has been proven that early detection of a disease at its preliminary stages could profoundly reduce the risks and complications that may arise with time.

In the year 2004 United States statistical data recognizes coronary heart disease as the leading cause of death among American citizens. Each year 1,200,000 cardiac attacks are reported, from which 38 percent of these cases result in death. This amounts to one in every three incidences of heart attack amounting to death. Considering the world population of more than six billion people, there are millions of people who are susceptible to death by heart attack. To reduce these horrific numbers we should concentrate our resources and technologies on improving early detection devices to further assist physicians to communicate with their patients on a daily basis since some heart complications may arise without prior warning.

Electrocardiogram (ECG) shown in *Figure 1*, measures heart beat electrical activity which generates a wave or impulse through the heart muscles. This electrical impulse would constrict the cardiac muscles which in turn causes blood to be pumped out of the heart into arteries. With patients with cardiac issues, an ECG allows the physician to know the length of time required for an electrical wave to travel through the heart. This information determines whether the electrical activity is normal, too fast, slow or irregular. An ECG can also give information about the size and health-state of the heart based on the amount of electrical activity that passes through the heart muscle. Based on these types of information, an ECG can detect a heart attack.





**Figure 1:** Standard electrocardiogram (ECG)

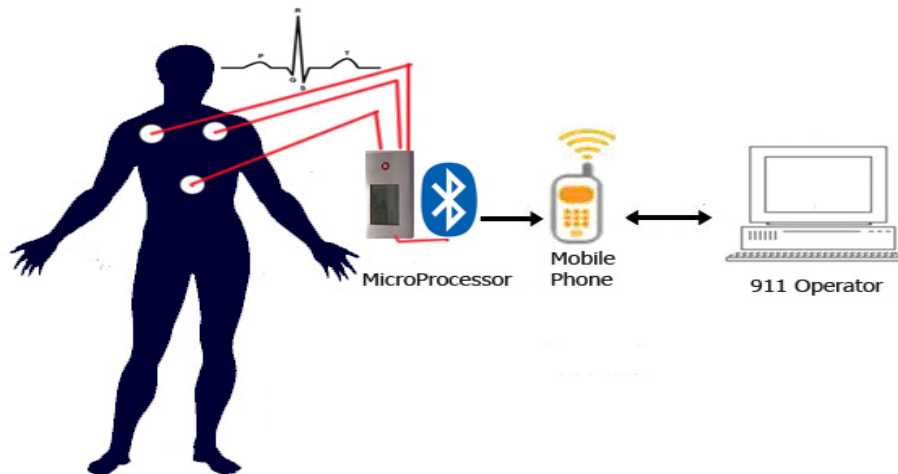
The ECG technology has had an enormous impact for diagnostic purposes since its discovery, however, there are still shortcomings that may be improved to further enhance ECG. For instance, available ECG devices lack the advantage of being portable and hence they impose physical and spatial restrictions on the patient and the doctor. Moreover, an ECG device is able to detect a heart attack only after it has occurred, and by that time it may be too late to save the patient's life. To this date there has been only a little improvement on the ECG devices to enable faster and better communication between the patient and the doctor. Therefore, it is necessary to recognize the flaws that this technology is experiencing at this time and take actions to further improve its functionality to serve human lives more efficiently.

Our proposed system not only detects heart attacks for immediate assistance, but also could be used for various other applications:

- 1- The rate at which a heart beats plays an important role especially in catabolic exercises such as cardio exercises, so this device may also be used by athletes and people that would like to lose weight.
- 2- The design of the bio-sensors may be modified for other medicine applications such as using a respiratory sensor to detect respiratory problems.

## 2.0 System Overview

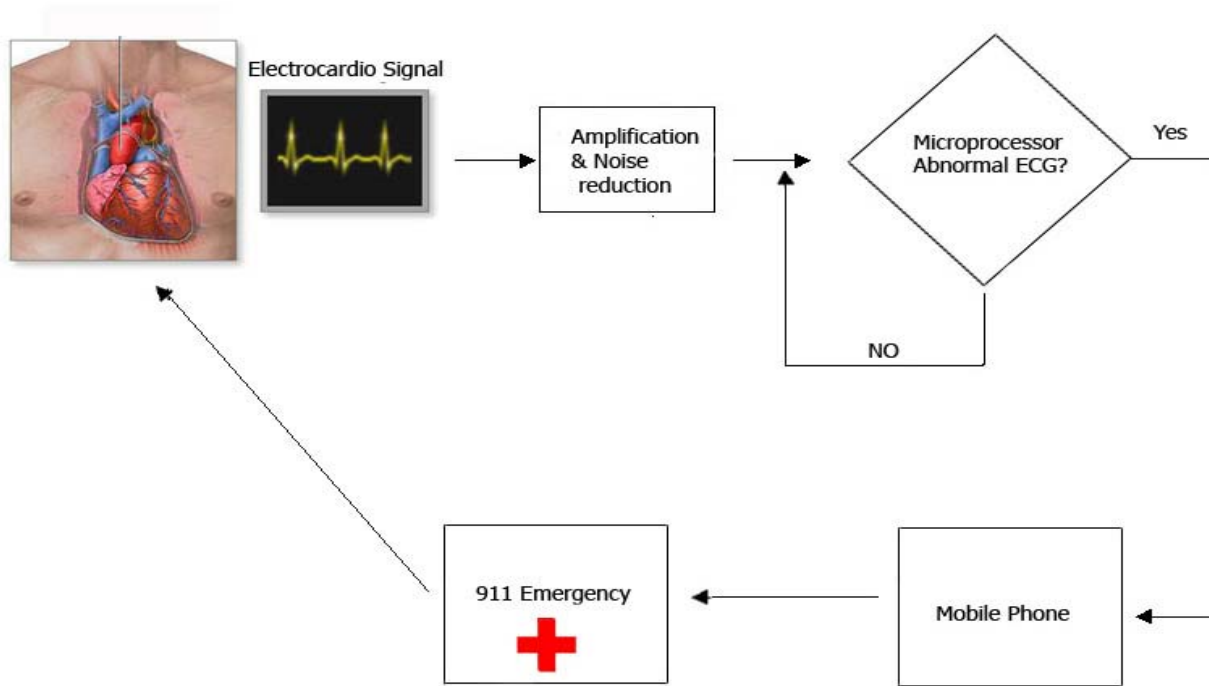
The aim of our project is to enhance the ECG technology to allow early detection of heart attack before a patient experiences it. We believe this device can save millions of lives around the world by making it possible to detect a heart attack in advance, allowing the physicians sufficient time for patient care and treatment in hopes to prevent cardiac arrest and death. By taking advantage of one of the communication technologies that is available today, namely, Bluetooth, our aim is to design and implement a device that can be easily worn as an accessory to monitor the heart beat. The data is monitored in this system in real time and as soon as an abnormality in heart beat is detected, the data is transmitted to the patient's cell phone via Bluetooth connection. Afterward an emergency alarm is transmitted to another server, for example the doctor's emergency phone line or to a 911 operator, alerting the professional health-care personnel. We believe our device is able to enhance life for patients prone to heart attack by providing them with the required medical attention promptly.



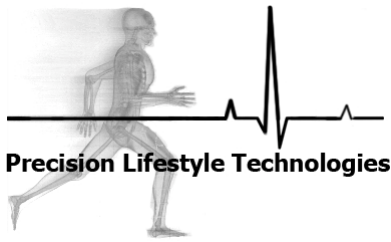
**Figure 2:** *System Overview*



The heart signal will be captured via ECG sensors; noise reduction will take place, followed by signal amplification. The amplified signal will be digitized via a microprocessor, and it will be processed. In the next step, signal conditioning will be applied to detect any abnormality of the heart signal. If an abnormality is detected, the signal will be transmitted to a mobile phone via Bluetooth. The mobile phone in turn will alert 911 or any other appropriate agencies. Figure 3 demonstrates a block diagram of PULZE™ System.



**Figure 3:** System Block Diagram



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### **3.0 Existing Solutions**

The concept of heart attack detection is not a new topic. In hospitals heart attack detection can be achieved by monitoring the patient's heart palpitation in the Intensive Care Unit (ICU). The systems are very large in size and expertise is required to be able to work with the equipment.

In researching for existing solutions we will mainly focus on portable devices which can also be operated by an adult with no medical background or technological knowledge.

Although there has been extensive research done in this field and papers have been written on this topic, we have not been able to find an available commercialized device to purchase that can achieve our products objective as efficiently.

Details of a few similar solutions are discussed in the following:

#### **1. Vital Positioning System (VPS)**

The VPS is a cardiac alarm system which can be worn by the patient as a belt and it detects serious abnormalities and contacts pre-hospital emergency services. This device has integrated digital wireless ECG and analyses the patient's ECG constantly. This device seems to be a great solution to heart attack detection but no price information or even a picture could be found. It seems that this product is still under development and because of its integrated wireless phone system and GPS, it is assumed to be an expensive solution which can only be purchased by patients willing to invest a great deal of money on such devices. We are proposing to use a cell phone as a device to contact emergency personnel which is widely available these days instead of actually integrating it into the device. Attempts to contact the company for more information have not been successful to date.

#### **2. Portable Handheld ECG EKG Monitor**

This device is a personal heart monitor which records and displays user's cardiac functions for daily health check. The records should be shown to a doctor for analysis at a later time. This device is available in the market for the price of \$385 US.

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**Figure 4:** Portable Handheld ECG EKG Monitor

This device consists of a few shortcomings. First, the device should be held against your left palm or on the bare skin below your left nipple **Error! Reference source not found.** by the user, which can take time and also positioning the device in the correct position could be a potential issue.

## How to use

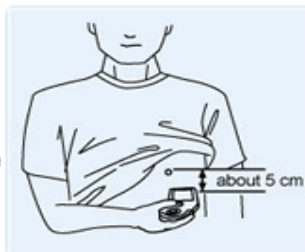
Easy, User-friendly instruction



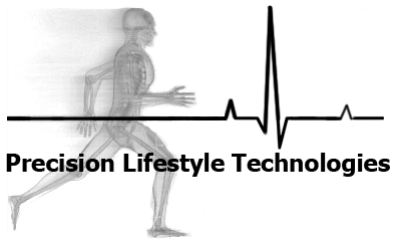
- Method I**
- 1 Turn on power and place chest electrode againsts your left palm

### Method II

- 1 Place the chest electrode on bare skin about 5 cm (2 inch) below your left nipple
- 2 Keep the same posture until measurement is complete. It takes about 30 seconds

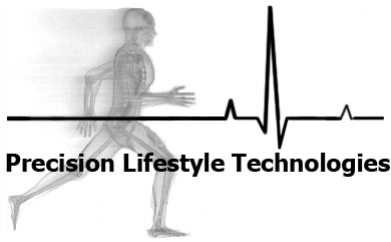


**Figure 5:** How to use Portable Handheld ECG EKG Monitor



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Second, this device does not have the ability to detect a heart attack and contact emergency personnel, which makes this device desirable for only routine check ups and not heart attack detection and immediate medical attention.



## 5.0 Sources of Information

In order to solidify our idea and to define our design we have done extensive research and obtained information from electronics textbooks, electronics magazines and IEEE publications. Furthermore, we have looked for component information on the manufactures' websites. We also conducted meetings with Dr. Shahram Rakhshanfar (Medical Doctor), Dr. Ali Bashashati (Senior Researcher and Post Doctorial Fellow Terry Fox Laboratory), Jason Dawson (National Instrument Sales Engineer), and Dr. Boroumand (MD, Heart Specialist) in order to help us with the initial design process and to get their professional opinions.

PLT's primary asset for creating its first device, PULZE™, is relying on the experiences and expertise of team members. Also SFU faculty members and graduate students, including Dr. Andrew Rawicz, Rodney Vaughan, Brad Oldham, Ian Folds and Dr. Nima Mahanfar for the technical parts and Mr. Mike Sjoerdsma and Steve Whitmore for the documentation parts are valuable resources and input for this project. Moreover, we are planning to utilize the useful information that SFU's knowledgeable lab technicians, Fred Heep and Marius Haiducu can provide. For time management and team coordination, we are planning to make use of past ENSC 440 students' experiences.

General public, family and friends are other sources of information to identify the market's needs. A survey has been prepared in order to gather the general public's opinion to assist us in better designing our device and to be able to market our product in the future.

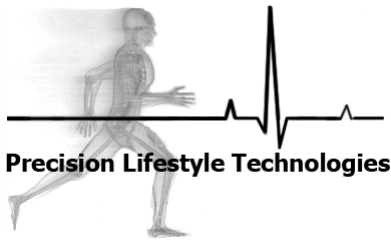
## 6.0 Budget and Funding

### 6.1 Budget

Budget approximation for the prototype of heart attack detector project is presented in Table 1. Since the details of the device are still under investigation, the prices presented in the table are tentative. In order to keep the table brief, the components have been grouped into categories that represent their general functional group. The budget breakdown has been overestimated by 25% in order to consider for the increased cost per part for orders in small quantities and the need for ordering extra replacements in case of unpredicted loss of equipments. Moreover the approximated budget does not include any development or manufacturing costs.

**Table 1:** *Tentative Budget Breakdown*

Equipment	Estimated Cost (\$CAD)
Amplifier and Filter	70
Microcontroller	300
Biosensor	15
Bluetooth	150
Circuitry	50
<b>Total</b>	<b>585</b>



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## ***6.2 Funding***

It is expected in most cases that the cost for developing a prototype is much greater than the per unit production cost for commercialized devices. Once the mass production phase has started, parts can be purchased in bulk and the expensive development tools will not be required, therefore, reducing the costs extensively.

To obtain the capital required for this project, PLT will apply for the Engineering Science Student Endowment Fund (ESSEF) and private companies' funding who may be interested in our device. Also, to reduce the costs, most of the components will be acquired as free samples or items already owned by members will be used and the development tools will be obtained from the School of Engineering Science. Furthermore PLT can obtain \$50 worth of free components from Fred Heep which has been already authorized by the School of Engineering Science.

A detailed and record of all transactions will be kept by the group to ensure proper reimbursement to members. In order to avoid excessive spending, the group has decided that all transactions should be approved by all the members. In the long run, we will seek investors and venture capitalists in funding our company and the commercialized version of PULZE™.



## 7.0 Schedule

The Gantt chart and Milestones for PULZE™ project according to the projected schedule is presented in Figure 6. Moreover we have allocated two weeks for contingency before we present our final product.

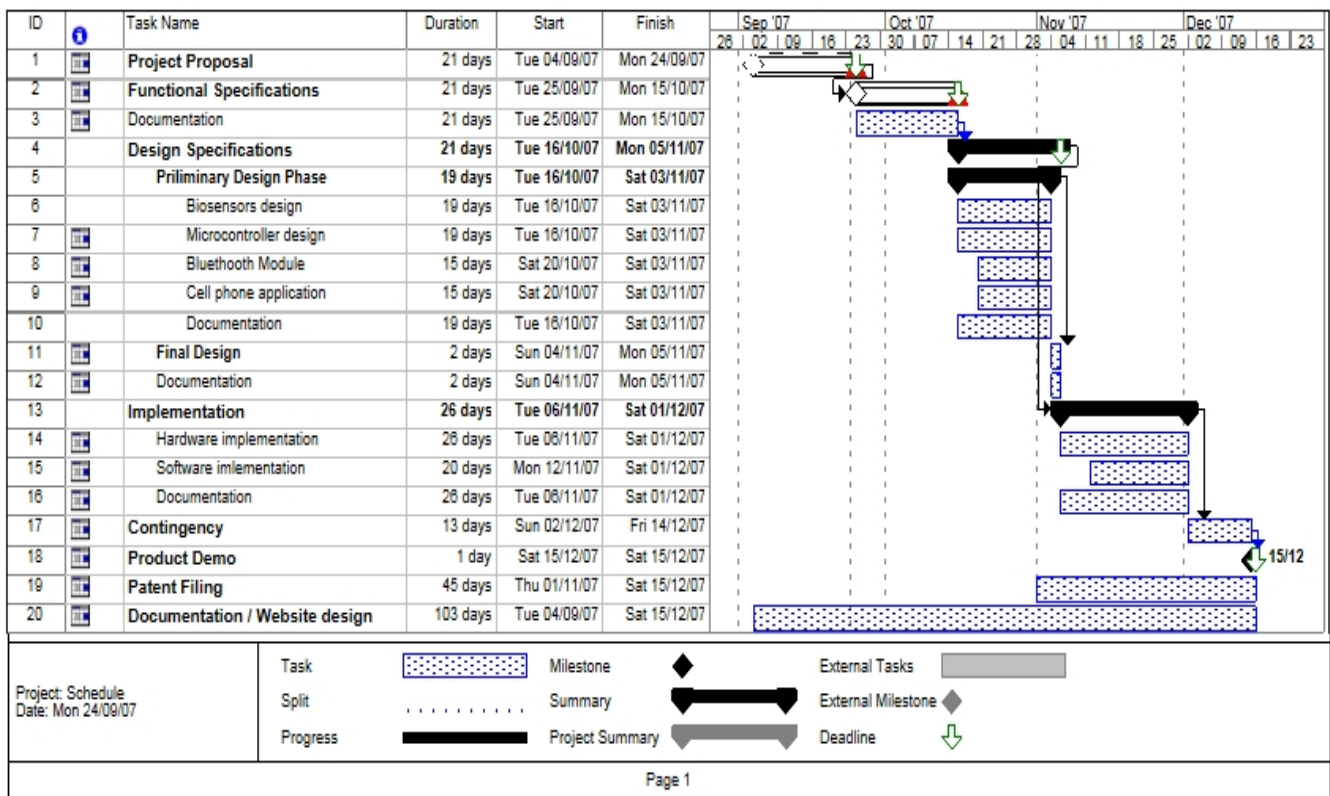
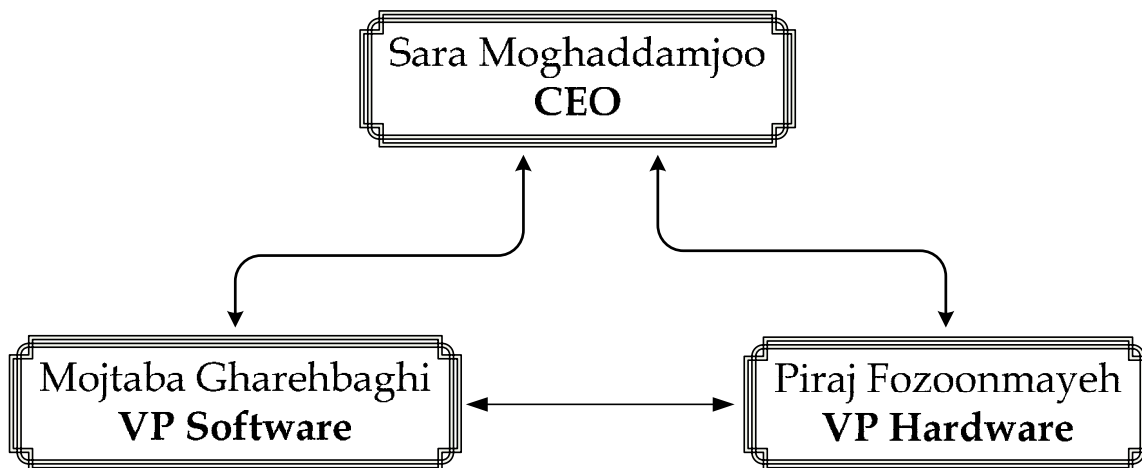


Figure 6: Gant Chart

## 8.0 Team Organization

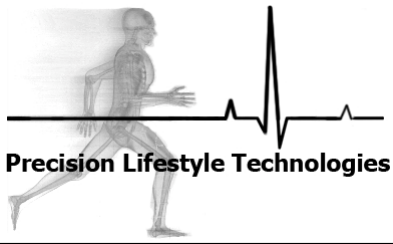
Precision Lifestyle Technologies' team is comprised of dedicated fourth year undergraduate engineering students with expertise in Electronics Engineering and Biomedical Engineering. PLT's team members are: Piraj Fozoonmayeh, Mojtaba Gharehbaghi and Sara Moghaddamjoo.

Our primary goal as a team is to build a functional device that has a potential market with the purpose of enhancing the individual and team work abilities of each team member in both technical and communicational manners. After our team has achieved thorough knowledge and understanding of the requirements to build this product and prepare a prototype, we are planning to successfully bring our product to the market. Due to the dynamic nature of our group we do not have a strict organizational structure, even though the positions may be the same. Recognizing the importance of having a team leader for decision making, we have chosen the interactive organization type where our group works mainly based on all the members' verdicts. Our organizational chart, shown in Figure 7, represents our interactive process of transferring information and knowledge amongst our group.



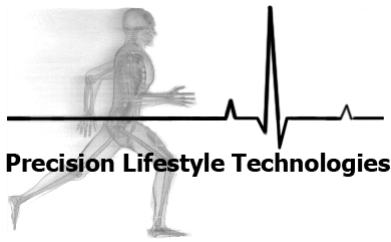
**Figure 7:** *Organizational Chart*

As a CEO, Sara Moghaddamjoo is responsible for the overall functions and setting the strategic and operational plans of the project. Mojtaba Gharehbaghi as the VP of software certifies the development and integration of the software related parts of the project and as a VP of hardware, Piraj Fozoonmayeh is in



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charge of hardware issues such as PCB board design, sensors and actuators, and overall troubleshooting in the system. In order to pursue our goals and to produce a fully functional product by the deadline, a group meeting will be held at least once every week. The detailed minutes of the meeting will be collected each time by a team member in a rotating manner and will be uploaded on the group website. Each member will be assigned with a task according to his/her skills to be done until the next meeting. Keeping our main goals in mind, we will ensure to carry out constructive meetings so that the work assigned to each member leaves them with sufficient time to accommodate their other tasks as well.



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## **9.0 Company Profile**

### **Sara Moghaddamjoo** *Chief Executive Officer (CEO)*

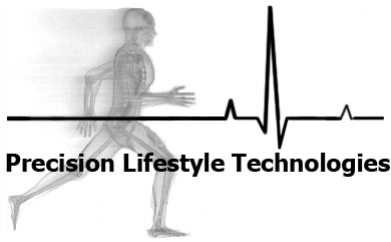
Sara believes that true success is achieved through pure dedication, creativity and most importantly passion. Throughout the years, her passion for technology has enabled her to achieve excellence in developing technological solutions that ensure maximum efficiency, security and reliability. Her work ethic is based on extensive research, consideration of positive and negative aspects in the short and long run both in financial and practical terms. Throughout the years of her education, she has often been appointed as the project team leader due to her ability to motivate her fellow teammates in achieving their mission with a level of perfection. She has often been characterized as the challenger and the problem solver who aims at achieving excellence. She faced her most valued professional experience unexpectedly throughout the two previous summers when she became in charge of managing a 22 person team in Paradise Educational Institute. Sara's management and technical abilities will nicely round out her position as a CEO.

### **Piraj Fozoonmayeh** *Vice President of Hardware*

Piraj is an electronics engineering student at Simon Fraser University. He has been working in the telecommunication industry for the past 4 years. He is also working at communication lab at SFU. He is an expert in LabView, C++, Java, VHDL, Matlab and assembly language. He is also familiar with Microcontrollers, FPGA cards and its related components. His extensive knowledge in different programming language and microcontrollers has made him the VP of Hardware.

### **Mojtaba Gharehbaghi** *Vice President of Software*

Mojtaba is pursuing an engineering science degree at Simon Fraser University specializing in electronics. Mojtaba's work experience at British Columbia Transmission Corporation (BCTC) has allowed him to gain valuable experience in software application maintaining high power transmission systems and increasing the reliability of transmission lines. Mojtaba has undertaken various circuitry design projects and has extensive experience in programming languages such as C#, Java and VHDL. Being currently employed by BCTC as a software engineer and having the ability to lead projects successfully further adds to Mojtaba attaining his position as the VP of Software.



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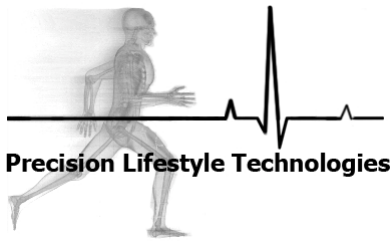
## **10.0 Conclusion**

The immense need for prompt medical assistance for heart attack victims is evident and we at PLT are committed to design a reliable and cost effective device to detect and alert medical personnel in a timely manner to save lives.

In most cases, heart attacks come at you in a flash and by providing PULZE™ in today's market, we hope to some what ease that element of surprise and give you a better, healthier piece of mind.

Precision Lifestyle Technologies is making a difference in people's life by innovation and invention of leading edge devices. Our passion in the field of telemedicine and bio-medical engineering has enabled us to undergo extensive researches to provide an effective device. By introducing PULZE™ in today's market, we hope to accomplish our mission of making it easily accessible to everyone and effective in every way. We strongly believe that PULZE™ is amongst the leading technology pioneers in today's market.

If you are further interested in PULZE™, please feel free to contact us for further information, such as our detailed business plan.



## References

### **American Heart Association**

<<http://www.americanheart.org/presenter.jhtml?identifier=3005172> >

<<http://www.americanheart.org/presenter.jhtml?identifier=4591> >

### **American Population Statistic**

<<http://www.nationmaster.com/country/us-united-states> >

### **Graphics Website**

<<http://www.istock.com>>

<<http://www.adam.com>>

### **The ECG Made Easy, 6th edition**

<<http://intl.elsevierhealth.com/catalogue/title.cfm?ISBN=9780443072529>>

### **EMC house of DeFrance**

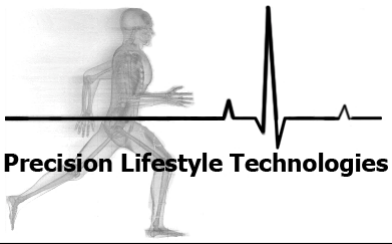
<[http://www.defrance.org/artman/publish/article\\_691.shtml](http://www.defrance.org/artman/publish/article_691.shtml)>

### **Medical Intelligence**

<<http://en.medicalintelligence.ca/iiix/content/?page=P-VPS-WECG>>

### **Portable Handheld ECG EKG Monitor**

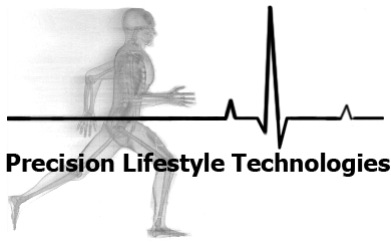
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## **Appendices**





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## **NDA**

### **MUTUAL CONFIDENTIAL DISCLOSURE AND NON-CIRCUMVENT AGREEMENT**

This Confidential Disclosure and Non-Circumvent ("Agreement") is dated [REDACTED], 2007 ("Effective Date") and is by and between Precision Lifestyle Technologies Incorporation, a Corporation, with offices at School of Engineering Sciences, Burnaby, BC and [REDACTED] with a business address at [REDACTED]. The companies may also be referred to as the "Party(ies)".

WHEREAS, the Parties are discussing the possibility of working together ("Project") and in connection with the exploration of such arrangement, certain confidential information may be disclosed between them.

NOW, THEREFORE, in consideration of the mutual promises, covenants and other good and valuable consideration, the Parties agree that:

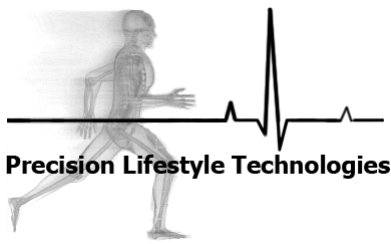
1. The Parties' representatives for disclosing or receiving confidential information are:

[REDACTED]  
[REDACTED]

2. Confidential information may include marketing plans, strategies or product information, tariff applications, trademark applications, design plans, drawings, data, prototypes equipment business associates, names, customer names or other technical or business information ("Confidential Information"). Any oral or written information discussed or provided by one party to the other will be considered confidential in all cases.

3. A Party receiving Confidential Information under this Agreement shall use the Confidential Information only for the purpose of review and analysis for possible participation in the Project.

4. The Parties shall not use the Confidential Information for any other purpose and shall protect the disclosed information by using the same degree of care, but no less than a reasonable degree of care, to prevent the unauthorized use, dissemination or publication of the Confidential Information as it uses to protect its own Confidential Information of a like nature, including (a) identifying documentation or communications as "Confidential Information" as directed by the author of the communication, (b) taking reasonable precautions to ensure that Confidential Information is not disseminated without prior authorization, (c) taking reasonable precautions to ensure that Confidential Information is not misappropriated or stolen, (d) to affix appropriate notices or labels to all physical



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expressions of the Confidential Information, (e) to notify the other Party of any unauthorized possession, use or knowledge of the Confidential Information and to furnish details of such possession in the event of any injunction, suit or proceeding to enforce confidentiality, and (f) to promptly return to the other Party upon written request, all tangible expressions of the Confidential Information.

5. This Agreement imposes no obligation upon a recipient with respect to Confidential Information which (a) was in the recipient's possession before receipt of the disclosure restriction; (b) is or becomes a matter of public knowledge through no fault of the recipient; (c) is rightfully received by the recipient from a third party without a duty of confidentiality; (d) is disclosed by the disclosing party without a duty of confidentiality to a third party; (e) is independently developed by the recipient; (f) is disclosed under operation of law; or (g) is disclosed to recipient with the other Party's prior written approval.

6. No license, trademark, patent, copyright, or other intellectual property right is either granted or implied by the disclosure of Confidential Information.

7. It is anticipated that during the course of dealings between the Parties, each may reveal to the other certain names, customer or client lists ("Designated Party") which is the proprietary information and property of the disclosing Party. A Designated Party shall be identified in writing to the other Party. Neither Party shall have any obligations to offer or consummate a transaction to or with each other or a Designated Party of the other.

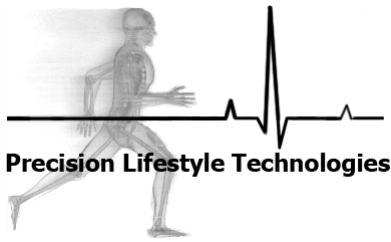
8. The Parties each agree not to circumvent, attempt to circumvent, or permit any other Party or persons on their respective behalf to circumvent each other in any way, manner or form regarding any transactions during the term of this Agreement. Accordingly, the Parties each agree to conduct through the other Party all of its transactions with any Designated Party of the other during the term of this Agreement and not to contact, call on, solicit, or take away either directly or indirectly any Designated Party of the other during the effective period of this Agreement.

9. The Parties each agree to use their best efforts to preserve the good will and reputation of each other and their respective businesses. The Parties each agree to notify each other of all inquiries about proposed transactions from a Designated Party of the other in their respective product lines. Each Party shall supply to the other a timely report of the transactions with a Designated Party of the other. The Parties further agree that this Agreement and the respective obligations hereunder shall be binding upon the respective owners, officers, employees and any other representative or agent who might financially benefit from transactions under this Agreement.

10. Neither Party has an obligation under this Agreement to purchase any service or item from the other Party or to enter into any other agreement.

11. The Parties do not intend that any agency or partnership relationship be created between them by this Agreement.

12. Each of the Parties acknowledges that the rights, obligations and Confidential Information constitute



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valuable, special and unique property of the respective party. Each party understands and agrees that any breach or threatened breach of its obligations hereunder may cause injuries to the other party, which may not be measurable in monetary damages. Accordingly, in the event of a breach or threatened breach, each Party agrees that the other Party shall be entitled to equitable relief including injunctive relief and specific performance, as a remedy for such breach or threatened breach. Such remedies shall not be deemed to be the exclusive remedies for a breach or threatened breach of this Agreement, but shall be in addition to all other remedies available at law or equity.

13. The validity and interpretation of this Agreement shall be governed by the laws of the Canada without regard to any conflict of laws, rules or policies.

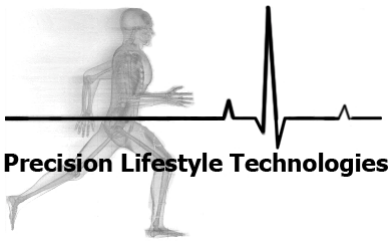
14. No amendment or modification of this Agreement shall be valid unless evidenced by a written amendment, signed on the behalf of the Parties hereto by their duly authorized representatives; provided that either Party may change its address as provided above.

15. The rights, duties and obligations of each of the respective parties to this Agreement may not be assigned or delegated in whole or in part by operation of law or otherwise without the prior written consent of the other party, which consent shall not be unreasonably withheld. It is expressly understood that any material change in the direct or indirect control of any party, any merger or consolidation directly or indirectly involving any party, any acquisition by of any party or any other substantial change in a Party's organization would be an assignment within the meaning of this section.

16. This Agreement sets forth the full and complete agreement of the Parties; provided that this Agreement does not amend, supersede, terminate or otherwise affect any other agreements between the Parties regarding other agreements of any kind.

17. This Agreement may be executed and delivered in multiple counterpart copies, each of which shall be an original and all of which shall constitute one and the same Agreement. Execution and delivery by facsimile shall constitute good and valid execution and delivery unless and until replaced or substituted by an original executed instrument.

18. This Agreement is executed and effective for two years of the date of disclosure of any confidential information furnished hereby.



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Precision Lifestyle Technologies Incorporation

\_\_\_\_\_  
Authorized Signatory

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

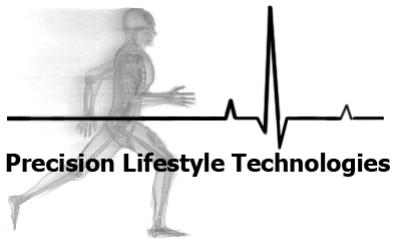
**Receiving Party:**

\_\_\_\_\_  
Authorized Signatory

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_



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## Survey

\* This is an anonymous survey for the purpose of product evaluation.

1. How old are you?

- 19-24       25-29       30-34       35-39       40+

2. What is your educational level?

- High school       Some College       Undergraduate  
 Masters       PhD       Post Doctoral

3. What is your income level? (Optional)

- less than 24,000     25,000 – 49,999     50,000-74,999     75,000-99,99     More than 100,000

4. Have you ever lost someone close to you due to heart attack?

- Yes       No

5. Do you or anyone in your family have heart complication?

- Yes     No

6. Do you think heart monitoring devices are expensive?

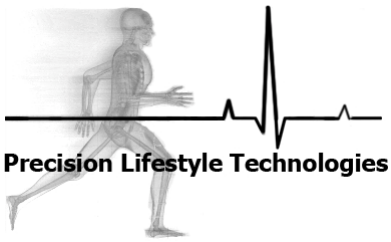
- Yes     No     I don't know

7. Do you like the idea of having a heart attack detector?

- Yes       No

8. Do you like the idea of having a portable heart attack detector?

- Yes       No



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9. Do you carry a cell phone with you all the time?

Yes

No

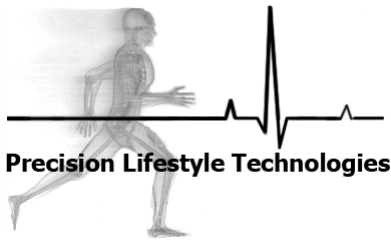
10. Does your cell phone have Bluetooth?

Yes

No

11. How much are you willing to pay for a wireless heart attack detector device?

12. Other Comments:



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## ***Partnership Agreement***

Precision Lifestyle Technologies, Inc.

### General

#### *Goals of this project:*

To build a functional device with potential market with the purpose of enhancing the individual and team work abilities of each team members in both technical and non-technical manners.

#### *Vision/Mission Statement:*

“The Heart of Medical Advances”

#### *Type of business:*

We are a small technology company that specializes in the development of electronic devices for bio-medical use and telemedicine field and our primary product is Pulze™ ; a wireless heart attack detector.

#### *Corporate Officers:*

Chief Executive Officer: Sara Moghaddamjoo

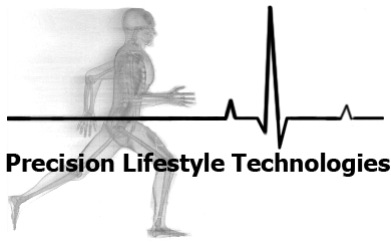
VP of Software: Mojtaba Gharehbaghi

VP of Hardware: Piraj Fozoonmayeh

#### *Provisions for changes or dissolving the partnership:*

A 2/3 majority is required for amending or dissolving the partnership agreement, except where specifically noted. Upon dissolution, all assets and liabilities will be divided according to current ownership structure.





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*Dispute settlement clause:*

If a satisfactory agreement cannot be reached and a party decides not to continue with Precision Lifestyle Technologies, their share will be repurchased at Net Asset Value (valued on the date of leaving the company). The share repurchase can be either immediate or paid in four yearly installments, payable on the anniversary of the departure. The payment period may be extended if payment would result in negative cash flow.

The decision on repayment terms is left at the discretion of the remaining shareholders. An amendment to the payment schedule cannot be made after the departure of a partner, without the partners expressed written consent.

*Settlement in case of death or incapacitation:*

In case of death or incapacitation, the value of the shares shall be transferred to next of kin. Only the value of the shares is transferred, decision making shall remain with the remaining partners. The entry of next of kin or other parties in the decision making process, shall be granted only by consensus of the remaining partners. The remaining partners reserve the right to place conditions on any new entrants.

*Share split:*

The Three founding members shall be granted one share of Precision Lifestyle Technologies. The founding partners are:

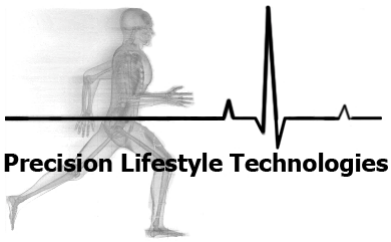
- 1-Mojtaba Gharehbaghi
- 2-Sara Moghaddamjoo
- 3-Piraj Fozoonmayeh

The above clause is only amendable by consensus.

Each partner shall receive an equal share of the company for the duration of the project, this is not amendable.

*Amount of equity invested by each partner:*

Each partner shall invest an equal portion of the required costs. If a partner is unable to obtain the required funds they may be borrowed from another partner and repaid with interest. No partner can purchase a larger portion of the company without the written consent of each partner.



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*Distribution of assets on dissolution:*

All assets will be equally divided among all the partners.

*Restrictions of authority and expenditures:*

Signing authority is delegated to .....

Share holder 1 ----- Date:-----

Share holder 2 ----- Date:-----

Share holder 3 ----- Date:-----