ASSIGNMENT 1

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Student declaration

I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.

	Student's signature	

Grading grid

P1	P2	P3	P4	M1	M2	D1

✿ Summative Feedback:		✿ Resubmission Feedback:
Grade:	**Assessor Signature:**	**Date:**
IV Signature:		

Table of Contents

List of Figures

List of tables

I. Introduction

This report will detail the HRM (Heart Rate Monitor) device and its usefulness for everyone.

The estimated project completion time is about at least 3 months. The goals of the project team include product development and product introduction to users across the country, affirming the brand and the ability to capture customer needs. Stakeholders, value proposition.

Next is a project outline with plans that are divided among the groups within the project, the plan covering costs, scope, risks, human resources, etc.

Heart Rate Monitor (HRM) is a product that helps users measure their heart rate in real-time. Besides, it also helps alert the user if the heart rate suddenly rises.

II. Project purpose and Objectives (P1)

1. Project Aims

Heart Rate Monitor (HRM) will help users measure and monitor heart rate in real-time. The device applies the heart rate measurement technology according to the PPG diagram technique (Photoplethysmography - uses light to measure the volume of an organ in the body).

2. Strategy purpose

The purpose of this project is to develop a product to help people control their heart rate in real-time. The device will be very useful for older people with heart conditions, it will help monitor the heart rate continuously if the heart rate suddenly rises sharply and exceeds the safety level that has been set previously, it will send alerts to previously linked phones.

3. Project Objectives

- **Attract customers:** Attract the attention of about 1000 people in Ha Giang city after about 4 weeks of product launch.
- Perform the experience for 5% of customers on the first day of product launch.
- **Brand identity:** 60% of customers using the HRM application will remember the application name after the first try and 69.96% of new customers will remember the brand name after using HRM in the first 6 months of the campaign to bring products to users.
- **User's Reliability**: 60% of users spend their money to extend their time using HRM products after 3-4 weeks trial. More than 80% user using product follows their heart rate every single day.
- **User behavior:** Thanks to PPG technology, which measures the heart rate quickly and conveniently, about 65% of users who have heart problems will buy the product after the first 5 months of launch.

🞣 **Performance:** Estimated performance of the system may take about 5 seconds of downtime in 1 year

III.   Produce a project management plan (P2)

1. Project scope

Currently, technology is growing strongly, electronic devices capable of helping human health are also researched and developed a lot. That helps us have a health check quickly and does not cost much to go to the hospital. A **heart rate monitor** (HRM) is a personal monitoring device that allows one to measure/display heart rate in real-time or record the heart rate for later study. It is largely used to gather heart rate data while performing various types of physical exercise.

Smartwatches measure heart rate according to the PPG diagram technique:

PPG map (Photoplethysmography - uses light to measure the volume of an organ in the body). The watch will be designed with a sensor eye below, From the optical sensor eye on the watch will shine a beam of green and infrared light to shine into the bloodstream. They said that the blood is red because it reflects red light and absorbs green light. The green LED that comes with the highly sensitive photosensitive diode detects the amount of blood flowing through the wrist at a specific time. When your heart beats, the amount of blood flowing through your wrist increases, blue light is absorbed more (Cheriyedath, 2019).

The LED will blink hundreds of times per second to calculate the number of times the heart beats per minute and that is the result of the user's heart rate. On the other hand, the sensor on the watch also uses infrared light to measure the wearer's heart rate for 10 minutes. However, if infrared light cannot provide available data, the watch will switch to a green LED. On the other hand, the heart rate sensor is designed with low signal self-compensation capability by increasing the LED brightness and sampling rate.

Although the cost to complete the product is quite large, but the needs of human health care are also very high. For families with heart disease, the product will be of great help. Not only that, but athletes can also use this device to better control heart rate. Products sold on the market can cost from $ 258.44 - $ 409. The product will be used simultaneously with a free app on CHPlay (Android) and Apple Store (IOS) to connect to the watch to display more complete information.

The watch will meet the user's heart rate test needs as follows:

- Display user's heart rate in real-time
- Play an alert on the watch, and send an alert to the phone device if the heart rate exceeds the allowed level.
- Store information on the application connected to the watch

2. Deliverable

- Develop an app that connects to devices on smartphones to emphasize the ease of user experience on Android and IOS operating systems and the convenience and efficiency of the application.
- finished products
- Product manual
- Quality inspection report
- Progress reports completing (Design drawings, image, etc)
- Document specification requires the user to complete
- Software (User interface, Function, Last development)
- User training (service training, maintenance system, trial ..)

3. Project Quality

This section will cover all project processes that are designed to achieve the best quality of the project, providing products or services to the specifications of customers or associated parties.

To ensure that the project satisfies the best requirements and objectives, to improve the project quality, contribute to reducing production costs, increasing labor productivity, increasing competitive advantage and market share of enterprises. Project quality management is an integral part.

During project development, each part should be carefully tested to meet the requirements set out, following customer criteria. If there are any bugs or software vulnerabilities need to be improved and rectified immediately if necessary. In addition, it is also important to ensure that the interface provided to the user needs to be a fully functional and easy to use interface, not only that, it needs to be beautiful and there are innovations in the intuitive interface.

4. Risk management

Risks can come from both inner and external sources. External dangers are the ones that are not beneath the direct manipulate of management. These include political issues, alternate rates, interest rates, etc. On the other hand, inner dangers, which include noncompliance or data breaches, among others.

Risk control is vital in a business enterprise because, without it, an organization cannot determine its goals for the future. If a corporation sets desires without taking risks into account, chances are they may lose their way once any dangers occur (Cederblom, 2013).

Good risk management will bring many benefits such as (Cederblom, 2013):

- ✓ Save valuable resources: time, income, assets, people, and assets can be saved if fewer complaints occur
- ✓ Create a safe and secure environment for employees, guests, and customers

- ✓ Reduce liability and increase the stability of your operations
- ✓ Protect people and property from harm
- ✓ Environmental Protection
- ✓ Reduce your risk of litigation
- ✓ Determine your insurance needs to save unnecessary premiums

Risk Description	Type	Likelihood	Impact	Solution
Project team members are the most costly resources in the project.	Resources/human resources	Medium	High	Negotiate a reasonable price with the staff
Not enough money to make a product	Budget	High	High	- Mortgage to bank loan over a period of time - borrow money from relatives
The earthquake happened around the place your system/project implement	External/Environment	Very low	Very high	- Build up the data center which can suffer earthquake level 7 - Build up back-up servers in another place
The manager wants to move to another company	Human Resources	Medium	Medium	- Agreement to raise the salary for managers - Clearly show employees the development roadmap
lack of technically trained human resources	Resources/human resources	High	Very high	-Recruit more experienced human resources - training organizations
Outdated technology	technology	High	Medium	cooperate with several companies to allow staff to train and acquire new technologies

Table 1: Risk Management

5. Cost Management

Cost planning to investigate financial feasibility in the first phase of a proposed project. This assists our clients in determining whether a project is feasible within their time limits and budget. In addition, the cost plan can also be used as an aid in securing funding for projects from banks, investors and the government. Cost-effective and accurate planning can be the difference between a successful job and a job that runs over time and exceeds the budget (Mason, 2018).

The estimated budget for the project is **52.000 USD**. Estimated costs include one-time overall project costs and recurring costs. The purpose of the organization is to have a streamlined operation to minimize costs as possible but at the same time improve efficiency and service delivery.

Type of cost	Project costs	Percentage of the overall budget	Budget
Costs for risk	Unspecified risks	8%	4.000 USD
	Pre-determined risks	8%	4.000 USD
Cost for project implementation	Survey required	5%	1.000 USD
	Market research	5%	1.000 USD
	Collecting customer information	5%	1.000 USD
	Planning and document	7%	3.000 USD
	Design	9%	5.000 USD
	Application development and maintenance	13%	9.000 USD
	Product development and maintenance	13%	9.000 USD
	Conduct interview, focus group and survey	9%	5.000 USD
	Testing	7%	3.000 USD
	Marketing and sales	11%	7.000 USD
Total			**52.000 USD**

Table 2: Cost Management

6. Communication Log

For communication logs. It is important that you monitor your communication activities so that you can establish an official record for future audit purposes of the project. It also allows you to receive feedback and improve your communication processes.

By using this communication log, you can record each communication event, whether it is a project team meeting, project status report, or a meeting held with sponsors for the project (Jeff, 2017)

This communication log will help you (Jeff, 2017):

- ✓ Communicate with the project team and stakeholders
- ✓ Ensure that the Product Communication Plan is done correctly
- ✓ Provide the right information to supporters and stakeholders at the right time.
- ✓ Ensure proper notification to stakeholders.

Date	Method	Type	Description	Responsible team member
28/02/2020	Meeting	Project	Group establishment (refer minutes)	All
28/02/2020	Facebook	Project	Establishment of Facebook Group	Cuong
29/02/2020	Facebook	Project	Queries regarding surveying	Cuong
02/03/2020	Meeting	Project	Topic Discussion and decisions (refer minutes)	All
02/03/2020	Facebook	Project	Gathered group to get personal information	All / Cuong
05/03/2020	Gmail	Project	Topic selection categorization and selection document	Cuong
06/03/2020	Facebook	Project	Completing group discussion about some problem	Tuan
07/03/2020	Meeting	Project	Report the assigned part of each member	All
09/03/2020	Facebook	Project	Exchange work experience	All
10/03/2020	Gmail	Project	Receiving an email from Hieu and Truong is unable to participate in today's meeting	Duc Anh and Truong
10/03/2020	Facebook	Project	documents are moderated	All
10/03/2020	Facebook	Project	Remove some material from untrusted sources	Cuong
11/03/2020	Facebook	Project	Provide information about the address where the data can be accessed	Duc
16/03/2020	Meeting	Project	Give ideas for the project development plan	All
17/03/2020	Facebook	Project	Some planning issues	Tuan, Duc Anh
19/03/2020	Facebook	Project	A few good ideas can build development projects	Truong, Duc
20/03/2020	Meeting	Project	Unified software development plan	All
23/03/2020	Facebook	Project	Summary of any risks that may occur to the project	Duc
23/03/2020	Facebook	Project	Offer the most feasible solutions for each risk	Cuong

24/03/2020	Facebook	Project	Unifying risk management plan	Truong
30/03/2020	Face-to-face	Project	Talk about professional skills	All
31/03/2020	Facebook	Project	Duc Informed his network is not good enough to connect	Duc
02/04/2020	Facebook	Project	Work assigned from the team leader	Cuong
03/04/2020	Facebook	Project	discuss the work assigned and give ideas	All
03/04/2020	Facebook	Project	Tuan announced that he could not find an idea for his work	Tuan
03/04/2020	Facebook	Project	Give some good ideas to support Tuan	All
06/04/2020	Face-to-face	Project	Direct discussion and set deadlines	All
08/04/2020	Face-to-face	Project	Reviewed and discuss a risk management plan for the final presentation	Truong, Tuan, Duc Anh
13/04/2020	Facebook	Project	The leader informed about changing some ways to deal with risks	Cuong
15/04/2020	Gmail	Project	Hieu sent a report on cost management to the project	Duc Anh
20/04/2020	FaceToFace	Project	The project team gathered to prepare for the presentation on 27/04/2020	All
21/04/2020	Facebook	Project	Get Truong's notice about the new meeting room	Truong
22/04/2020	Email	Project	Last checked content	Duc
24/04/2020	meeting	Project	summarizing work	All
27/04/2020	Face to face	Project	Presentation day	Cuong
02/05/2020	Facebook	Project	Design the theme for the project	Cuong
03/05/2020	Meeting	Project	The whole team gave their opinion on the interface design	All
03/05/2020	Facebook	Project	The whole group agreed with the design of the functions	All
04/05/2020	meeting	Project	summarizing work	All
21/05/2020	Facebook	Project	Collect customer information about the product to improve the product better	Cuong
25/05/2020	meeting	Project	Exchanging expertise between members	All
30/05/2020	Facebook	Project	choose on the date of advertising for the product	Truong, Hieu
10/06/2020	Facebook	Project	Note user comments to improve the product, provide ideas for the product to work best	Duc
15/06/2020	Meeting	Project	summarize the project	all

Table 3: Communication Log

7. Human Resources

As a business grows, leaders often find there just isn't time to deal with day-to-day people management and recruitment and the focus on people can easily get lost. This is the costliest mistake a small business can make. Comprehensive HR is crucial for success. Without a talented team, your business falls.

HR covers so much more than hiring, firing and pay reviews. It includes all aspects of people management, communication and is pivotal in building a positive culture. Get HR right and you are halfway to making your business dreams a reality (Benstead, 2019).

This task requires **8 members**, with exceptional positions to fulfill all factors of the work in project implementation, with the right division, the work will be completed on schedule and best quality guarantee. The formation of this lineup is based totally on how to arrange an appropriate workforce from experienced groups to enforce software development and research projects, relying on the challenge, factors, and deadlines.

Squad	Role	Responsibilities	Quantity	Squad total
Project management	Project manager	Manage the entire working process of the project	1	1
multimedia management	multimedia manager	Establish, maintain and develop relationships with the press, media and public relations agencies	2	2
Market research	Market research	Responsible for surveying customers' interests and desires, thereby providing insights to support the process of approaching and building trust in customers.	1	1
Product development	Infrastructure engineer	Responsible for designing, building, deploying and maintaining IT	1	1

		infrastructure with the latest technology		
	Interface and mobile engineer	-Responsible for setting the interface of the product so that it is simple, easy to use, but still effective and modern -Produce fully functional mobile applications, collect specific requirements and propose solutions	1	1
	Design Engineer	Outline the project, create a prototype and monitor the production process	1	1
	Tester	Prepare test scripts, perform usability tests, prepare reports on all aspects related to testing.	1	1
Total				**8**

Table 4: Human Resources

IV. Produce a work breakdown structure and a Gantt Chart to provide timeframes and stages for completion. (P3)

1. Work Breakdown Structure (WBS)

There are 7 steps to complete the project that is clearly shown on WBS as Project Development, Analysis, Product Design, Coding, Product Testing, Research, and Rollout.
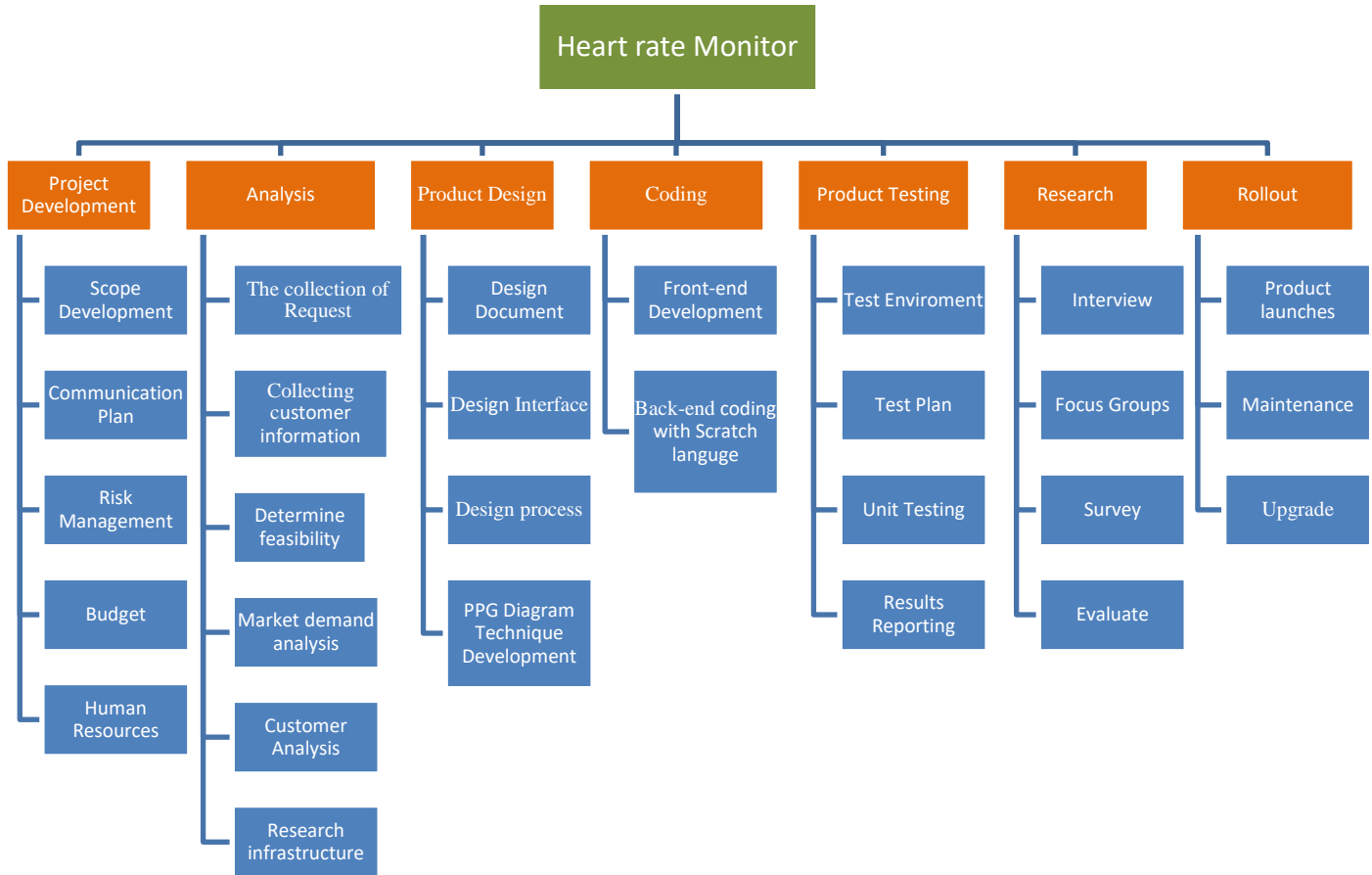
figure 1: Work Breakdown Structure

2. WBS Dictionary

WBS level	WBS code	WBS name	WBS Description
2	1	Project Development	The first step is to set up plans to build the project including risk plans, cost tables, human resources, etc.
3	1.1	Scope Development	Establish a record of all work to be done in the project
3	1.2	Communication Plan	The plan formally defines who should be given specific information, when that information should be delivered and what communication channels will be used to deliver the information
3	1.3	Risk Management	A comprehensive plan of possible risks to the project, how much is its impact? And solutions to the agreement to control it, make sure that

			if it happens it will bring the least bad consequences
3	1.4	Budget	Cost statistics needed to build the project, expenses for employees, for possible incidents.
3	1.5	Human Resources	The process of identifying current and future human resource needs for the project to achieve its goals.
2	2	Analysis	
3	2.1	The Collection of requests	Search, collect information from understanding, directly interviewing customers and getting feedback on their wishes for the application, determine the actual needs of users about the functions of the system.
3	2.2	Collecting customer information	Collect customer information to get accurate data and information about actual requirements
3	2.3	Determine feasibility	Select feasible requirements for the project
3	2.4	Market demand analysis	Gather information about target markets or customers.
3	2.5	Customer analysis	Analyzing customer needs for products.
3	2.6	Research infrastructure	Facilities, resources and related services that are used by the scientific community to conduct top-level research
2	3	Product Design	After the Coding step, this is the shape design step for the product, setting up the main functions
3	3.1	Design Document	Set of documents for the design
3	3.2	Design Interface	Design the shape of the product, the accompanying accessories
3	3.3	Design process	This is the process of designing processes to develop products, preparing functions for devices
3	3.4	PPG Diagram technique Development	Set up light sensor technology
2	4	Coding	Write source code for the product, ensuring consistency
3	4.1	Front-end Development	Write code for the product interface, displayed on the screen for the user
3	4.2	Coding with Scratch language	Use Scratch language to write algorithmic codes for products

2	5	Testing	The next step is testing to comprehensively evaluate the product
3	5.1	Test plan	Describe in detail the goals, target markets, internal beta groups, and procedures for a specific beta test
3	5.2	Test environment	Tests on the working environment of the product, internal and external impacts
3	5.3	Unit Test	Statistics of tests
3	5.4	Results Reporting	Record test results through simulation tests
2	6	Research	Perform quantitative and qualitative research to collect data to evaluate products
3	6.1	Interview	Interview some people who use the product and collect the results of their evaluation of the product.
3	6.2	Focus Groups	Focus groups to provide ideas for improvement to the project through research from the interviewees.
3	6.3	Survey	Collect accurate data about what the user thinks about the product to optimize the device for the best experience.
3	6.4	Evaluate	Through user research, make a complete report on the process, the data needed to improve the product.
2	7	Roll out	The deployment process for customers using the application
3	7.1	Product launches	Product launches with product promotion, advertising implementation
3	7.2	Maintenance	Regular maintenance so that the products get the best performance to the users
3	7.3	Upgrade	Upgrade products to get more optimal, perform technology updates to use for the system and listen to customers to handle application problems

Table 5: WBS Dictionary

3. Gantt Chart

The project will be completed through 6 processes:

- Project Development
- Analysis
- Coding
- Product Design

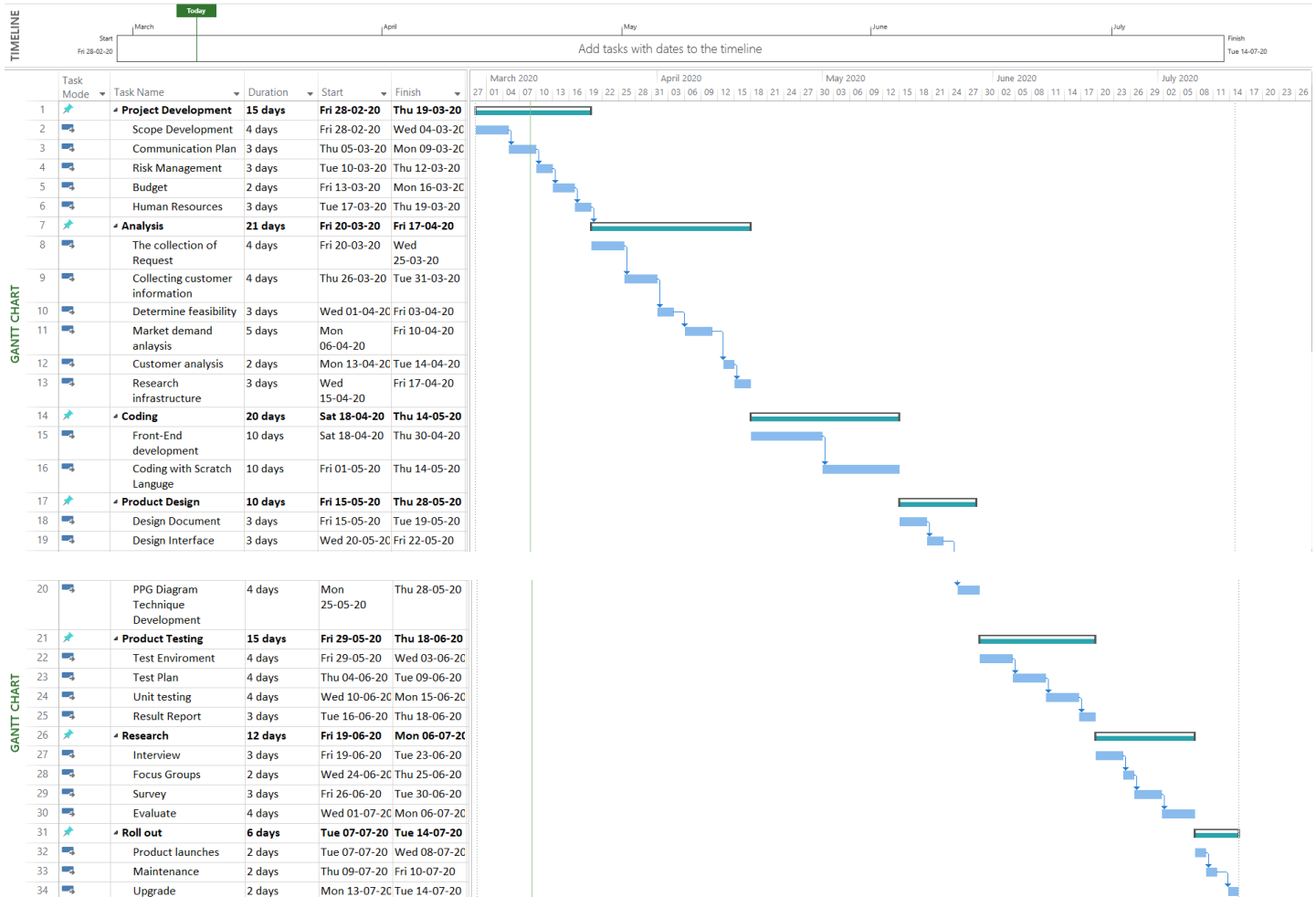- Product Testing
- Research
- Roll out

Figure 2: Grantt Chart

V. Qualitative and Quantitative Research methods (P4)

1. Hypothesis

There are two hypotheses identified in this project:

- It saves a lot of time and medical costs for users, instead of having to queue for hours in the hospital, the PPG technology will measure and display the results directly on the screen.
- In addition, the device will also help users improve their disease by providing on-screen advice after measurement to provide users with methods to improve their heart rate better.

2. Interviewing

The project team decided to conduct a user survey on the HRM device for 2 months to have a multi-dimensional view of the application, to ensure the best use of the application, which could identify application issues. Used and will be repaired, upgraded to work best for users.

Survey customers with 10 questions prepared by the project team:

1. **What's your name?**
   - Answer: My name is Hieu
2. **How old are you?**
   - Answer: I am 20 years old
3. **How often do you check your heart rate?**
   - Answer: I'm quite young so I don't often care about this issue. moreover, I don't have any heart disease nor do I have the equipment to check it. Going to the hospital would cost me a lot of time and cash
4. **During strenuous activity, do you feel chest tightness and fast heartbeat?**
   - Answer: Of course, when I do physical exercises sometimes my heart beats quite fast, my breathing rate increases a lot, but I think this is normal for everyone.
5. **Have you had any heart problems?**
   - Answer: No, I haven't
6. **After a while using our products, what do you think?**
   - Answer: Well, firstly, I find the user interface very user-friendly, easy to get acquainted with new users. The design of the product is also very beautiful and modern. Secondly, the heart rate monitor is very accurate and real-time. Besides, the advice given is also very reasonable and effective.
7. **Have you ever heard of light sensor technology?**
   - Answer: Yes, I have heard on Samsung phones
8. **This technology is also integrated into the product, do you think it works?**
   - Answer: Yes, I think it works pretty well, the results show it is 90% accurate.
9. **Did the device advice work for you?**
   - Answer: The advice I found was quite effective for many people. I sometimes follow that advice and find it very good, not unlike the hospitals that consult a doctor.
10. **Is this product useful in your life?**
    - Answer: Yes, it helps me monitor my heart rate and can send alerts to relatives if my heart rate increases suddenly.
11. **Would you be willing to share this product with your acquaintances?**
    - Answer: Yes, it is a healthy product, why not?

3. Focus Group

One of the methods of collecting user information for quantitative research is the Focus Group. This method allows researchers to collect ideas, ideas and beliefs of all in a short time for a project. The main purpose of a focus group study is based on attitudes, emotions, beliefs, experiences, and responses of respondents in ways that other methods are not applicable (Cosmic, 2015).

Focus group research in a group of 5 to discuss the impact of Digital Wellbeing on people through HRM products.

1. **Do you know anything about light-sensing technology and its applications in medicine?**
   - Truong: I don't know
   - Tuan: I have read an online article about light-sensing technology and I know a little bit about it.
   - Duc: Yes, I do know
   - Duc Anh: No, I don't. it's not my field.

2. **Do you know or have heard of HRM equipment?**
   - Truong: I have heard about this device through my brother
   - Tuan: I have heard about the HRM device through some of my friends.
     Duc: No, It seems to be a heart rate monitor
   - Duc Anh: Yes, I do. My dad uses a heard rate monitor sometime.

3. **This technology is also applied to this product, What do you think of the HRM device?**
   - Truong: I have never used this technology, but I think this is a useful device for many people.
   - Tuan: In my opinion, I find this device necessary for some people with cardiovascular disease. As for a very active young person and sports, I think it is not necessary.
   - Duc: I think this device is very handy and has great potential in today's life
   - Duc Anh: It's really helpful with old people like my parent and some people who are sports player

4. **Do you think this device works for users?**
   - Truong: I think this device is really necessary for users because of the good features that it brings
   - Tuan: As I said above, this device will be essential for those who really need it, but for me personally, I may use it or not.
   - Duc: I think it will work fine
   - Duc Anh: Yes, I do. I think many people will like that

5. **Instead of going to the hospital for an entire hour, does using this product save you time and money?**
   - Truong: With this application developed for me without having to go to the hospital, I have saved a small cost and saved a lot of time for myself.

- Tuan: If I want to use this product, then I think the product will help users save both time and money
- Duc: Personally, This device will save me a lot of time because I don't need to be in the hospital for hours to get a checkup.
- Duc Anh: Oh, it would be great if I have not gone to the hospital. It saves a lot of time and money. Of course.

6. **After using this product. Do you think the advice provided by the device is helpful?**
   - Truong: The advice that the device gives is useful and it helps me a lot in my daily life
   - Tuan: Although I have no longer used the product, I think a product is marketed, the utility that it brings is also very useful, and in which the advice provided by the device is of course useful.
   - Duc: The advice is a bit generic but helpful to me
   - Duc Anh: I have not used HRM device yet but I think it's helpful for me in the future

7. **Should you use this device to check your heart rate instead of going to the hospital? Why or why not?**
   - Truong: I am currently using this device to check my heart rate instead of going to the hospital because this device has high accuracy, fast processing ability is very convenient for me to use. Also, the compact device I can take anywhere.
   - Tuan: If there is a day when I feel my heart rate is not normal (maybe faster or rushing), then your device can be beneficial for me.
   - Duc: I think this device is only objective, not a substitute for going to the hospital because there are doctors in the hospital who can diagnose our condition.
   - Duc Anh: I will use HRM because it saves time and money.

8. **Survey**

To help the project be completed, consistent with consumer criteria, the impact of this product on the health of users. A survey was conducted on several product users, in order to bring an objective view of this product.

Survey participants are people who have used the product and have never used it.

1. **How often do you check your heart rate?**

The majority of people who participated in the survey did not regularly check their own heart rate and accounted for 42.9%. In particular, only about 21.4% of people regularly check their health. And 35.7% of people say they will check sometimes.
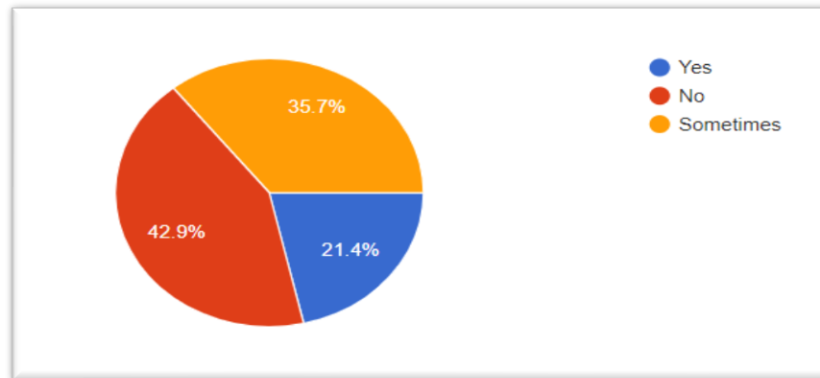
figure 3: How often do you check your heart rate?

2. Have you had any heart problems?

About 20% of people surveyed have heart disease. And most people don't have any heart disease and that's about 60%
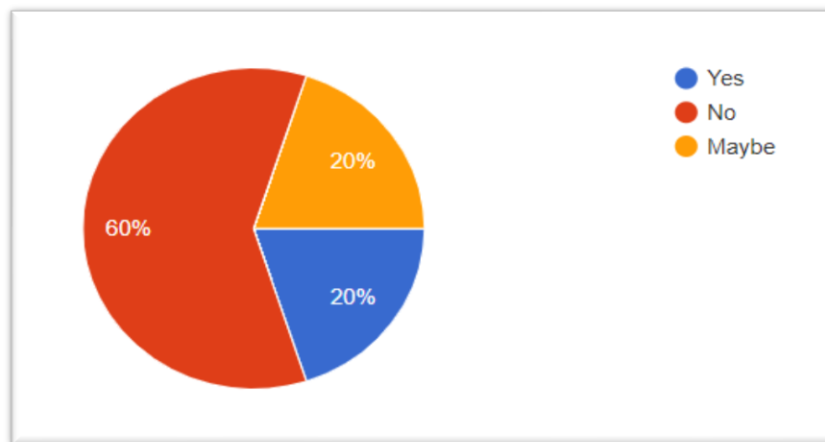

figure 4:Have you had any heart problems?

3. If yes, do you think this device will help you to control your heart rate?

Most users of 46.7% think the device will be helpful for people with heart disease. In contrast, a small proportion of people of 13.3% thought it would not work. Still, others said it was not sure if it would be useful
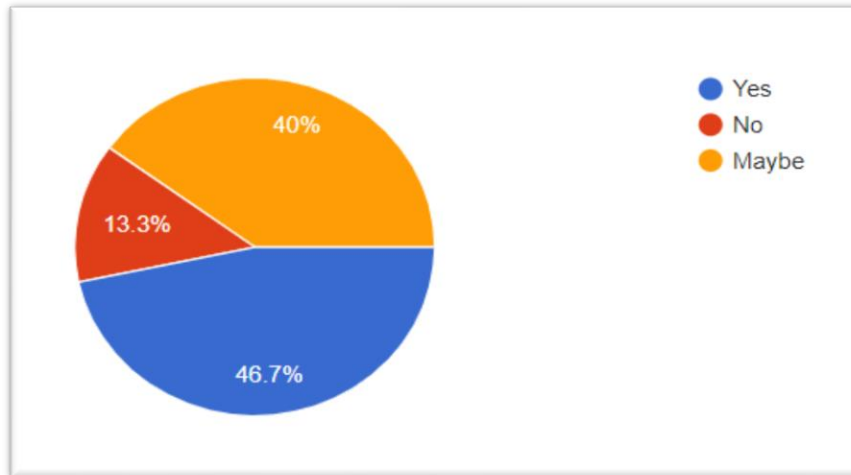
figure 5: do you think this device will help you to control your heart rate?

4. Why did you choose this product to check your heart rate?

When asked why they chose this product, most answered it more conveniently and saved time and money than going to the hospital. Here are some answers surveyed by users:

I don't know

Product give me infomation my heart rate

I need a heart check app on my phone so I don't waste time going to the hospital

Because this product helps me have a health check quickly and does not cost much to go to the hospital.

Because i got problem wirh my heart

Because it is convenient and easy to use.

no i dont choose this product

Because it works and uses it very well

because it is very good and easy to use

figure 6: Why did you choose this product to check your heart rate?

5. Have you ever heard of light sensor technology?

Most people have heard of light sensor technology, about 73.3%. Others are not sure if they know the technology yet. But no one answered "No".
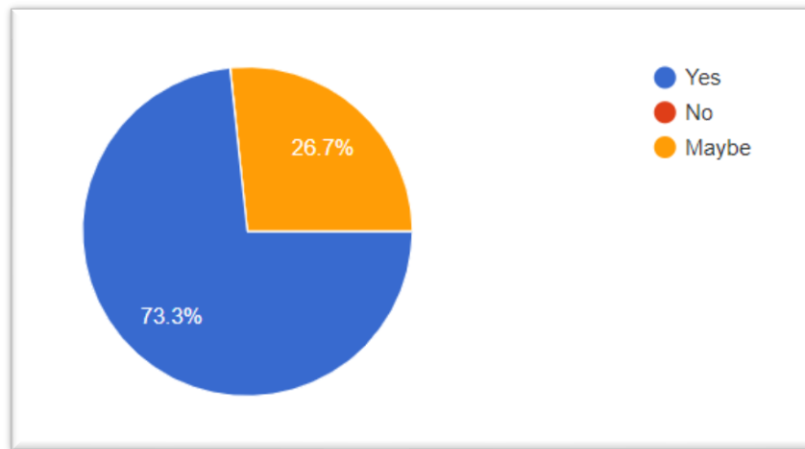

figure 7: Have you ever heard of light sensor technology?

6. This technology is also integrated into the product, do you think it really works?

By knowing this technology is applied to HRM, most people approximately 73.3% agree that this technology will work effectively and accurately. The other one they think is not sure will work effectively. Only very few users think it will not work well.
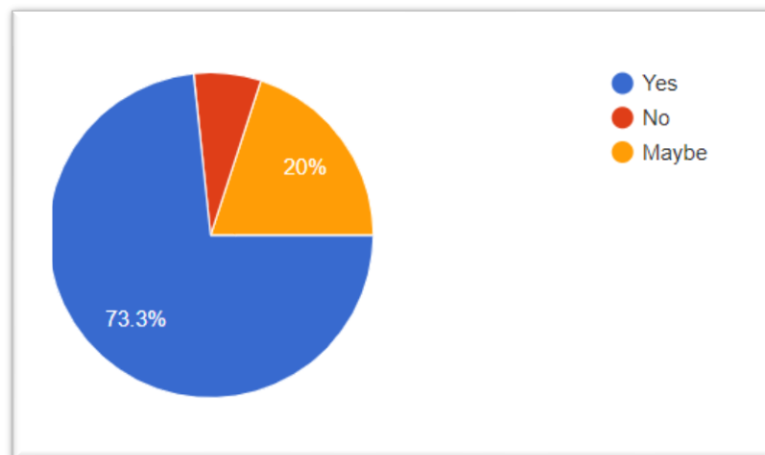

figure 8: This technology is also integrated into the product, do you think it really works?

7. What do you think about the design and user interface of the product?

The design and user interface are well commented on by most people. Only about 6.7% thought it was unreasonable.
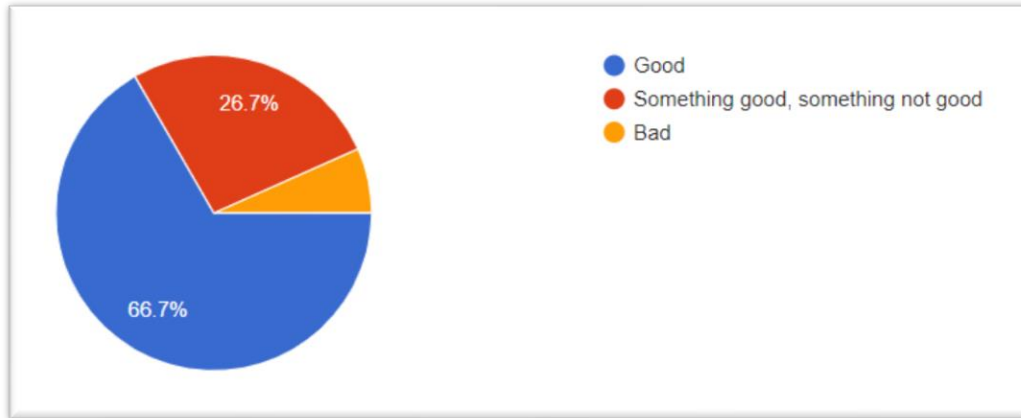
figure 9: What do you think about the design and user interface of the product?

8. How long does it take you to use HRM each time?

Using products according to the survey saves a lot of time for everyone, instead of going to the hospital for hours.
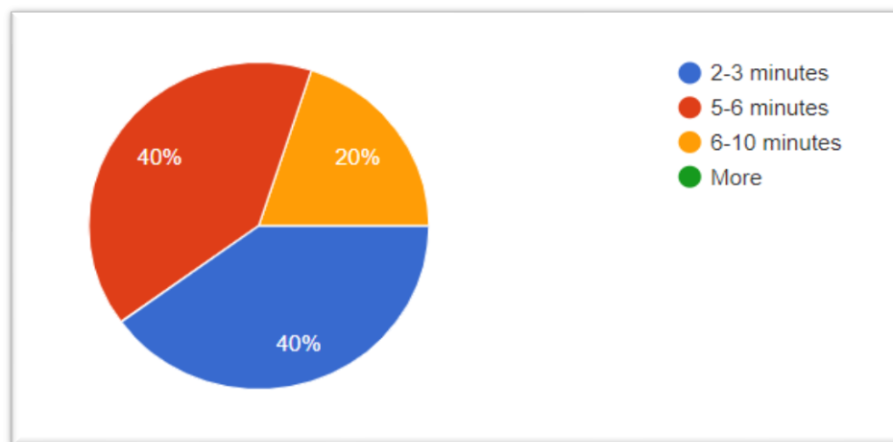

figure 10: How long does it take you to use HRM each time?

9. When using HRM helps you save time or save money?

According to the survey, using this product has saved a lot of time and money for users, especially time to help people without having to go to medical centers.
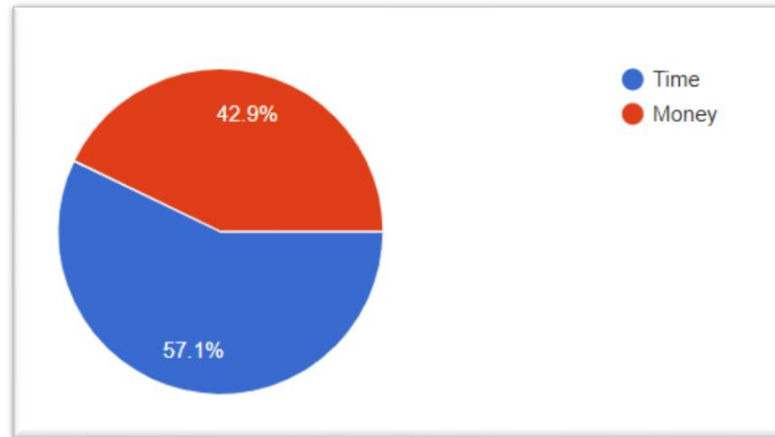
figure 11: When using HRM helps you save time or save money?

10. What did you feel after using this product?

After a period of use, most people are satisfied with the quality of the product, their health improves, especially on the heart.

feeling good

Happy

Very pleased

I feel very good, my health has improved significantly thanks to the data collection application so that I can know my health status.

satisfied with the product

never

I feel better, especially in terms of heart

I feel very good

After using, I found your product is quite stable as well as easy to use, convenient, accurate information

figure 12: What did you feel after using this product?

11. After measuring the beat, is the device's advice useful to you?

Most people agree with the advice given by the product. Besides, about 23.1% of users do not think this advice is effective.
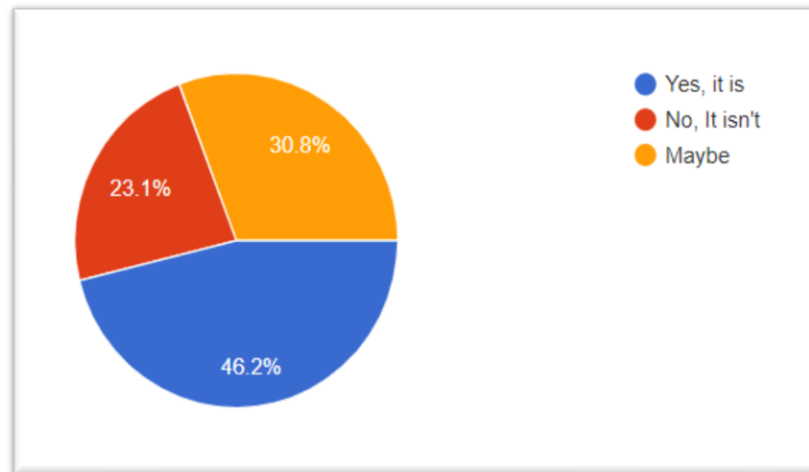
figure 13: After measuring the beat, is the device's advice useful to you?

12. **Would you be willing to share this product with your acquaintances?**

76.5% of users say they are willing to share this product with their relatives. About 11.8% answered "No", the other was still thinking.

figure 14: Would you be willing to share this product with your acquaintances?

VI.   Finding of research

Through the results of product reviews from users and qualitative and quantitative studies, our team has summarized the following:

HRM is a great device that uses light sensor technology to help users control their heart rate in the most convenient way, by **saving users' time and money instead of going to the hospital**. for medical examination and treatment.
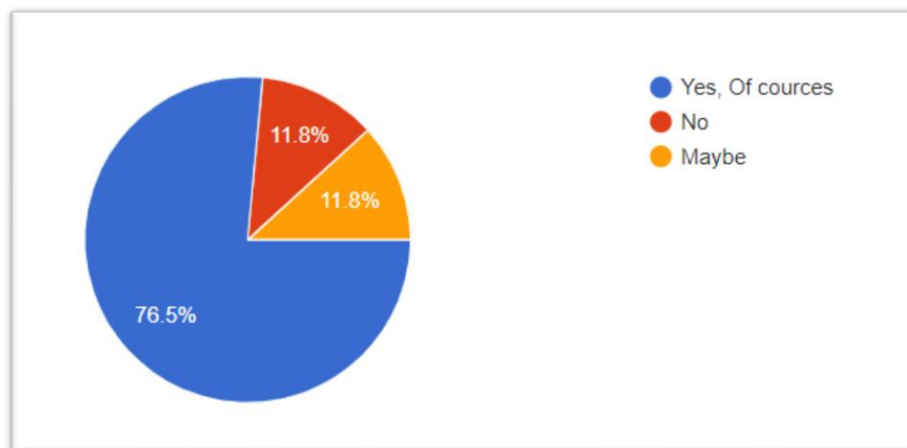
Through interviews that collect information from users about the product, most only take a few minutes to check your own heart rate. Reduce more than half the time to hospital
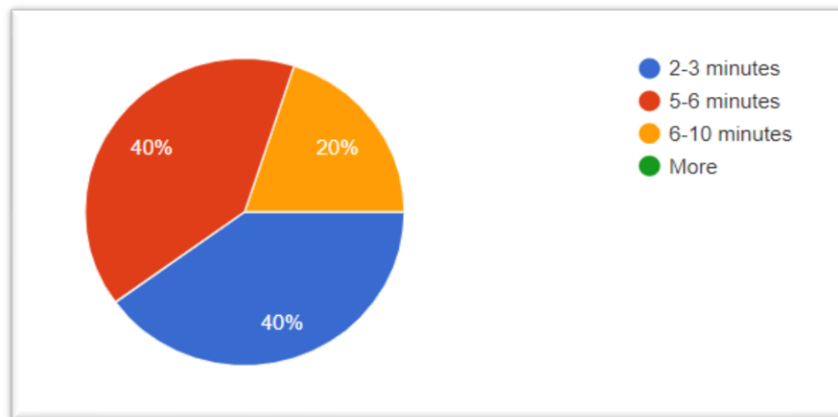

figure 15: HRM saves time instead of going to the hospital

People can greatly reduce their heart rate checking time by the technology applied on the device. Regarding the mechanism of action, From the eye the optical sensor on the Watch will project a beam of blue and infrared light to shine into the bloodstream. Through research, it is said that blood is red because it reflects red light and absorbs blue light. As your heart beats, the amount of blood flowing through your wrist increases, blue light is absorbed more.

The LED will blink hundreds of times per second to calculate the number of times the heart beats per minute and that is the result of the user's heart rate (Zimmermann, 2013). Thanks to that, everyone will save a lot of time instead of going to the hospital.

By using the device, **users can improve their own medical condition**. After checking the user, the software will immediately give advice based on the results to improve the user's heart rate, which will be available on both devices and applications connected on the phone. Through the data collection survey, about 46.2% of users think these tips are useful for them and can improve their status.

According to the survey, most users made good comments on the advice that the device provided, they all improved their situation and almost 46.2% followed those tips, only about 30.8. % of users did not follow.
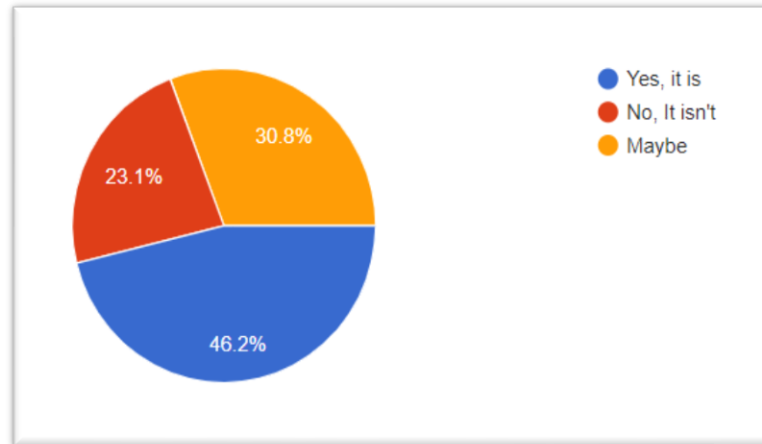
figure 16: After measuring the beat, is the device's advice useful to you?
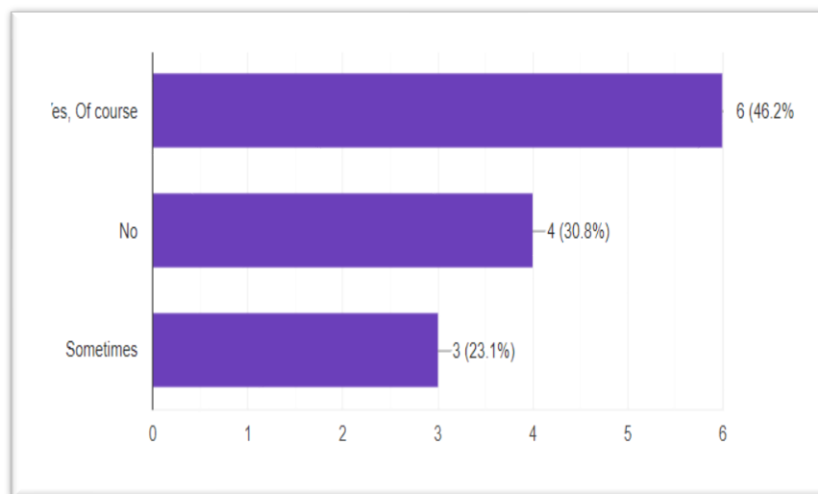
figure 17: Did you follow the advice given by the device?

This device not only helps people suffering from heart disease to be checked quickly and accurately but also very useful for athletes. Even when used temporarily, it will help athletes find out how they feel at a given heart rate and they will become a better judge of exercise stamina and any limits. come on. The heart rate monitor is also useful for new fitness users because the device helps them set limits and track their progress (Quinn, 2020)

VII.   Conclusion

As the project manager of the Heart Rate Monitor (HRM) product development project, I researched the impact of Digital Wellbeing on reality through the impact mentioned above with the data studied through surveying users, I deployed WBS and Gantt chart to manage time, by the deadline to bring products to users as planned. I also conducted a risk assessment and came up with feasible solutions for the project

to limit the project, I used project management methods such as project planning, goals, scope, and Costs were given to calculate the project in more detail. The chain of activities among group members is also given with appointment notes, group discussions on Facebook.

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Appendix

Team Minutes:

<table>
<tr><td colspan="4" style="background:#8ecae6">HRM Team Meeting</td></tr>
<tr><td>MINUTES</td><td>28/02/2020</td><td>8 AM</td><td>GCH0715</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td>MEETING CALLED BY</td><td colspan="3">Team</td></tr>
<tr><td>ATTENDEES</td><td colspan="3">Nguyen Duc Cuong (GCH18641), Vu Viet Duc (GCH18615), Vu Anh Tuan (GCH18631), Do Van Truong (GCH18627), Duong Duc Anh (GCH18611)</td></tr>
<tr><td>ABSENTEES</td><td colspan="3">-</td></tr>
<tr><td>MINUTES</td><td colspan="3">Nguyen Duc Cuong</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="4">Agenda topics</td></tr>
<tr><td>10 MIN</td><td colspan="2">Group Establishment (Refer minutes)</td><td></td></tr>
<tr><td>DISCUSSION</td><td colspan="3"></td></tr>
<tr><td colspan="4">Discussion: members meet and decide to set up a project team, Get to know and Exchange mobile phone numbers with each other…</td></tr>
<tr><td>CONCLUSIONS</td><td colspan="3"></td></tr>
<tr><td colspan="4">Introduce yourself, everyone's strengths, weaknesses, personalities and ways of working</td></tr>
<tr><td>ACTION ITEMS</td><td colspan="2">PERSON RESPONSIBLE</td><td>DEADLINE</td></tr>
<tr><td>Giving practical ideas about the project, the members will come up with common views and assessments about the idea, develop ideas when that idea is considered practical for the project.</td><td colspan="2">All</td><td style="background:#b6f5b6"></td></tr>
</table>

<table>
<tr>
<td>GENERAL NOTES</td>
<td>

Mobile details:

- Cuong: 0336 424 121
- Duc: 0901 568 232
- Tuan: 0869 129 114
- Truong: 0355 480 763
- Duc Anh: 0819 901 568

</td>
</tr>
</table>

Table 6: Team Meeting