Introduction to Marketing Report

Remote Patient Monitoring Systems

Group A2

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Introduction

World Happiness Index

The World Happiness Index is an attempt to measure and correlate with various material factors the average happiness of a population. The World Happiness Index is computed every year by the World Happiness Report.

The report's survey consists of asking participants to evaluate and report their own happiness on a scale of 0 to 10. The survey's methodology is described as the "Cantril ladder method". [Cantril]

In the Cantril ladder method, participants are required to conceive of their happiness level in life as a ladder of 10 levels. The highest level is the most happy possible life for the participant and 0 is the worst possible life for the participant in terms of happiness. After conceiving of the ladder; they are asked to evaluate their current life on said ladder.

The ratings given by a participants in a given population are correlated with material variables. This correlation ensures that the happiness index is not understood purely as a subjective measure but has a basis in material reality. For example, one might expect that at similar levels of economic development (similar real GDP per capita), more unequal countries are likely to report lower levels of happiness. Similarly, countries with nationalised and free public healthcare and education facilities (such as Western Europe) are expected to report higher levels of happiness than countries on a similar level of economic development without such public services. Indeed, the United States, despite having a much higher economic output than Western Europe has a much lower happiness index rating than Western Europe [World Health Index 2022]. Of course, a singular variable is not enough to account for this - the United States fails in many more aspects.

For another example we might consider unemployment and the general bargaining of labour. Since most people are likely to be employees and not employers it is to be expected that giving more bargaining power to organised labour is likely to bring the happiness index. Indeed, we see this - the happiest countries in the world are indeed the Scandinavian countries - all of these also have the highest trade union membership in the labour force and very strong social welfare programs even though they have a lower real GDP per capita than many countries in Western Europe. [World Health Index 2022]

Factors affecting happiness index

From an abstract point of view, we would expect that the happiness index would be determined most importantly by the conditions necessary for the sustainability of material life. By this we mean safeties such as security of food, shelter, healthcare, and employment. Secondly, the quality of non-essential consumption - this includes the general quality of consumer goods and availability of the means of consumption that ensures a good standard of living. Thirdly, the means of self-actualisation - this includes but is not limited to the means to engage in hobbies and the overall availability of leisure time. We should expect countries with lower working hours to score higher than countries with higher working hours.

Concretely, the happiness index measures the following macrovariables :

1. real GDP per capita
2. Social support
3. Healthy life expectancy at birth
4. Freedom to make life choices
5. Generosity
6. Perceptions of corruption and faith in civil institutions

For the measurement of the subjective perception of happiness the happiness index uses the general measure of well-being. Some of these microvariables :

1. income adjusted to purchasing power parity
2. Health problems
3. Ability to count on friends
4. Perceptions of freedom
5. Age < 30
6. Age 60+
7. College
8. Institutional Trust

It is important to note that happiness is difficult to measure and is highly subjective; general human development is easier to measure but still involves a heavy dose of subjectivity. Despite this, on a population wide level - these subjective differences tend to average out and the macrovariables give an arguably better picture of the state. Our product therefore focuses more on these macrovariables - in particular healthy life expectancy at birth.

Our product

Our product $name focuses on improving the life expectancy at birth macrovariable in the analysis of the happiness index. Since a very large portion of the population aboce the age of 20 is at high risk of type-II diabetes : 55.5 for men and 64.6 for women [Luhar et al 2020] and this age range comprises a significant percentage of the population it is expected that increasing the quality of healthcare for this age group is likely to significantly uplift the happiness index for India.

Our products, Smart Glucose and Smart BP are a remote patient monitoring system. A remote patient monitoring system consists of medical devices that are worn by the patients with monitoring of their vitals - such as blood glucose or blood pressure or heartbeat or any other biometric. This biometric data is then broadcasted to the physicians assigned to the patient and fed to machine learning algorithms to infer diagnostic and prognostic statements from the data.

We provide two such services - blood glucose monitoring and blood pressure monitoring. Along with both of these, patients will be provided with all the necessary medical equipment and a virtual health assistant while physicians will be provided with all the data and virtual prescription mechanisms.

Raising the happiness index

Our primary target remains diabetes and hypertension since these are extremely relevant for increasing the life expectancy at birth macrovariable of the happiness index. A better healthcare is arguably the simplest (not necessarily the easiest) way to enhance the happiness index.

Why is it likely that our product would reduce complications due to hypertension and diabetes? Note that neither disease is curable - treatment relies primarily on the treatment of symptoms and on ensuring that one lives within their biological means, i.e., lifestyle changes.

How does one ensure that lifestyle changes are enacted upon and any deviations handled accordingly? Digital medicare is arguably the best option one has. Our devices are very easy to carry and therefore can be employed at any time when necessary. It is therefore imperative that the risk of complications due to ill-handling of symptoms is greatly reduced.

Our virtual assistant uses machine learning algorithms to predict the health of the patient in question and push notifications to them in the scenario that there might be health risks or health deviations. No competitor in the market exploits machine learning to predict patient health and it is likely that this prediction strategy can prevent severe health complications for many a patient.

Key features and pricing

Major features for blood pressure monitor include :

- Systolic and diastolic measurement
- Pulse measurement
- Irregular heartbeat indicator
- Senior-friendly cuff placement indicators
- Cell network connectivity
- Automatically streams data to the practice with no user intervention
- Transmission progress and completion indicators

Major features for blood glucose monitor include :

- Cell network connectivity
- Test strips included at no cost to the patient
- Automatically streams data to the practice with no user intervention
- Handheld meter

Our services will be offered to hospitals and healthcare centres for a cost of $cost per annum.

Segmenting and targeting the product

Market Segmentation

Market segmentation is the actual process of identifying segments of the market and the process of dividing a broad customer base into sub-groups of consumers consisting of existing and prospective customers. By dividing the market into segments, marketing managers can acquire a better understanding of the needs and wants of customers. This enables them to customise or to “tailor” the company’s marketing activities more accurately and responsibly to the individual customers’ likings.

The traditional variables that may be used for market segmentation can be grouped into five main categories: (i) Demographic; (ii) Geographic (iii) Psychographic; (iv) Behavioural.

Market Targeting

Once the market segmentation has been completed, the company should be aware of the needs and wants of its selected segments. It is in the interest of the business to identify any untapped needs in the marketplace, as there could be customers who may not be adequately served by competitors. It is then necessary to identify the most profitable segments and to decide which segments will be served. There are three market coverage alternatives which can be applied; undifferentiated marketing; differentiated marketing and concentrated marketing.

Demographic Segmentation (on the basis of age group) :

- **Smart Glucose:**

The risk of developing diabetes increases with age. The CDC report that 4.0 percent of people aged 18 to 44 years are living with diabetes, 17 percent of those aged 45 to 64 years, and 25.2 percent of those aged over 65 years. [CDC]

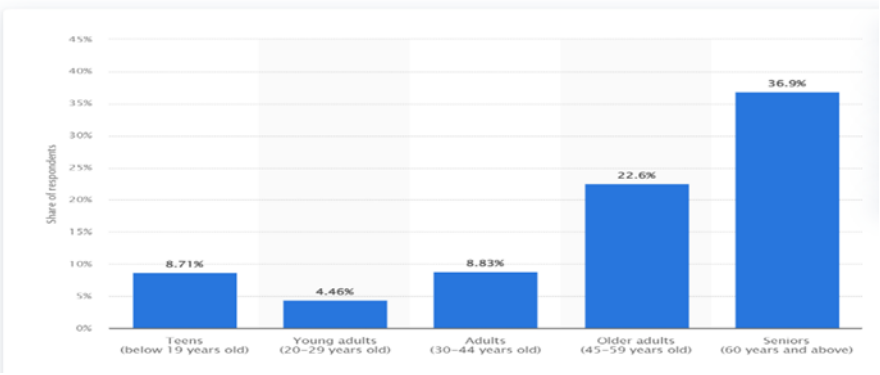

Figure 1: Distribution of diabetes

- **Smart BP:**

The risk of high blood pressure increases with age. Until about age 64, high blood pressure is more common in men. Women are more likely to develop high blood pressure after age 65.

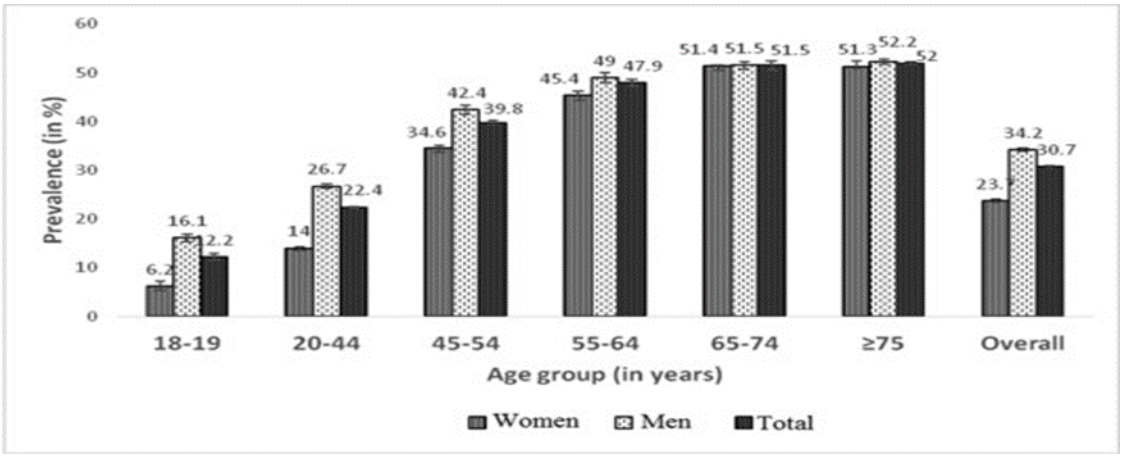

Figure 2: Prevalance of high blood pressure

Geographic (on the basis of state) :

- **Smart Glucose:**

As per the research or various data, southern states like Kerala, Tamil Nadu, Andhra Pradesh and northern states like Jammu Kashmir, Ladakh need treatment for diabetes.

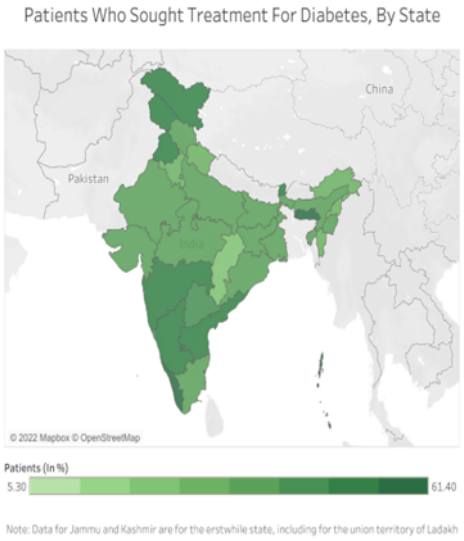

Figure 3: Diabetes treatment rates across India

- **Smart BP:**

As per the research or various data, states like Sikkim, Assam, Himachal Pradesh ,Tamil Nadu, Bengal, etc. are more prone to hypertension or high blood pressure. The data also shows a very high rate of hypertension in the former state of Jammu and Kashmir and it is to be expected that the present union territories of Kashmir and Laddakh likely have a similar distribution.

Psychographic (on the basis of economic capability)

Smart BP and Smart Glucose:

Lower income: Generally these class of people do not comes in the market of our product as they are not economically well to buy our product.

Higher income: These class of people are best for our product as they are economically stable and can use our product frequently.

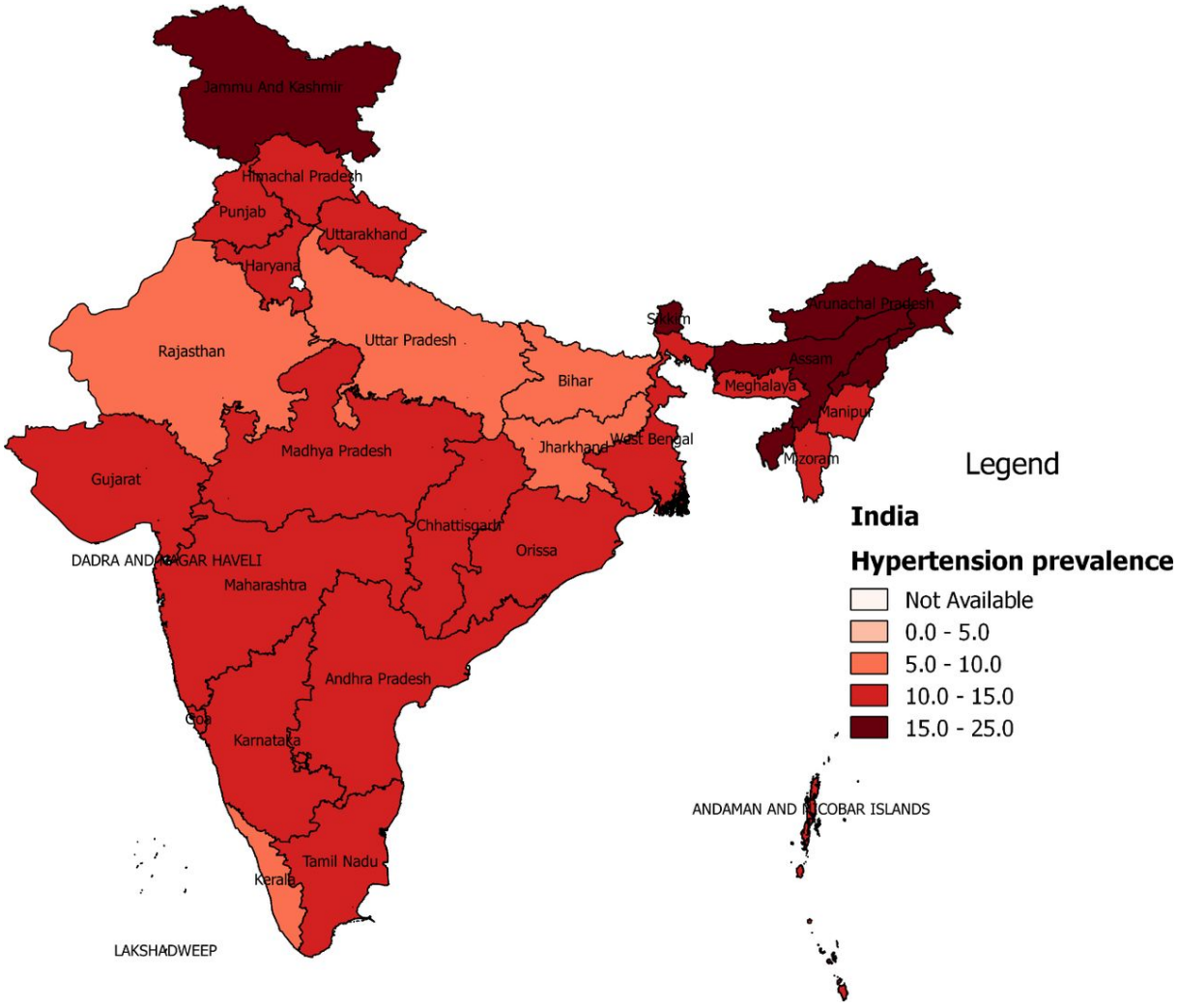

Figure 4: Hypertension rates across India

Behavioural(on the basis of buying frequency)

Smart BP and Smart Glucose:

On the basis of buying frequency , we can differentiate between our regular customers(that are suffering from chronic diabetes or hypertension) and those who are experimental buyers, it will help us to know the location where we need to strengthens our supply chains and storage capcacity.

Market Targeting For Our Products

Our Target audience will be a person from the age group above 45 years (middle age person) and belonging to middle and high income urban group, as these group of people are more sought to take treatment and also are capable of taking treatment and the middle or higher class people are educated to use these products frequently and understand the product.

for the expansion of our company , we will produce product in the state where the population of having more diabetic patient such as southern state(kerala,Tamil nadu, Andhra Pradesh) etc , or blood pressure patient such as eastern state(Sikkim ,Arunachal Pradesh, Assam) etc is more , as availability of product will be readysome in high demand areas to maintain continuous supply chain.

Designing and suitable product mix and promotion mix for the product

Brief about Smart BP and Smart Glucose Devices:

Firstly, these are remote patient monitoring devices. In general, if there are any chronic or acute health symptoms raise, we will rush to the nearest hospital, but our devices will make sure what steps to take next if you are already affected. These devices are linked to the patient and the practitioner.

In these devices, the practitioner is always available to the patient online and whenever the practitioner requires the patient’s BP level then they will send a notification so that the patient checks at a particular interval.

Functions in Smart BP-

1. Pulse measurement
2. Irregular heartbeat indicator
3. LED display screen
4. Systolic and diastolic measurement

Functions in Smart Glucose-

1. Smart glucose results within 5 seconds
2. Test strips included at no cost
3. Color LCD monitor
4. Rechargeable battery

Product Mix

Product mix, also known as product assortment or product portfolio, refers to the complete set of products and/or services offered by a firm. A product mix consists of product lines, which are associated items that consumers tend to use together or think of as similar products or services.

Dimensions of Product Mix:

- Width: Refers to the number of product lines offered by a company
- Length: total number of products in a firm's product mix
- Depth: It refers to number of variations within a product line.
- Consistency: refers to how closely related product lines are to each other.

Illustration of a Product Mix:

Smart Health:

Product 1	Product 2
Smart BP	Smart Glucose
Hypertension / High Blood Pressure (HBP)	Diabetes Type 1
Treatment of High Blood Pressure	Diabetes Type 2

- Both the products Smart BP and Smart Glucose come under different product lines as they both serve different purposes, and both devices have different target audiences.

Smart BP:

It maintains a record of patients' blood pressure. It checks the conditions to reduce Hypertension/High Blood Pressure, and white coat syndrome and shows the treatment for high blood pressure.

- This device provides practitioners the fastest and most accurate reading using an advanced measuring technique.
- Patient blood pressure is automatically sent to you and available in a practitioner-centric portal, so you can better care for your patient between visits.
- The blood pressure cuff automatically streams data to the practice with no user intervention.
- The target audiences for this product are from the age of 40 and above who have BP.

Smart Glucose:

- It measures patient glucose levels.
- This device consists of the meter itself, test strips and control solution.
- The glucose meter uses a small drop of fresh capillary whole blood placed on the test strip to produce an electrical current which is read by the meter to produce a glucose level reading. The meter displays the result within 5 seconds to your patient and streams that information directly into the practitioner portal so you can review it and analyze it over time to see trends in glucose levels.
- This device will provide knowledge on Diabetes Type 1 and Diabetes Type 2.
- The target audience for this product is diabetic patients.

Maintaining high product width and depth puts any company at risk as their own products fight among themselves. So, our company's smart health has been designed in such a way that no two products will conflict.

Promotion Mix

It refers to a set of different marketing strategies that are used by the marketer to reach their product to the maximum number of people.

Some of our promotion approaches:

- Free shipping to patient

- Concierge setup and education
- Unlimited support
- Free Battery exchange
- Free device replacement
- These devices are more helpful for people who have some knowledge about how to use smart devices. But we will be doing a campaign in rural areas to educate the illiterate people and we will explain how our devices will work, the contents mentioned in it etc.
- There will be options like people may call anytime to clear their confusions. Also, we have included many tutorials in that devices to get the knowledge about their health conditions.

Strategies to be applied at various stages of PLC

What is the Product Life Cycle?

The stages that a product goes through as it enters, establishes itself, and leaves the market are defined by the Product Life Cycle (PLC). The product life cycle, in other words, outlines the stages that a product is likely to go through. Managers can use it to examine their products and create plans as they move through different stages. The four distinct stages of the product life cycle are introduction, growth, maturity, and decline. The marketing position of the product changes with each step.

1. Introduction: Customers are first exposed to the new product during the introduction phase. In general, a business must make a sizable expenditure in marketing initiatives to educate consumers about the product and its advantages, especially if the product's potential uses are not widely known. During the introduction phase we will pay attention to the following marketing factors :

- We will consider a rapid penetration price strategy where we will charge a relatively low price for a short period of time where we could target a larger audience if not a dominant share. We will bare losses in beginning and later on we can increase the price when the demand from the consumers would increase .
- We will try giving introductory offers by providing some attractive gifts to attract the customers.
- We will set up consumer tests and provide samples or trials to key target markets so that people who are buying Blood Pressure Cuff or Blood Glucose Monitor get ensured of the products working capabilities.
- We will ensure that there are no product deficiencies at our distribution outlets.

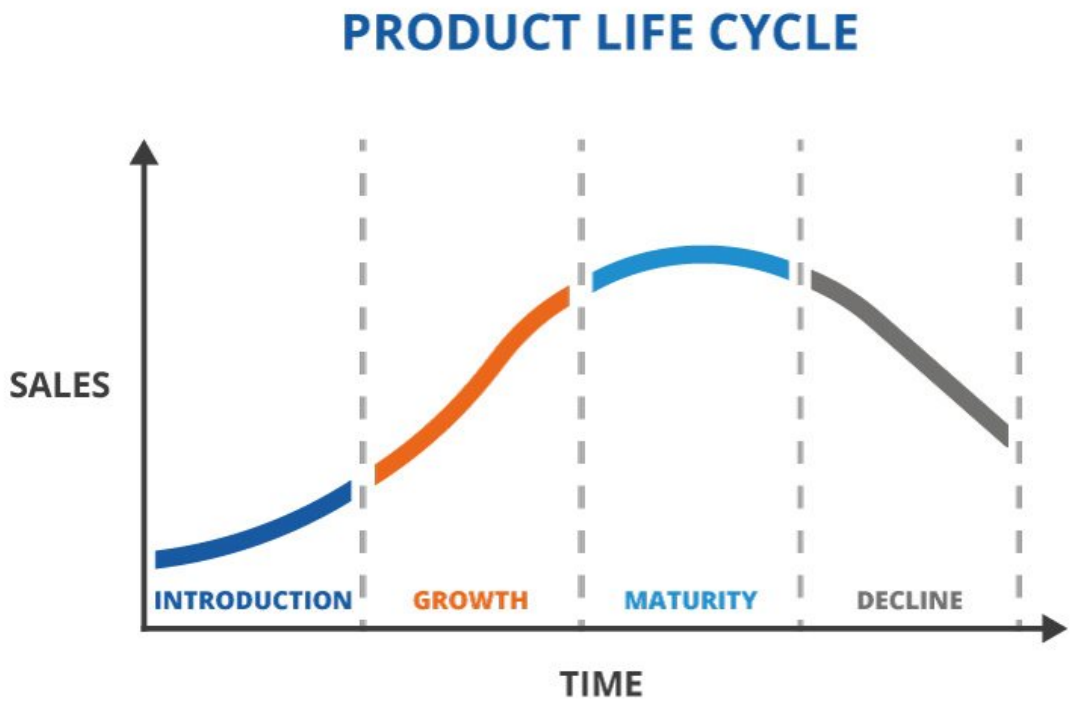

Figure 5: Product lifecylce

- We will connect with right partners to promote the product, for example we can promote our products with the help of certified doctors who can explain the importance of remote patient monitoring to their patients as they can keep track of their patients in their absence also.
- We will try to build our brand awareness at an early stage so that people get aware of the excellent features of Blood Glucose Monitor and improve their health lifestyle.

2. Growth: The product will move into the growth stage if it maintains its success and continues to satisfy market demands. Sales revenue often increases dramatically from the launch point during the growth period. The product gains in popularity and recognition throughout the growth phase. If a product is subject to intense competition, a corporation may nonetheless decide to invest extensively in advertising. However, marketing strategies will probably focus more on how to set their product apart from competitors than on how to get their products on the market. During the growth phase we will pay attention to the following marketing factors :

- Our first aim would be to improve the product quality by adding more innovative features to Blood Glucose Monitor and Blood Pressure Cuff.
- We will try entering new market segments and promote our product to a wider audience by telling them the importance to govern the Glucose Levels and Blood Pressure frequently to ensure their good health.
- We would try shifting our marketing promotional messages from product awareness to product preference on how our product is better as compared to our competitors.
- We would increase the distribution channels of our product so that we can cope up with the growing demand.
- We can increase the price to a reasonable level so that our product's demand remains constant or increases.

3. Maturity:While production and marketing costs decrease, the mature stage of a product's life cycle is the most lucrative. Trying to sustain profitability and stop sales from falling is the maturity stage's primary problem. In the maturity stage, maintaining client brand loyalty is crucial. During the maturity phase we will pay attention to the following marketing factors :

- We will try changing our target markets by selling our product to people whose blood pressure or blood glucose levels are normal so that they can keep a check of the same in regular intervals of time.
- We will try winning over competitors consumers by attracting them to our product by enhancing the current features keeping in mind the feedback we received in the earlier two stages.
- We will try selling our product with the help of offline dealers as our new distribution channel so that we can compensate the losses if any during the time of online promotion or promotion with the help of doctors.

- We will ensure that more benefits are provided to the customers e.g. we can extend the warranty period of our Blood Glucose Monitor .
- We can improve our packaging and ensure free delivery if consumer buys both our products.

4. Decline: Sales of the product start to diminish during the decline stage, and profitability also drops. This is mainly because new, inventive items that better meet consumer wants than the current offering have entered the market. During the decline phase we will pay attention to the following marketing factors :

- We will focus on the promotional schemes and reduce the promotional expenditure.
- We will ensure good packaging of the product in order to receive positive feedback from customers.
- Discounts would be provided during sales so as to increase product sale.
- A part of the profits generated from these products would be spent in Research and Development for new products.

Feedback mechanisms

Blood pressure cuff and blood sugar monitor

1. **Reviews on Website**

If you have already bought the product, a separate option will be provided to you to notify us regarding your opinion on the Build quality of the Product. After 15 days from purchasing date, your feedback will be collected. This site will be focused on the following features: features of the product, technical errors, customer feedback, and services provided.

2. **Volunteers**

Blood Pressure Cuff is a modern medical device that people living in rural areas may not be aware of. This can be attributed to its lack of availability in rural areas. Our volunteer team has been specially crafted to target rural healthcare users and their feedback will be taken on every visit.

1. **Feedback Centres**

Suggestions and Complaints about the Products or Services given by us will be taken care of as early as possible. The direct comments received from the customers will be collected and analyzed at each feedback center to find out existing loopholes or service issues. We shall formulate a proper strategy that addresses the feedback received from our customers in an effective manner.

4. **Survey**

Figure 6: Functioning of volunteers on the basis of feedback loop

The Device will be sent to the customer by a courier and upon receipt, two forms will be generated one regarding technical errors in the product produced and another in which there was no technical error but the problem was related to services provided by our company in terms of quick response to the customer problems.

Figure 7: Collecting data from the customers through a survey

5. **Helpline number**

Customers will be able to share their experience with the product by clicking on a phone number. A helpline number will be generated so that customers can reach out to us without the effort of moving to a feedback center that is very far from them.

Conclusion and limitations

There is a significant probability that our product will improve the healthcare related factors over the long term. Diabetes and hypertension are serious disorders that can benefit greatly from the prevention of serious episodes and the AI-aided management of symptoms. The physician having consistent and ever-present medical data of their patients ensures that there is a dialectical relationship between both patient and physician. On the other hand, due to a high cost of production of devices and sync software the service is not yet affordable for the lower income bracket. We wish to fix this as soon as possible through innovation and automation in the production process.

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