

Hearing Aid using Artificial intelligence

Executive Summary

One of the most exciting developments in recent times has been in the field of artificial intelligence, which aims to solve complex problems while simultaneously improving people's lives and the world around them. Because it is one of the most significant concepts of AI, the creation of a human hearing device is intended to be of use to humans throughout their entire lives and allow them to better appreciate the pleasant sounds of their surroundings. It was attempted to apply signal processing in order to get around the disadvantage of the amplification of noises, but these efforts were unsuccessful. The voice-activity detector was utilized to recognize the pauses between people's utterances, and it labeled the noises that happened during those pauses as being noise. This allowed the detector to classify the sounds that occurred during such pauses. Because of this, using this tactic, they attempted to construct an algorithm that removes the noise from the recording that was first used. This was done using the technique. This procedure is known as spectral subtraction in the mathematical jargon of the discipline. Unfortunately, employing this method to remove the noise resulted in either an excessively large quantity of noise removal or an insufficiently large amount of noise removal. The users of the AIAid gadget will be able to differentiate between the many voices they hear, and the device will also enable filtering of the voices to reduce undesirable background noise.

Hearing aids that are powered by artificial intelligence will be one of the products that AIAid plans to sell when it begins its commercial operations in the market in the United Kingdom, which is expected to happen in the not too distant future. People whose hearing is impaired and who require the assistance of hearing aids in order to hear better, particularly in crowded and noisy surroundings, can benefit from the firm's efforts to improve the quality of life. This is the objective of the company. The device, which will be manufactured by the company and function in the same way as a person's natural ear, has been developed by the company using state-of-the-art technology and artificial intelligence. The company is also responsible for its development.

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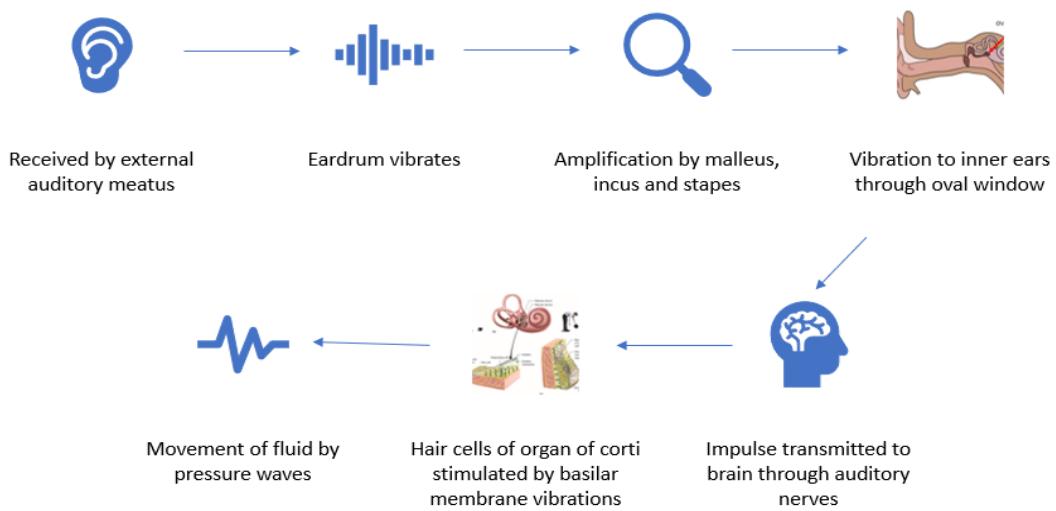
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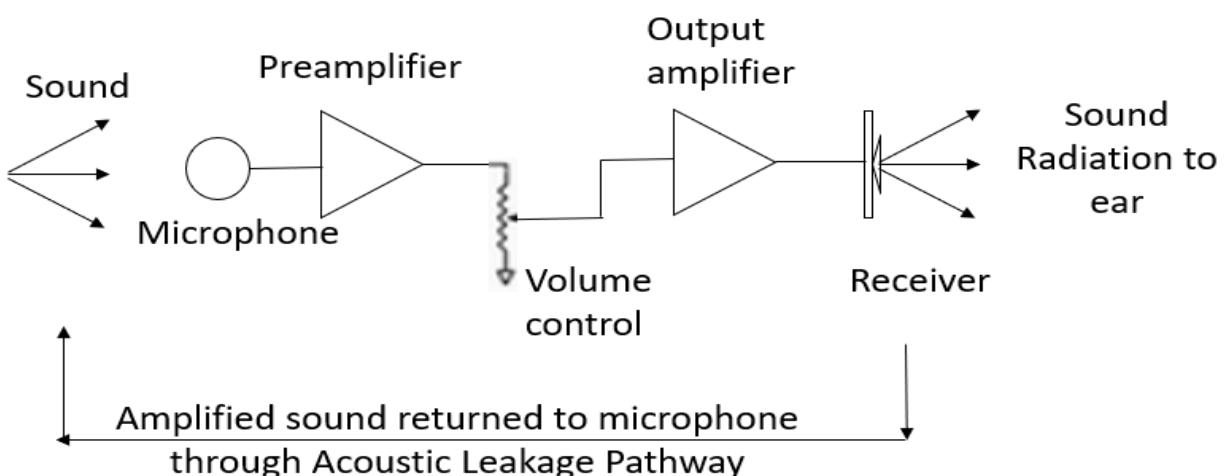
1. Business Proposition:

1.1 Introduction

Artificial intelligence (AI) is one of the most promising concepts in the present times. The AI was created to see if a computer could convince a human that they are dealing with another human instead of a computer. Since 1950, machine scientists have been in pursuit to see if they could create a computer that could function or mimic human cognitive processes, and that's how AI has become an important technology today. A hearing aid is a small device that is worn behind the ear to make the sound louder for a person with a hearing impairment. Embedding AI in upcoming products is a new fad and the hearing aid industry is no exception. The ordinary hearing aid functions as follow:



The function of a hearing aid can be outlined as follows:



Hearing loss can occur suddenly but usually develops gradually. General signs of hearing loss can include:

- difficulty hearing other people clearly and misunderstanding what they say
- asking people to repeat themselves
- listening to music or watching television with the volume turned up higher than other people require

1.1.1 Problem Statement

Ordinary hearing aids possess the following disadvantages:

- They amplify all the sounds including the background noises which will confuse the users.
- Learning to adjust the settings is more complicated.

To overcome the disadvantage of the amplification of noises, attempts were made through signal processing. The voice-activity detector was used to identify the gaps between the people's utterances and labeled the sounds in between as noise. Hence using this method, they tried to design an algorithm that subtracts the noise from the original recording. In other terms, this is known as spectral subtraction. Unfortunately, through this method, too much noise or too little noise was removed.

AIAid:

By embedding artificial intelligence in the AIAid this issue has been addressed at a very large level. By using the features of AI, the hearing aid has been able to differentiate a wide variety of noises. It can differentiate the background noise from speech. In other words, it can mimic the brain which would hear the sound in case the hearing has not been impaired. It compares the complex combinations of settings by collecting user input through a simplified interface. Hence it helps the device to be more user-friendly. The AI-based hearing aid has contributed a lot to improving the quality of hearing of a person with hearing impairment by providing clear hearing even in busy settings by suppressing unwanted noise.

Keeping the current scenario of COVID in mind, it also boosts speech sounds to make the sounds clear even to people who are wearing face masks. Hence artificial intelligence is a game-changer in the field of hearing aids. It not only has led to improvement in the living standards of people with hearing impairment. It has also paved the way to investigate and prevent at earlier stages, further deterioration in the hearing capacity and other co-morbidities such as Alzheimer's disease, clinical depression, diabetes, and many more.

1.1.2 Mission:

The AIAid strives to improve the quality of life of hearing impaired people by proving them with the best hearing aid option in the market regardless of income level and excellent customer service to everyone who is using AIAid

1.1.3 Vision:

To be the leader in hearing aid providers in Leicester

1.1.1 Goal:

The sole purpose of AIAid is to develop the functions of hearing aid and improve the quality of life for hearing impaired people in the UK.

1.1.2 Values:

Innovation, compassion, respect, diversity, and financial sustainability

1.1.3 Rationale

According to RIND (2018), in the UK there are 12 million adults with hearing loss greater than 25 dBHL. This is equivalent to one in five adults. In addition, it is projected that by 2035 in the UK around 14.2 million adults with hearing loss greater than 25 dBHL will be present (ONS.gov.UK, 2018). Therefore, the potential in the market is immense and AIAid start-up is highly justifiable.

1.1.4 Objectives

- Acquire at least 3 hearing clinic contracts to recommend AIAid in the next 6 months. (Short Term)
- Sell 150 AIAid in the first six months of the start-up. (Short Term)
- Achieve close client relationships that add long-term value. (Long Term)

	Objectives	KPI
Financial	Increase financial sustainability for AIAid	Hearing Aids Sales Net Profit Number of returns Hearing Aids Number of returning customers Number of new Customers
Customers	Build a good reputation in the market	Number of Health Care contracts

1.1.5 Business Model

According to Teece (2017), a business model articulates the logic and provides data and other evidence that demonstrates how a business creates and delivers value to customers. AIAid is planning to use a hybrid business model where it will create value by developing differentiated products for specific customer needs. The company will capture value by charging money for

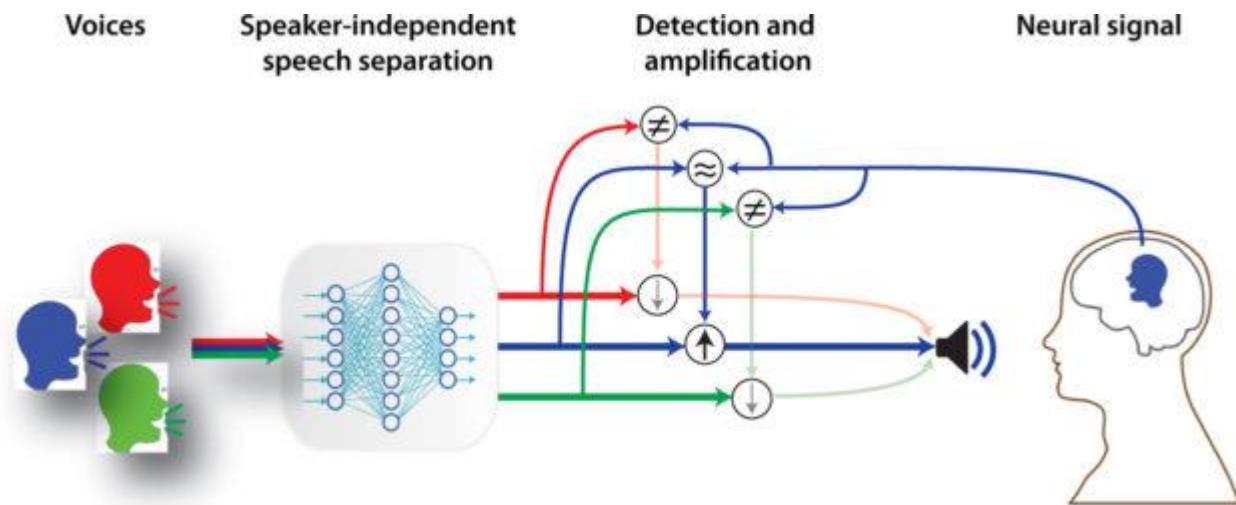
AIAid. While hearing companies are most definitely business-to-business (B2B) organizations, however, the company can also be considered a Direct to Customer (D2C) organization.

The hybrid model reflects that the company will not only use Otolaryngology clinics as the point of sale but also create an online store to sell the product. Syed Mujtaba will work as a corporative CEO who will focus on environmental management and evaluating the opportunities available for AIAid. To initiate the best management structures, the company has planned to recruit professionals in the medical field especially those who specialized in ears.

1.2 The product

Unlike any ordinary hearing aid, AIAid will use integrated sensors and artificial intelligence to improve the hearing experience of users. According to McCormack and Fortnum (2013), the most important reason why people with hearing impairment don't use it is that the hearing aid does not provide enough benefits. For instance, hearing aid user is drinking coffee with a friend in a busy coffee shop and their favorite music starts playing the ordinary hearing aids automatically adjust to only focusing on speech, but the wearer was also interested to hear the music more as well. So the ordinary hearing aids made the decision and sacrificed one for the other. Speech is clear, but your spatial awareness and feeling as a part of your surroundings have been disregarded. This is where AI comes in and enables the wearer to personalize their hearing aid in real-time and gave the wearer a chance to hear exactly what they want to, at the moment.

1.2.1 Function



The AIAid work with integrated sensors where an AI bases hearing aid can automatically amplify one speaker among many. A deep neural network automatically separates each of the speakers from the mixture and compares each speaker with the neural data from the user's brain to

accomplish this goal. Then, the speaker that best matches the neural data is amplified to assist the user. To be successful in the market the product of the company should be of good quality and also should meet the requirements of the customers. AIAid will develop the product using artificial intelligence sensors which will work just like a natural ear of the human being enabling the customers to hear easily and smoothly without any problems. The product will facilitate the customers to overcome their hearing problems and would allow them to perform their routine tasks just like ordinary people (Guajardo, 2016).

2. Understanding the market

2.1 Market

The global hearing aids market is projected to grow from \$10.23 billion in 2022 to \$17.68 billion by 2029, at a CAGR of 8.1% in the forecast period, 2022-2029 (Fortune, 2022). According to the data presented by the British and Irish Hearing Instrument Manufacturers Association (BIHIMA) (2020), the market for hearing aid in the UK is experiencing a good recovery following the COVID-19 lockdown. The data showed that the market for privately sold hearing aids is performing well despite the NHS market. The third quarter sales of hearing aid units from the British private market have shown a growth of 13.6%. However, YTD is still by 26.3%. The trends in the selection of the type of hearing aid are also explored by BIHIMA, the sales of In the Ear (ITE) hearing aids have increased by 6%. However, the market showed a decline in the demand for completely in the canal (CIC) and invisible in the canal (IIC) by 4.7%.

To effectively tap the market AIAid will focus on evaluating its SWOT analysis based on the available information. The SWOT analysis will focus on exploring the strengths, weaknesses, opportunities, and threats will be faced by the business organization. The strengths and opportunities will help the business entity to establish a positive goodwill in the market. Before starting a business there is a need to understand market dynamics by analyzing the company's strengths, weaknesses, opportunities, and threats. The business strength includes innovativeness, marketing, and research experiences. Global hearing aids are always projected to grow at a higher rate within 5 years period. Evaluating companies' strengths and opportunities is important in understanding better approaches to the growing industry (Huynh, 2019). Organizational weakness should be used to gain market advantage. The market is dynamic in terms of demand and supply. Although for the company to grow effectively should be engaged in market research activities. The core principle for this activity is to derive the best mechanisms for maintaining competitive advantage and increasing chances for organizational success.

2.2 Customers

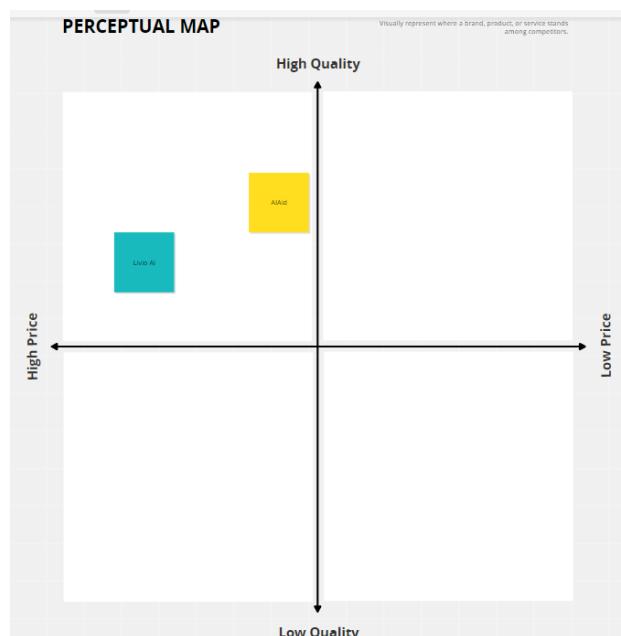
[Hearing Aids Market Size & Share Report, 2022 - 2030 \(grandviewresearch.com\)](https://www.grandviewresearch.com/industry-analysis/hearing-aids-market-size-share-report-2022-2030)

The AIAid will be focusing on adult hearing aid users instead of pediatrics/children. The geographic distribution will be Leicester for Business to Business (B2B) transactions and the UK as a whole for Direct to Customer (D2C) via a virtual platform.

Segmentation	Target
Demographic	Adults 30+
Geographic	Region: Leicester, UK
Psychographic	Social Class: Middle and upper-class markets
Behavioral	Benefits sought: functionality, ease of use, and appearance, Smart features

2.3 Competitors

Livio AI is the biggest competitor of AIAid in the UK market. The company has a high-quality product with varied features of AI used in hearing aids. The average price of the products of Livio AI is 3000 pounds therefore it targets only the high-earning upper-class market. The perceptual map of the competitors helps in knowing about their position in the market (Cho, 2020). The business organization will be able to formulate comprehensive marketing and advertising strategy to reach more customers.



The company will work on improving the quality and standard of its products so that

customer satisfaction can be achieved which will help in increasing the loyalty of customers. Satisfied and loyal customer work to promote the company product and convince their families and friends to use good quality products (Chan, 2013).

Porter and PESTLE are now addressed but not in any great detail and their conclusions are not in depth. If you just think for a moment, the role of these two aforementioned frameworks, they help populate the SWOT, They are not done in isolation. The SWOT has some interesting thoughts relating to your understanding of the requirements from customers, yet they need to be pulled together in some conclusions and used to help shape your business.

2.3.1 PORTER Diamond

Porter's diamond model is used to assess the strategy of the firm and the rivalry faced by the business entity. This helps identify the flaws and weaknesses in the firm's business strategy and to take the necessary measures for making improvements. The competition in the market is intense and all the competitors work to lead the market and earn more business revenue. The factor conditions of the model help assess the importance and utilization of resources of the business entity (Brown, 2012). The company will focus on utilizing human resources efficiently to achieve organizational goals and obtain a competitive edge over others. Demand condition is the factor that is crucial in developing the production plan of the company based on market demand (Carrington, 2010). The size of the market helps to identify the potential customers and their demands shortly. It also helps in knowing about the needs and specifications of customers which leads to making the product successful in the market. The fourth factor of the model is related and supporting industries which are crucial for the business entity to know the domestic suppliers of the raw materials at affordable prices helping the company to achieve a higher profit margin (Al-Turki, 2011).

2.3.2 PESTLE

The PETLE analysis of the business organization is conducted to consider the external environment of the company and its potential impact. The political factors of the country are balanced and stable which leads to increase business activities in the country. Stability in the political conditions of the country is beneficial for earning more business revenue and reaching more customers. The better economic conditions of the UK support the better purchasing power of the customers so more customers can buy hearing devices who are facing problems of hearing (Atalay, 2013). The social factors are better for the business organization as the advertisements and promotional campaigns can include attractive ads leading to attracting more customers. There is increased awareness in the general public to

use hearing devices aided by artificial intelligence. The technological factors have helped the business organization to develop hearing devices using artificial intelligence making the device perfect for distinguishing between noise and unwanted sounds (Bolton, 2011). Environmental factors are crucial to consider and the product should not be harming the environment. The legal factors of the country are supportive and favorable for establishing new business organizations which will help to increase business revenue and profitability of the company (wboc, 2021).

2.3.3 MICRO -12 KEY QUESTIONS (Home)

The home market of the business organization is the UK customers and the key questions related to the market help explore the market potential (Addae, 2021). These customers lead to know how customers view the company products, why they will buy the company products, which other brands can be preferred over the company products, what is innovative characteristics in the company products, and what kind of marketing techniques will help in attracting customers, the competition impact on the products, company position in the market, the growth prospects in the market, the preferred customers in the market, how to compete in the market effectively, strengths of company brands, and the desired growth of the product in the market. These questions will help in improving the market position of the product and achieving the company's goals (harparcollege, 2021).

2.3.4MICRO - Other critical considerations

The business organization needs to consider the response of the customers after buying company products. Positive feedback and customer satisfaction is the most desired thing for the business organization. The business organization will have to consider both positive and negative feedback from the customers and the response of the company to deal with these customers. The business organization will focus on customer satisfaction as it will in maximizing the company's business revenue (ibisworld, 2021).

2.3.5 SWOT Analysis:

Strengths:

- The business organization is dealing in an innovative product beneficial for the people affected by hearing (Etailwest, 2022).
- Artificial intelligence sensors will help business organization to attract more customers.

- The business organization has dedicated employees capable of handling business affairs efficiently.
- The company has an experienced and qualified sales and marketing team which will help to capture more market share (Global, 2020).

Weaknesses:

- The business organization will face more challenges due to new in the market.
- The company has limited investment which can prove to be a limiting factor in utilizing the potential of the market (Dentalcare, 2022).

Opportunities:

- There is huge potential in the market as there are 6.7 million people affected by hearing capacity which can be attracted by the company (Baaudiology, 2022).
- The company products will be supported by artificial intelligence sensors which will work as a natural ear for human beings attracting more customers.

Threats:

- The increased competition in the market will prove to be a threat to the business organization (Anon., 2020).
- The company will have to bear marketing expenses to reach more customers through an effective marketing strategy (Ariwibowo, 2021).

3. Market research

No sampling strategy discussed.

Market research is conducted to understand the targeted market and to reach concluding remarks about the business strategy. Market research was conducted to know about the views and demands of the customers in the market. The product can't achieve the desired result if market research is not conducted as assumptions can help earn the business revenue and profit up to the documentation stage but in actuality, there will be negative results about the product as the market research is fully ignored. AIAid conducted market research through a quantitative survey in which 22 respondents participated consisting of 9 males and 13 females. The questions about hearing aid were asked the participants whether the artificial intelligence-based hearing device is better for them or any other. It was also asked that an AI-based hearing device provides a clear voice and can help distinguish between sound and noise. The questions helped to know about the potential demand in the market for the company products.

3.1 Data Collection Methods:

Data collection is crucial for successful research and to reach a constructive conclusion. It is rightly said that garbage in will lead to garbage out so data collected from reliable and authentic resources helps get the required results (Lotame, 2019). The data collection is done through a survey in which 22 respondents participated and gave their valuable feedback. Two important resources of data are taken in the research projects such as primary sources and secondary sources. Primary resources are a direct form of information taken from the respondents through questionnaires, surveys, and interviews while on other hand websites, newspapers, journal articles, and other internet sources are used as secondary sources of data. The data collected helped in exploring the market of the country (Abbasi, 2010).

3.2 Data Analysis:

The data collected through the survey is analyzed by the SPSS method to simplify the results. The quantitative method is used for research purposes as it is more beneficial for interpreting the results in a simple form. The respondents of the study were asked about the benefits of the artificial intelligence-supported hearing device. The device acts as a natural ear for human beings and facilitates them to hear anything they want without any trouble. It also asked the respondents what type of hearing device they use manual or AI-based. It was also asked that a crowded place how much difficulty they face in recognizing the voices (Anon., 2020).

3.3 Research Ethics:

The increasing problems are caused by criminally minded people who steal information from people around the world and then it is used for different purposes (Libguides, 2014). The research respondents have become more careful in this regard so their secret information should not be shared for any purposes. The research respondents were told that they don't need to be worried about their private information. The participants of the research study need not worry about it as their data is safe. The data will not be provided without their prior consent to any business organization (Collins, 2014).

3.4 Findings:

The finding of the survey helps reach constructive results and know about the real response of the participants of the research study. The results of the survey are given as follows:

Hypothesis 1:

Customers who use AI-based hearing aid can hear better in a crowded place and communicate better. What type of hearing aid do you use? * I can hear better in a crowded place Cross-tabulation

		Neither agree nor disagree	Somewhat agree	Somewhat disagree	Strongly agree	Strongly disagree	Total
AI- based	Count	0	2	0	4	0	6
	% within What type of hearing aid do you use?	0.0%	33.3%	0.0%	66.7%	0.0%	100.0%
	% within I can hear better in a crowded place	0.0%	28.6%	0.0%	80.0%	0.0%	24.0%
Ordinar y	% of Total	0.0%	8.0%	0.0%	16.0%	0.0%	24.0%
	Count	4	5	2	1	4	16
	% within What type of hearing aid do you use?	25.0%	31.3%	12.5%	6.3%	25.0%	100.0%
	% within I can hear better in a crowded place	100.0%	71.4%	100.0%	20.0%	100.0%	64.0%
	% of Total	16.0%	20.0%	8.0%	4.0%	16.0%	64.0%

This table shows the cross-tabulation between what type of hearing aid do you use? and I can hear better in a crowded place, the results show that 2 out of 6 people who use AI-based hearing aid Somewhat agree that they can hear better in a crowded place. Also, the rest of the 4 respondent who uses AI-based hearing aid strongly believe that they can hear better in crowded places.

On the other hand, the total number of respondents using ordinary hearing aid was 16. Out of which 31.3 % (n=5) reported that by using their hearing aid they can hear better in crowded places. However, 25 % (n=4) of respondents stated they strongly disagree that they can hear better in crowded places and 25% were neutral in this case. Only 6.3 % (n=1) of respondents strongly agree with the statement.

Chi-Square Tests

		Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square		30.122 ^a	10	.001
Likelihood Ratio		23.286	10	.010
N of Valid Cases		22		

a. 17 cells (94.4%) have an expected count of less than 5. The minimum expected count is .12.

Null Hypothesis= the type of hearing aid used by the customers is not associated with their ability to hear better in crowded places. The table showed the value of $\chi^2 = 30.122a$ and the p-value = .001 which is less than 0.05. In this case, the p-value is smaller than the standard alpha value, so we'd reject the null hypothesis that asserts the two variables are independent of each other. It means the data collected via surveys suggested that the type of hearing aid (ordinary or AI-based) used by the consumers is associated with their ability to hear better in crowded places.

So it is safe to say that the customers who use AI-based hearing aid can hear better in a crowded place and communicate better.

Hypothesis 2: Male users tend to use hearing aid longer than female users

Gender * How long have you been using the hearing aid? Cross-tabulation

Count

		How long have you been using the hearing aid?					Total
		4 years or more	less than one year	more than a year	more than three years		
Gender	Female	0	5	4	0	9	
	Male	2	5	5	1	13	
Total		2	10	9	1	22	

This table shows the cross-tabulation between genders and how long have you been using the hearing aid. The results show that 5 out of 9 females use a hearing aid for less than a year. The rest of the 4 females use a hearing aid for more than a year.

On the other hand, the total number of male respondents using ordinary hearing aid was 13. Out of which 2 use 4 years or more, 1 respondent use their hearing aid for more than three

years. Also, 5 male respondents use it for more than a year and 5 male respondents replied that they use the hearing aid for less than a year.

Chi-Square Tests

		Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square		27.802 ^a	8	.001
Likelihood Ratio		21.885	8	.005
N of Valid Cases		22		

a. 14 cells (93.3%) have an expected count of less than 5. The minimum expected count is .12.

Null Hypothesis= Gender and time of using a hearing aid are not associated with each other. The table showed the value of $\chi^2 = 27.802a$ and the p-value = .001 which is less than 0.05. In this case, the p-value is smaller than the standard alpha value, so we'd reject the null hypothesis that asserts the two variables are not independent of each other. It means the data collected via surveys suggested that the length of use of a hearing aid is dependent on the gender of the user.

So the target consumers for AIAid would be males as they prefer to use hearing aid more than females.

Hypothesis 3: Users who are satisfied with their hearing aid are more satisfied with themselves and their relationships.

This cross-tabulation will be performed in two steps to test the hypothesis.

Crosstab

Count

		How satisfied are you with your relationships			Total
		Extremely satisfied	Neither nor dissatisfied	Somewhat satisfied	
How satisfied are you with your hearing aid?	Extremely dissatisfied	1	0	2	3
	Extremely satisfied				

	Extremely satisfied	2	0	3	5
	Neither satisfied nor dissatisfied	0	2	0	2
	Somewhat dissatisfied	1	0	2	3
	Somewhat satisfied	2	1	6	9
Total		6	3	13	22

The first two variables were compared to satisfaction with the hearing aid and satisfaction with personal relations.

Chi-Square Tests

		Asymptotic Significance (2-sided)	
	Value	df	
Pearson Chi-Square	41.838 ^a	15	.000
Likelihood Ratio	29.926	15	.012
N of Valid Cases	22		

a. 24 cells (100.0%) have an expected count of less than 5. The minimum expected count is .24.

The Chi-Square Test shows that both variables are dependent on each other people who are satisfied with their hearing aid are also satisfied with their relationship.

Therefore AIAid can improve the quality of life of the users by improving the quality of their relationships.

In the second part the cross-tabulation and Chi-Square will be carried out between satisfaction with a hearing aid and satisfaction with oneself:

Crosstab

Count

How satisfied are you with yourself?

Total

		Extremely satisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	
How satisfied are you with your hearing aid?	Extremely dissatisfied	2	1	0	3
	Extremely satisfied	2	0	3	5
	Neither satisfied nor dissatisfied	0	2	0	2
	Somewhat dissatisfied	1	1	1	3
	Somewhat satisfied	2	1	6	9
Total		7	5	10	22

Chi-Square Tests

		Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square		39.619 ^a	15	.001
Likelihood Ratio		32.546	15	.005
N of Valid Cases		22		

a. 24 cells (100.0%) have an expected count of less than

5. The minimum expected count is .24.

The chi-square test shows that the relation between self-satisfaction and satisfaction with the hearing aid device is significant. It shows that if AIAid satisfies the customer it will enhance his confidence and self-love in the user.

Hypothesis 4: Users who enjoy life more when using a hearing aid are less prone to negative thoughts.

I enjoy life more when I use a hearing aid * How often do you have negative thoughts and feelings? Crosstabulation

Count

		How often do you have negative thoughts and feelings?					
		About half the time	Always	Most of the time	Never	Sometimes	Total
I enjoy life more when I use a hearing aid	Neither agree nor disagree	1	0	0	3	0	4
	Somewhat agree	2	0	0	3	3	8
	Somewhat disagree	1	0	0	0	0	1
	Strongly agree	0	1	1	3	3	8
	Strongly disagree	0	0	0	1	0	1
Total		4	1	1	10	6	22

The table reflects the cross-tabulation between the two variables i.e. enjoying life with a hearing aid and facing negative thoughts. The table shows that the people who enjoy life by using hearing aid are less prone to face negative thoughts than people who don't enjoy using their hearing aid. It shows that if AIAid with the help of AI makes people happy in their life they will face fewer negative thoughts or depression in simple words.

Chi-Square Tests

		Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square		40.313 ^a	25	.027
Likelihood Ratio		33.807	25	.112
N of Valid Cases		25		

a. 36 cells (100.0%) have an expected count of less than 5. The minimum expected count is .04.

The results of the Chi-Square test show that the p-value is 0.027 which is less than 0.05, it shows that the relation between both variables is significant and dependent on each other.

4. Operational Plan:

The operational plan falls into the same trap of explaining theory, but providing little substance. For example, the opening paragraph explains the role of an operational plan. The sections within the operational plan are similar in level of detail provided. Yet, this is just not in depth enough for business plan. For example, the marketing strategy should contain details of the bullseye customer segment, what they think, and the key message that should be taken to them. Marketing activities are then created from this key message

AIAid is planning to start its business operations in the UK market aimed at providing artificial intelligence-supported hearing devices. The company is aimed at facilitating the people affected by hearing ability and need to use the hearing devices for better hearing, especially in crowds and in busy places (Christodoulou, 2019). The device is developed by the company utilizing modern technology and artificial intelligence and it will work just as a natural ear of the human being. The operational plan of AIAid is about the process and steps required for starting and launching the product in the UK market (Ravneberg, 2009). The operational plan covers the whole structure of the business and the way the business entity will operate utilizing human resource management to achieve the business objectives. The operational plan will cover the company structure and the human resource required for running the business operations (Choi, 2021). It will also include the marketing strategy of the business entity to reach more customers and business organizations. The business revenue forecast and the use of 4ps of the marketing mix will also be elaborated to reach the desired position in the market (Lesica, 2021).

4.1 Human Resource Management and Structure:

The company structure comprises the human resources necessary for running the day-to-day business operations and achieving the organizational goals. AIAid will need 12 employees all of whom will be responsible for uplifting the business organization and earning the desired business revenue (Olson, 2018). The business organization's human resource structure will be as follows:

Human Resource Structure Table 1

Human Resource Structure of Company			
Description	No.	Salary Per Month	Salary Per Month Total
Doctor	1	£ 4,000	£ 4,000
Accountant	1	£ 1,850	£ 1,850
Cashier	1	£ 1,450	£ 1,450

Receptionist	1	£ 1,700	£ 1,700
Cleaning Staff	1	£ 1,000	£ 1,000
Sales and Marketing Manager	1	£ 3,250	£ 3,250
Sales Staff	2	£ 1,950	£ 3,900
Information Technology Manager	1	£ 4,000	£ 4,000
I.T Support Team	2	£ 2,550	£ 5,100
General Manager	1	£ 4,800	£ 4,800
Total	12		£ 31,050

The human resource structure table helps in knowing about the employees and their designations according to their field of work. The doctor specializing in the ear will be required to check the patients and help them to resolve their problems related to the device and ear. The accountant will be responsible for bookkeeping and checking cash receipts and cash disbursements after taking approval from the general manager of the company (DeFranzo, 2020). The cashier will be responsible to deal with all the matters related to receiving cash from customers and business organizations under the supervision of an accountant. The receptionist will be hired to perform the duties related to providing information to the customers and assisting the managers in arranging meetings with the heads of business organizations and other customers (Baluch, 2021).

The sales and marketing manager will be responsible for performing key business activities for the company which will be introducing the product to business to the business organization such as otolaryngology clinics and directly to the customers through online stores. The sales and marketing manager will be responsible for formulating marketing strategies for convincing and attracting more customers through social media (Dumont, 2018). The manager will also be responsible for launching promotional campaigns to provide incentives to the customers and clinics for buying more ear devices aided with artificial intelligence. The manager will present the marketing and promotional campaigns in front of the general manager, doctor, and accountant and after confirmation and approval of the general manager, the promotional campaigns will be launched (Haneda, 2018).

The sales and marketing manager can ask the accountant to prepare a comparative report for knowing the impact of promotional and marketing campaigns on the business revenue and profitability of the company. If the promotional campaign increases marketing expenses but does not increase business revenue by the same or more proportion of the expense then it will not be used (Fabijan, 2015). The sales staff will work for knowing about the market demand and then convince customers and business organizations to buy AIAid hearing devices. The

information technology manager will be responsible for making the online store functional and bringing more traffic to the online stores. The information technology support team will work on the online store and will help the manager to make the online available and make changes to continue to improve the online store (Bombiak, 2018).

4.2 Marketing Strategy and Approach:

The marketing strategy and approach decide the future of the business organization as a successful marketing strategy will lead to an increase in business revenue for the company and an unsuccessful marketing strategy will just increase the expenses of the company. It is observed that almost 6.7 million people are affected by hearing problems which means the company has a huge market to capture (Baaudiology, 2022). It is also observed that only 2 million people are using hearing devices which means still 4.7 million need to use hearing devices so the marketing strategy will help the company to reach all these people (Baaudiology, 2022). The company will sell directly to customers and the business organizations providing hearing devices. The marketing strategy of the company will be based on product differentiation as the artificial intelligence sensors are installed in the device which helps the hearing device to act the same as like natural ear of the human beings performs (study, 2021).

AIAid device will enable the customers to distinguish between different voices and will also allow filtering of the voices reducing unwanted noise. AIAid will introduce a marketing and promotional campaign to give a 10% discount to the customers and a 15% discount to the business organizations as it will help the business organizations to work for convincing the customers to use AIAid hearing devices benefiting them to hear the voices conveniently (Sandak, 2019). It will also benefit the friends and families of the affected persons as they will be able to do conversations and communicate with them smoothly. The marketing and promotional activities will be communicated to the customers through social media and the online store operated by the company. The company will also provide a 10% additional discount for the customers who order the hearing device on the online store and make payment through the specific bank account through online banking channels. It will help the company to promote its online store and to increase the traffic to the store and to also to increase customer engagement in the online store (Ali, 2021).

The sales and marketing team will contact the customers for buying the hearing device then the customers promptly ask why they should buy the hearing device then the sales team will inform them about the good quality and excellent features of the product (Beheshti, 2010).

The sales staff will also inform them that a discount of 10% will be given if they will order and buy the hearing device and it will arouse their desire to buy the hearing device (Rountree, 2022). The promotional campaigns will work efficiently for the company and will inspire more customers to buy the company's products. The customers will be told that if they order the hearing device from the online store they will be able to earn an additional 10% discount and will decrease the price of the product up to £300 for them (Gordon, 2013).

4.2.1 Business Revenue Forecasts:

The business revenue forecast will help the company devise its strategies for achieving the business organization's goals. The business revenue forecasts of AIAid for the first three years are given below:

AIAID Sales Forecasts Table 2

Month	Quantity of Sachets	Price per Sachet	Total Amount	Percentage Increase
January	200	£ 1,500	£ 300,000	10 % in every month and year
February	220	£ 1,500	£ 330,000	
March	242	£ 1,500	£ 363,000	
April	266	£ 1,500	£ 399,300	
May	293	£ 1,500	£ 439,230	
June	322	£ 1,500	£ 483,153	
July	354	£ 1,500	£ 531,468	
August	390	£ 1,500	£ 584,615	
September	429	£ 1,500	£ 643,077	
October	472	£ 1,500	£ 707,384	
November	519	£ 1,500	£ 778,123	
December	571	£ 1,500	£ 855,935	
First Year	4,277	£ 1,500	£ 6,415,285	
Second Year	5,132	£ 1,650	£ 8,468,176	
Third Year	6,159	£ 1,815	£ 11,177,993	

In the above table, the business revenue forecast can be seen the sales and marketing team has forecasted the business revenue and has expressed that there will be the sale of more than 200 devices in the first month of business operations but being realistic and conservative only 200 devices are forecasted to be sold. The strong competitor of the company is Livio AI and its price is £3,000 which is very high in the market AIAid has decided that the price of its hearing device will be £1,500 to penetrate the market and attract customers. It is expected that the business revenue and sale of hearing devices will increase by 10% every month. The

marketing tea has expected that there will be more sales of hearing devices because of artificial intelligence sensors in the device but to be more realistic in the business revenue forecasts only a 10% increase is incorporated. The business revenue earned in the first year will help cover the operational expenses of the company (Baltes, 2015).

4.2.2 The Use of Marketing Mix:

The marketing mix help in analyzing the price, place, promotion, and product according to the marketing strategy of the company. The marketing mix will help the company devise the combination of the 4Ps in such a way that more customers are attracted and more business revenue is earned after launching the product (Doyle, 2012). The marketing mix of AIAid is given as follows:

Price:

The penetration into the market is only possible by setting the product price less than its top competitors so the customers can be attracted because of the low price. The competitor price is considered too high as they are targeting the high class and elite class of the society but AIAid will target the middle and top class of the society so the price is set to be at £1,500 per hearing device. The price is set after careful examination and checking the response of the customers and if the price is set too low it can reduce the profit of the company and if the price is set very high it will not be able to attract more customers. The price will be set to attract more customers and to cover the operational expenses of the business entity without incurring losses (Festa, 2016). The price of competitors in the market is more than the AIAid hearing devices price as Specsavers Hearcare is priced at £1,850, Hidden Hearing at £2,496, Boots at £2,509, and Amplifon is priced at £ 3,037 (Pearl, 2022). It means that the company has priced considerably lower than competitors to attract more customers and enter the market.

Place:

The customers while going for buying anything consider the convenience and difficulty of reaching the place of the business organization. AIAid has established the business premises at an attractive location in Leicester, the UK which will attract more customers due to the ease of reaching the business place (Baltes, 2015). The company will also establish an online store to provide ease of reach for the customers as they will be able to buy hearing devices conveniently just from home using mobile phones, laptops, and computers easily. The home delivery and online payment option will facilitate the customers more in this regard and will enable the company to capture more market share. The online store is preferred by the

majority of customers so it will be helpful for the company to capture a good market share just by operating from a single location (Išoraitė, 2016). The busy schedule and social media have controlled the people so the majority is interested in buying the products online without facing traffic jams and traffic hassles. The customers who want services will be served personally and will be given better services.

Desired Market Position:

The company will position itself in the market as good and affordable hearing devices for the middle and high-class people living in the UK. The market position in the market will be attained through product differentiation and pricing strategy which will attract middle and high-class people from all over the country. The market position will help the company to target a specific segment of the market and will allow the customers to buy company products through the online store and ear clinics in the country (Beheshti, 2010).

4.3 The Planning of Processes and Production:

The planning process is designed to set a sequence for all business activities on the business premises allowing the company to move toward achieving business goals. First of all the business premises will be established in the UK and then all the staff will be given a brief introduction about business activities and the goals of the company. The sales staff will work to find customers and business organizations who can buy the hearing devices to sell on profit margin and for this purpose ear clinics in the UK will be selected who will work for increasing the customer base for the company (Ahmed, 2020). The online store will be operated separately by the information technology team under the supervision of the general manager. The payments from the customers will be received online from the remote customers and the cashier will receive payments from physical buyers. The accountant will record all the business transactions and will counter-check the cash receipts and payments to operate the business affairs smoothly. The general manager will supervise and check the performance of all employees on weekly basis to announce rewards for them and motivate them for achieving the business goals of the company (Balta, 2015).

The production process of the product is considered to be interesting and complicated and consists of several steps. First of all the data is put into a computer defining the design and parts of the product. In the second step, the vacuum pressure and production process are checked carefully. Then is the third step cast of finished impression, create the shell, build the hearing aid into the shell, create the micro-miniature circuits, assemble the electronic hardware, and the last session is sealing and finishing the product (Madehow, 2022).

4.4 The Selection of Distribution Network and Suppliers:

The company will select the distribution networks that will be able to increase its customer base and business revenue of the company. The company will select 3 ear clinics on the recommendation of the doctor who will have market knowledge of the ears and would suggest the clinics based on their performance. The online store will help the company to reach all the prospective customers around the UK and will help AIAid to work for attracting more customers. The suppliers of the company would be just raw material suppliers of the company to produce hearing devices as the production of hearing devices will be done by the company itself which will be a result of research development in artificial intelligence and hearing devices (Jain, 2013). The distributors will be selected very carefully and according to the directions and recommendations of the doctor.

The doctor has suggested that Scrivens Hearing Care at Hounslow Medical Centre, Boots Hearingcare, and The Hearing Specialist will be selected as they are preferred by the people in the locality to buy products related to hearing aid (Grasso, 2020). This step will lead to ensuring the success of the company as more customers will be guided and convinced to buy hearing devices of AIAid. These clinics will prefer the customer needs and provide good quality products are approached by more customers. The online store will also help the company to reduce operational costs and attract more customers. The home delivery option will fetch more customers as it will be convenient for the customers to get the delivery of products just after making the online payment (Fiske, 2012).

5. FINANCIAL PLAN

Similarly, the key financial content is rather basic. This should contain a full profit and loss account, a full balance sheet and a detailed cash flow covering full detail of incoming and outgoing cash. AIAid is making preparations to launch its commercial operations in the United Kingdom market with the intention of offering hearing aids that are backed by artificial intelligence. The mission of the company is to improve the quality of life for people whose hearing is impaired and who require the assistance of hearing aids in order to hear better, particularly in crowded and noisy environments. The company has utilized cutting-edge technology and artificial intelligence in the development of the device, which will function in the same manner as a person's natural ear and be produced by the corporation. The AIAid's financial plan details the procedures and actions that must be taken in order to begin selling the product on the UK market and get it off the ground. The financial plan details the entire organizational structure of the company as well as the Financial strategy that will be implemented, which will focus on effective management of the company's human resources in order to realize the company's goals. In the financial plan, both the revenues of the company and the expenditures will be accounted for, as will any necessary human resources for the day-to-day

operations of the organization. In addition to this, it will include the company entity's marketing plan, with the goal of reaching a greater number of customers and business organizations. In addition, an analysis of the company's revenue prediction and the implementation of the four pillars of the marketing mix will be carried out in order to achieve the targeted position in the market.

FORECAST

Essential Presumption:

1. So far, we've been operating on the assumption that the market's growth might be directly correlated with the population of persons which have defect like no hearing sense. This theory is based on the assumption that the two topics at hand are related in some way. This claim relies on the hypothesis that there is a causal relationship between the variables.
2. For the sake of simplicity, let's say that the average gross margins for this sector are dependable on the revenue and expanses mainly.
3. We are proceeding with the strategy under the presumption that technological and trend developments in the devices will not undergo dramatic shifts in the near future.

Income by Months:

The users of the AIAid hearing aid will be able to differentiate between the many voices they hear, and the device will also enable filtering of the voices to reduce undesirable background noise.

This is an overview of some months to explain that how the income effected each month.

AIAid will launch a marketing and promotional campaign that will offer a discount of 10% to customers and a discount of 15% to business organizations. This will encourage business organizations to work toward persuading customers to use AIAid hearing devices, which will allow customers to more easily hear voices and will benefit customers by allowing them to hear voices more clearly.

For the same to see the effect of each month income in the observation form.

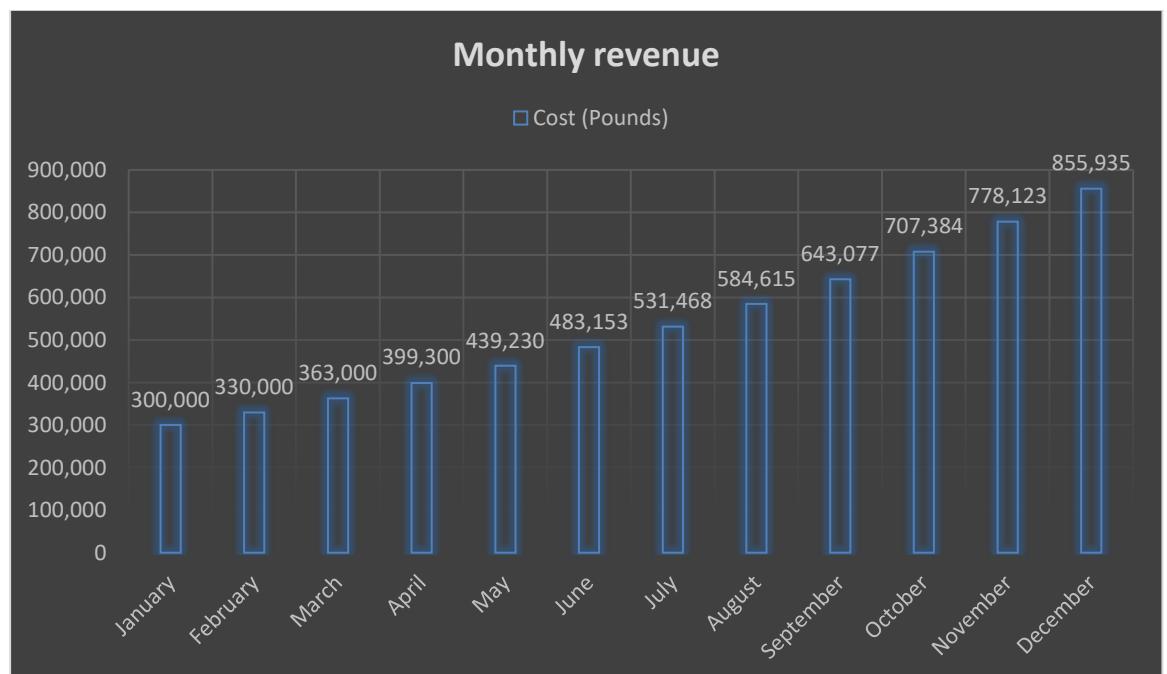
To begin, in the month of January my company sale the ALAID sachet are around of 300,000 pounds keeping in mind that the annually revenue will change at every month by 10%. After that at the month of February the revenue increases to 330,000 pounds by the increase of same ratio. Followed by the month of March the income is of 363,000 pounds of same increase percentage. After that in the month of April, May and June the revenue of my company ALAID provide total of 399,300 pounds, 439,230 pounds and 483,153 pounds respectively on the behalf of same increasing percentage of 10% per year. July, August and September month provide me with the revenue of 531,468 pounds, 584,615 pounds and 643,077 pounds respectively with the same percentage. October, November and December revenue of the company is of 707,384 pounds, 778,123 pounds and also 855,935 pounds respectively with the same revenue increase in the percentage. All these calculation is done and shown in the table

below:

Table 1: Monthly Revenue

Month	Amount	Percentage Increase
January	£ 300,000	
February	£ 330,000	
March	£ 363,000	
April	£ 399,300	
May	£ 439,230	
June	£ 483,153	
July	£ 531,468	
August	£ 584,615	
September	£ 643,077	
October	£ 707,384	
November	£ 778,123	
December	£ 855,935	
First Year	£ 6,415,285	
Second Year	£ 8,468,176	
Third Year	£ 1,177,993	

Table 2: Chart of Revenue



Depicts by Month:

We are still making losses based on that prediction even though my company is making a tremendous profit thanks to the monthly revenue growth and the annual gains of 10%. My business has around £ 31,050 worth of overall expenses, which includes salaries for a Doctor, Receptionist, IT team, cashier, an accountant, warehouse personnel, part-time cleaning staff, sales and marketing manager, import manager, and general manager. This total takes into account the salary of all of the managers as well. Also have a lot of expenses on my company, which are 8 thousand and 90 pounds. This value is not exact; rather, it is a roundabout amount. My business incurs costs for a variety of items, such sachet packing, rent, power bills, charges for equipment, and other comparable costs.

Table 3: Table of Human Resources Expanses

Human Resources Expanses			
Description	No.	Salary Per Month	Salary Per Month Total
Doctor	1	£ 4,000	£ 4,000
Accountant	1	£ 1,850	£ 1,850
Cashier	1	£ 1,450	£ 1,450
Receptionist	1	£ 1,700	£ 1,700
Cleaning Staff	1	£ 1,000	£ 1,000
Sales and Marketing Manager	1	£ 3,250	£ 3,250
Sales Staff	2	£ 1,950	£ 3,900
Information Technology Manager	1	£ 4,000	£ 4,000
I.T Support Team	2	£ 2,550	£ 5,100
General Manager	1	£ 4,800	£ 4,800
Total	12		£ 31,050

Table 4: Monthly Expanses on Goods

Utilities Charges			
Description	No.	Charges Per Month	Total Charges Per Month
Rent	1	£ 2,000	£ 2,000
Utility	1	£ 1,590	£ 1,590
Equipment	4	£ 3,300	£ 13,200

Goods	7	£ 3,000	£ 21,000
Packing	1	£ 1,700	£ 1,700
Total	14		£ 39,490

Net Profit or Loss:

The revenue and expenditures graph shows that my company, AIAID, is doing well and making a profit without experiencing any losses. This is because the expenditures are less than the revenue. Profit can be determined by tracking the swings in the company's expenses and revenues; as a result, monthly profit should be determined using the formula below:

$$\text{Profit} = \text{Revenue} - \text{Expenses}$$

1. The anticipated profit for the month of January should be somewhere around 229,460 pounds
2. The forecasted gain for the month of February ought to be somewhere around 259,460 pounds
3. The revenue for the month of March should be somewhere around 292,460 pounds
4. It is anticipated that the gain for the month of April would amount to around 328,760 pounds
5. Approximately 368,690 pounds' worth of profit is expected to be made during the month of May.
6. Approximately 412,613 pounds is the amount of profit that is expected to be made during the month of June
7. We anticipate a profit of roughly 460,928 pounds for the month of July
8. The anticipated profit for the month of August should be close to 514,075 pounds
9. It is anticipated that the revenue for the month of September would be around 572,537 pounds
10. The anticipated profit for the month of October is approximately 638,844 pounds
11. It is anticipated that the revenue for the month of November would be somewhere around 707,583 pounds
12. The anticipated profit for the month of December is something in the neighborhood of 785,395 pounds

this is the clear review of how I should calculate and manage the profit and loss each and every month.

Table 5: Monthly Profit

Revenue Monthly	Expenses Monthly	Profit
300,000	70,540	229,460
330,000	70,540	259,460
363,000	70,540	292,460
399,300	70,540	328,760
439,230	70,540	368,690

483,153	70,540	412,613
531,468	70,540	460,928
584,615	70,540	514,075
643,077	70,540	572,537
707,384	70,540	636,844
778,123	70,540	707,583
855,935	70,540	785,395

FUNDING

Uses of Funds:

It is anticipated that the initial costs of the company will total 70,540 pounds, and they will be comprised of the following components:

1. The overall cost, which includes legal fees associated with the acquisition of licenses and permits as well as accounting services
2. Different insurance policies, with a combined premium of covering general liability, workers' compensation, and property and casualty risks respectively.
3. The total cost of renovating the space is estimated and added.
4. Additional costs associated with getting the business off the ground, such as making a deposit for the phone and utilities and purchasing a website.

Source of Funds:

The investments that we have made in the company along with the loans that the company has obtained from a variety of financial institutions are the primary sources of funding for the company. The significant investments were made possible by the contributions of two major owners, owner A and owner B, who each made a contribution of £25,000 toward the endeavor. We specific owners were the ones who had made significant contributions to the organization. As a result of the contributions made by the remaining investors, the total amount invested has reached an astounding 10,000 pounds,

The total investment made to the company by the owner belong to the company may go here and detail of how much they invest.

and the total number of investors has reached an all-time high of all of them. The two bank loans, one for a shorter term of one year in the amount of £4,000, and the other for a longer term of five years in the amount of £7,000, provided the remaining £11,000 that was required to cover the start-up expenses and assets. Both loans were obtained from the same financial institution. The company had certain requirements that needed to be met, so it was imperative that this be completed. The same financial institution was utilized in order to secure funding for both of these loans. The Bank of Pakistan was the organization in charge of making sure that both loans were adequately secured with the appropriate collateral. As a consequence of this, it is presumed that there was a total loss during

start-up operations equal to 27,000 pounds.

DESCRIPTION

The projection of the company's future revenues can be seen here. The sales and marketing team has made a revenue forecast for the company and has stated that there will be the sale of more than 200 AIAID devices in the first month of business operations; however, in order to be realistic and conservative, it is only anticipated that 200 AIAID devices will be sold. Because the company's primary rival, Livio AI, sells its product for an extremely high price £3,000 which is considered to be extremely high in the market, AIAid has decided that the price of its hearing device will be reduced to \$1,500 in order to break into the market and attract customers. It is anticipated that the monthly revenue of the company as well as the number of hearing aids sold will increase by 10%. The marketing tea has anticipated that there will be a greater number of sales of hearing devices because of artificial intelligence sensors in the device; however, to be more realistic in the business revenue forecasts, only a 10% increase is incorporated into the projections. The company's financial obligations will be covered, at least in part, by the revenue generated by the business in its first year of operation.

The price that the competitor is charging is deemed to be excessively high because they are marketing their product to members of the society's upper class and elite class. On the other hand, AIAid will market its product to members of the society's middle class and upper class, and consequently, the price will be set at £1,500 per hearing device. If the price is set too low, it can cut into the profit that the company makes, and if the price is set too high, it won't be able to attract more customers because it will be out of their price range. The price is determined after careful consideration and after checking the response of the customers.

AIAid has constructed the business premises in an enticing location in Leicester, which is located in the United Kingdom. This will allow the organization to: Customers will be able to buy hearing aids quickly and simply from the comfort of their own homes utilizing convenient electronic devices such as mobile phones, laptops, and desktop computers, which the company plans to sell via an online store that will also be opened by the company.

ANALYSIS

As can be seen clearly from the results presented above, my company is making a respectable profit each and every month, and this profit is growing by 10% on a monthly basis. The profit begins to increase from the very first month, and it continues to rise, demonstrating an exceptionally high profit. You will see below how the yearly plan of the devices increases, as well as how they continue to grow and increase revenue, including the following examples:

- £ 6,415,285 This represents the revenue generated by the device sales in the first year.
- It shows the revenue from the sales of the devices for the second year, which was £ 8,468,176.
- It shows the revenue from the sales of the devices for the third year, which was £1,177,993.

The corporation will choose the distribution networks that will allow it to expand both its customer base and its overall business revenue. The corporation will choose three ear clinics based on the opinion of a doctor who will have market knowledge regarding ears and will advise the clinics based on how well they perform. AIAid will be able to work toward recruiting more clients as a result of the company's use of the online store, which will assist the company contact potential customers located around the UK. The suppliers of the company would only provide the company with the raw materials needed to manufacture hearing aids, since the manufacturing of hearing aids would be done by the company itself, as a consequence of research and development in artificial intelligence and hearing aids.

As our company have initial stages and want to attract more costumer but at the start of the company the devices sold out are only 200.

Manufacturing cost for a single AIAID device is 1,500 pounds.

6. Risk assessment

The risk assessment has some merit, But it needs to contain more detailed actions to mitigate the high risks.

Hazard/Risk	Person at Risk/ Nature of Harm	Current control Measure	Frequency	Additional control measure required	Risk rating	Action by who
Compliance Risk	License of the AIAID will be ceased	The company must ensure it complies with regulations by conducting regular audits and checking the validity of all licenses.	Medium	Ceased the business immediately	High	Legal partner of AIAID
Operational Risk	Due to unsafe condition on border, stop the delivery, the	AIAID target the local supplier as backup for the company	Low	n/a	High	HR

	business operation will be ceased					
Financial Risk	Funding from supplier not reach the company on time	Keep the loan from the bank to fulfil the requirement and focus on clearance	Medium	n/a	Low	Financial department
Manufacturing Risk	Demand is not met the supply	The company should install more equipment to overcome the need of consumers	Medium	n/a	Low	Manufacturing Department
Manufacturing Risk	Demand is less than available devices	The company have to stop making more devices and do transport to other areas and locally	Medium	n/a	Low	Manufacturing Department

7. Conclusions

Following all of the preceding discussion, we have arrived at the conclusion that this problem has been resolved to a very significant degree by incorporating artificial intelligence into AIAid. The hearing aid is able to discern between a wide variety of sounds because it makes use of the capabilities provided by artificial intelligence. It is able to distinguish between the background noise and the speech. In other words, it is capable of imitating the brain, which is the organ that is responsible for hearing sounds if a person's hearing were not impaired. It is recommended that the AIAID Company offers a significant discount to both the customers and the organisations, of approximately 10% and 15%, respectively. By carrying out this operation, the organisation should be able to restore nearly all of the abnormal people's senses, including their hearing and their ability to taste nature. It does this by collecting user

input through a streamlined user interface, and then comparing the various complicated settings combinations. As a result, it contributes to the device becoming easier to operate. Hearing aids powered by AI have made significant strides toward improving the aural acuity of people who suffer from hearing loss. These hearing aids make it possible for people to hear clearly even in noisy environments by reducing the volume of background noise.

The SWOT analysis of the company also helps in understanding the customer and informing the customers' features of the products. The company will provide innovative products to support the hearing effected people as the product works like a natural ear. The products will be supported by artificial intelligence to provide the customers with hearing aid products. The experienced and qualified sales and marketing staff of the company will help the customers to convince them to buy company products. The huge potential in the market will help the business organization to establish its goodwill in the market and capture more market share. The business entity will face more competitors in the market so more effort will be required to focus on the products and customers.

It also amplifies voice sounds, so even persons who are wearing face masks will be able to understand what is being said, taking into consideration the existing situation with COVID. Therefore, artificial intelligence represents a significant step forward for the industry of hearing aids. Not only has it resulted in an improvement in the living standards of persons with hearing impairments, but it has also led to other positive changes. It has also led the way to investigate and prevent at early stages additional deterioration in the hearing ability as well as other co-morbidities such as Alzheimer's disease, clinical depression, diabetes, and a great deal of other conditions.

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