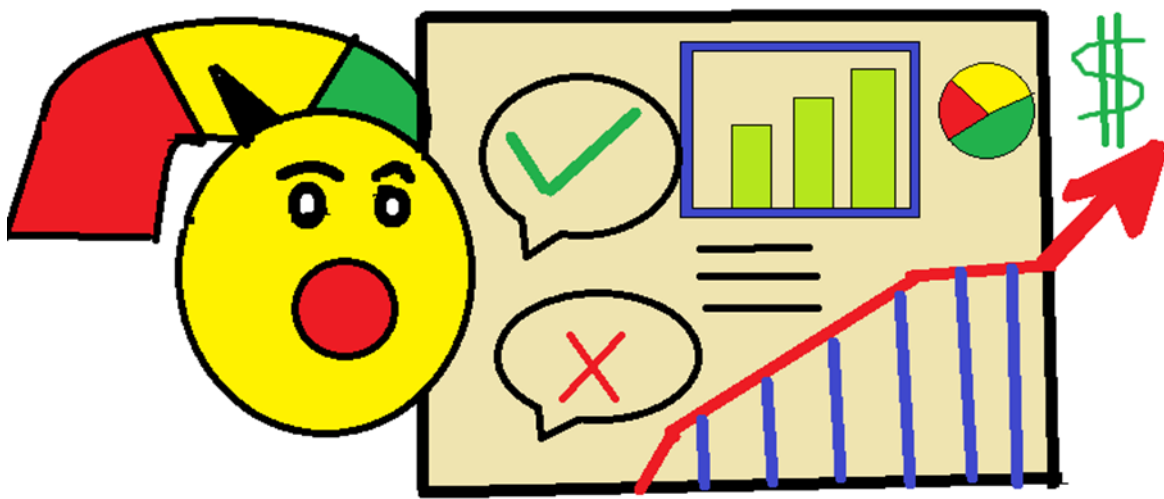


HEARREVIEW: A sentiment analysis application

TAGLINE: Hear your customers without speaking to them !



Idea and concept by Ishan Dutta

Note:

- The product has been developed under internship with Feynmann labs and is just at the ideation stage.
- The MVP Is just a concept and has been tried on a limited amount of data due to time and resource constraint
- The dashboard is a graphical representation of the metrics that will be displayed to the users.

Problem Statement

In an era where customer feedback is abundant and critical, business owners often find themselves drowning in a sea of unstructured reviews and comments from their clientele. Analysing the sentiments and opinions within these reviews is a formidable challenge, leaving business owners in the dark about what's working well and what needs improvement. This data overload hinders their ability to make data-driven decisions that enhance customer satisfaction and drive business growth.

Addressing the Issue

To address this issue, there is a pressing need for a comprehensive solution that efficiently parses customer reviews, categorizes them based on sentiment, and provides concise summaries. Business owners require a tool that not only reveals the overall sentiment of their customer base but also separates positive, neutral, and negative feedback to pinpoint areas for enhancement.

The aim of the solution

This solution aims to empower business owners with actionable insights derived from customer reviews, enabling them to make informed decisions, prioritize improvements, and ultimately enhance the overall customer experience. The challenge lies in the development of an application that can handle this process seamlessly, extracting meaningful insights from the vast landscape of customer feedback to support data-driven decision-making.

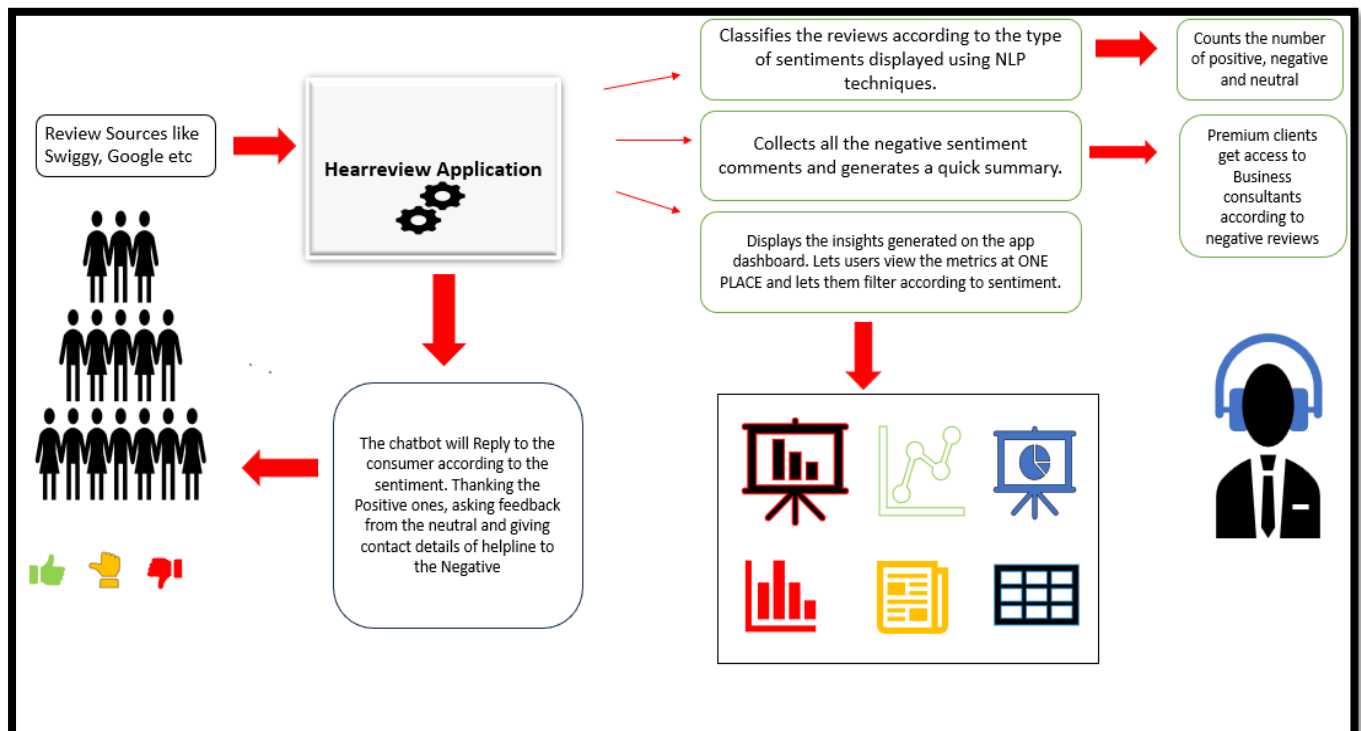
Potential benefits of HearReview

- **Improved customer satisfaction:** By understanding how customers feel about their products and services, businesses can make changes to improve the customer experience.
- **Increased sales:** Sentiment analysis can be used to identify trends and patterns in customer feedback, which can be used to develop more effective marketing and sales strategies.
- **Reduced costs:** By identifying and fixing problems early on, businesses can save money on customer support and other costs.
- **Improved product development:** Sentiment analysis can be used to gather feedback on new products and features, which can help businesses develop products that meet the needs of their customers.
- **Direct insights:** The insights direct obtained from the users offer more benefits.

The concept of HearReview

It is a unique idea and can be a valuable product in the years to come. Sentiment analysis is a powerful tool that can be used to understand customer feedback and it will help companies to identify areas for improvement. Later a dashboard report will be provided so that people at the top can identify what decisions need to be taken based on customer reviews.

Here is a simple flowchart that demonstrates the working of the product.

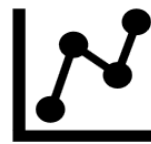


First of all, the application is integrated with the review sources of the company, for instance let's say in this story it is a restaurant. This restaurant has profiles on Swiggy and Zomato, and most of its orders are online. Customers leave a lot of reviews on the Company's business page and the restaurant owner has no time to read the business reviews. So, he purchases the application and upgrades to the premium version. The chatbot replies to the customers accordingly: Thanking the customers leaving the customer reviews and recommending them products or services getting positive reviews, asking suggestions from the customers leaving neutral reviews and giving contact details and even apologizing to the customers leaving negative reviews. The business owner is given real time updates in the form of the app dashboard that lets them monitor what is happening real time. The application counts the number of positive, negative and

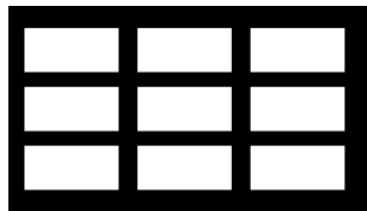
neutral reviews. Then the reviews are summarised to generate a report. If the owner doesn't know how to solve the business related problems, they are recommended the right professionals based on their problems.

Dashboard and analytics

Here is the representation of graphs that will visualize the information in graphical form. This can be accessed using buttons. These graphs will cover the rise and fall of negative reviews, what most negative reviews have etc



Share of sentiments



Metrics will be displayed in tabular form



A report will be provided which will be to the point.



Tracking growth of positive/negative sentiments



Button to consult experts

Additional Features

- We will work on building a better chatbot and that will be updated. We shall work on more humanlike responses!
- A notification like feature should be added that will reward customers giving positive reviews and would offer free service or discount to those leaving negative reviews.
- Adding a feature that allows the chatbot to collect customer feedback on specific aspects of the restaurant, such as the food, service, and atmosphere. This feedback can then be used to improve the restaurant's operations.

Product prototype

Here is the link of the product prototype:

https://github.com/Dermisfit0301/sentiment_base_text_classifier

Here are the brief points about the prototype:

1. Sentiment classification is the key to HearReview's success. However, due to time and resource constraints, it was not possible to build a summarization prototype and a dashboard.
2. The sentiment classifier prototype was trained on a dataset of 1 lakh product reviews from Amazon, with the labels based on the rating stars received. The text data was pre-processed using natural language processing (NLP) techniques such as stemming and lemmatization.
3. In the pre-processing phase, the phrases were first tokenized (converted into tokens) and then stop words (such as "the", "is", and "of") were removed to enhance the analysis. TF-IDF vectorization was then performed to convert the reviews into vector form so that the algorithm could understand them.
4. After data pre-processing, it was time to build the model. The dataset was first split into training and test sets at a ratio of 80:20.
5. Conventional machine learning models such as Naïve Bayes and Decision Tree were initially used to build the classifier, but the accuracy was only around 70%, so they were abandoned.
6. An ANN classifier was then used, as it is lightweight and works well with text data. However, due to a lack of computational resources, the data was only tested on a sample of 10,000 reviews, which was around 10% of the dataset. The accuracy achieved on this sample was around 80%.
7. The idea of using deep learning on the full algorithm was dropped due to constraints of computational resources and time, as it takes a long time to train a neural network.
8. To improve the model, ensemble methods such as XGBoost and Random Forest were used. XGBoost did not have a satisfactory performance, but Random Forest managed to raise the accuracy slightly. Hyperparameter tuning was also applied, but no significant improvement was seen.

9. Overall, the text-based sentiment classifier was finalized with an accuracy of 81%. This accuracy will be improved gradually with further updates.
10. A small-scale web model was also developed using Flask, which allows users to enter text and have the model classify it according to sentiment. An automated parser and an application are out of the scope of the project.

Business Model of Hearreview

The business model of Hearreview would be aimed at keeping it as much as asset-light and low risk as possible. At the moment it will be a small scale business but it will be scaled up gradually in the near future depending on the reception it gets.

HearReview is valuable for businesses in industries where customer reviews are particularly important, such as mobile apps, restaurants, hotels, and e-commerce businesses.

Here is a business model for HearReview, a review analysis tool:

Market

The market for HearReview is large and growing. Businesses of all sizes are increasingly relying on reviews to attract and retain customers. HearReview can be used by businesses in any industry, but I would say it is well-suited for businesses that rely heavily on reviews, such as restaurants, hotels, and e-commerce businesses.

Customer Segments

The customer segment that we will mostly cater to in our beginning phase will be mostly small, mini and micro businesses and sometimes mid-size businesses as they don't have the fund to build a heavy software that could do it for them. We will do this work for them so that they can focus more on building their business and marketing it.

Value Proposition

HearReview provides businesses with insights into their customer feedback and helps them to identify areas for improvement. HearReview uses AI to analyse reviews and identify sentiment, themes, and trends. HearReview also provides businesses with insights into their customer journey and helps them to identify the most important touchpoints. It also provides them with a dashboard to see live updates and provides them a summary of all the comments. Also, it would

connect them with experts by analysing their reviews. Another feature would be a chatbot that will reply according to the customers based on their reviews.

Channels

HearReview will be sold through a variety of channels, including:

1. **Direct sales:** HearReview's sales team will contact businesses directly and offer them a free trial of the product.
2. **Partnerships:** HearReview will partner with other businesses in the business software industry, such as CRM providers and marketing automation platforms. These businesses will promote HearReview to their customers in exchange for a commission on sales.
3. **Online advertising:** HearReview will run online ads on platforms such as Google AdWords and Facebook Ads.
4. **Word of Mouth marketing:** We will have a referral system where we will give incentives to the buyer to refer our product.
5. **Classic marketing:** We will spread the word of our product through different mediums and we will analyse which mediums get the most impression.

Customer Relationships

HearReview will build relationships with its customers through:

- HearReview will provide its customers with excellent customer support, so that they can get the most out of the product.
- HearReview will create and publish educational content, such as blog posts, articles, and webinars, to help its customers learn how to use the product and get the most out of it. We will educate them through memes, entertaining videos etc and will tie up with influencers, meme pages etc.
- **Community:** HearReview will create a community where its customers can interact with each other and share their experiences using the product.

Revenue Streams

HearReview will generate revenue through a subscription-based model. Businesses will pay a monthly fee to use HearReview. HearReview will offer different pricing plans to meet the needs of businesses of all sizes.

Free Trial or courtship period

HearReview will offer a 14-day free trial also known as courtship period to all businesses. Like before we get into a relationship with a girl, we spend time with her and get to know her, similarly the customer will get to know the product. During the free trial, businesses will have access to all of the features of the Pro plan. After the free trial, businesses can choose to subscribe to a paid plan or continue using the free plan, which has limited features.

Pricing of the Product

HearReview will offer different pricing plans to meet the needs of businesses of different sizes. HearReview will also offer a free trial or demo so that businesses can try it out before they commit to a paid plan.

HearReview will offer three pricing plans:

- Basic or dating period:
- Pro or engagement period
- Enterprise or marriage period

I can't commit to any number on the plan as it will depend heavily on the cost of creating the product but I will assure the pricing will be based on an annual package. Those who renew will be given a bit of discount plus bonus updates before the users of lesser packages. The cost per month will decrease as the pricing plan value increases. There will be plenty of loyalty bonuses which will encourage users to stay on with the brand.

The Basic plan is designed for small businesses with less than 1,000 reviews per month. The Pro plan is designed for medium-sized businesses with 1,000-10,000 reviews per month. The Enterprise plan is designed for large businesses with more than 10,000 reviews per month.

Cost Structure

Hearreview will follow an asset-light model which means it will have little assets of its own. Having an asset light model will help us lower the costs and maximise the profits. In case if the idea doesn't go well it would also help us to exit the market.

The major cost of the company would be shifted to developing the product further.

HearReview's costs will include:

1. **Product development costs:** HearReview will need money to invest in developing and maintaining its product. There would be little to no infrastructure costs as the work mode will be remote and the meetings will be virtual. This will also increase employee productivity.
2. **Marketing and sales costs:** HearReview will need to invest in marketing and sales to acquire new customers. It would be outsourced to a digital marketing agency.
3. **Customer support costs:** HearReview will need to invest in customer support to provide its customers with excellent support. It would be outsourced to a BPO.
4. **Employee costs:** Hearreview will maintain a few core employees and for routine work will have contractual employees, freelancers and interns. This will save a lot of costs as there wont be gratuities, insurance etc costs.
5. **Additional costs:** They are the costs a business has to incur in various things like legal matters etc.

Mathematical cost function for HearReview:

$$C(x) = a * PDC(x) + b * MSC(x) + c * CSC(x) + d * EC(x) + e * AC(x)$$

where:

- $C(x)$ is the total cost of HearReview at time x
- $PDC(x)$ is the product development cost at time x
- $MSC(x)$ is the marketing and sales cost at time x
- $CSC(x)$ is the customer support cost at time x
- $EC(x)$ is the employee cost at time x
- $AC(x)$ is the additional cost at time x
- $a, b, c, d,$ and e are coefficients that represent the relative importance of each cost component

Key Metrics

HearReview will track the following key metrics:

- **Number of active users:** This metric will measure the number of businesses that are actively using HearReview.
- **Number of reviews analysed:** This metric will measure the number of reviews that HearReview has analysed.
- **Customer satisfaction:** This metric will measure how satisfied HearReview's customers are with the product. This goes without saying how this will be measured.

Feasibility aspect:

- I. **Asset-Light Business Model:** Our asset-light business model is highly feasible in India. Outsourcing most functions to temporary interns and freelancers is a common practice in India, and there are a number of qualified and experienced professionals available for hire. This will allow us to keep its costs low and focus on building relationships with businesses.
- II. **Remote and Hybrid Work Model:** Our remote and hybrid work model is also feasible in India. India has a large and growing remote workforce, and many businesses are now offering hybrid work options. This will allow us to attract and retain top talent, regardless of their location.
- III. **Tax Benefits:** Our tie-up with an NGO will make it eligible for tax benefits under Section 80G of the Indian Income Tax Act, 1961. This will help us to increase its profits.

Scalability aspect:

- I. **Manpower:** As the business increases, it would be scaled up and there wont be a problem. The company would hire extra interns and contract extra freelancers with extendable terms.
- II. **Technical:** We will integrate with a cloud-based platform, so it can be easily scaled to serve the needs of businesses of all sizes.
- III. **System:** HearReview can also be integrated with other business systems, such as CRM systems and marketing automation platforms. At the moment this product will be for small to mid-size businesses

Viability aspect :

- There is a growing demand for review analysis tools. As more and more businesses rely on customer reviews, the need for tools to help them analyze and manage their reviews is increasing.
- HearReview has a unique selling proposition. HearReview is different from other review analysis tools because it uses AI to analyze reviews and identify sentiment, themes, and trends. This allows HearReview to provide businesses with more insights into their customer feedback.
- HearReview has a large addressable market. HearReview can be used by businesses of all sizes, in all industries. This means that HearReview has a large potential customer base.

Additional Features and Integrations

Here is a more detailed description of the additional features and integrations that has a possibility of coming up, as Hearreview we will work on the core product idea rest other things we will outsource to other companies as we don't believe in reinventing the wheel.:

Google Analytics Integration

The Google Analytics integration will allow businesses to track the impact of their reviews on their website traffic and conversions. This information will help businesses to understand the value of their reviews and to make necessary adjustments to their marketing and sales strategies.

Other Features and Integrations

HearReview is also developing other features and integrations, such as:

- **Integration with CRM systems:** This integration will allow businesses to import their customer data into HearReview so that they can track sentiment and feedback from individual customers.

- **Integration with marketing automation platforms:** This integration will allow businesses to use HearReview data to create more targeted and effective marketing campaigns.
- **Feature to compare sentiment to competitors:** This feature will allow businesses to see how their sentiment compares to the sentiment of their competitors.
- **Feature to identify trends in customer feedback over time:** This feature will allow businesses to identify areas where they are improving and areas where they need to improve.

Conclusion

HearReview is a valuable tool for businesses that want to improve their customer satisfaction, sales, costs, and product development. The market for HearReview is large and growing, and the platform is easily scalable to serve the needs of businesses of all sizes.

Additional Considerations for the business model

In addition to the above, HearReview should also consider following points to be implemented:

- HearReview should ensure that it complies with all applicable Indian laws and regulations. This includes laws related to data privacy, intellectual property, and labor.
- HearReview will gradually localize its product and marketing materials to appeal to the pan-Indian market.
- HearReview will look forward for partnerships with Indian businesses and organizations to reach its target market and build trust.
- HearReview will partner with Indian universities and colleges to hire interns and freelancers

- HearReview will Offer training and development programs to interns and freelancers and this will enable us to keep an army of trained professionals at our disposal.
- HearReview will partner with Indian business associations and chambers of commerce to promote HearReview to businesses. This will help HearReview to reach its target market and build trust.
- HearReview will try to get funding from the government to finance itself and it can be done by joining the commerce chamber.
- HearReview will partner with other businesses in the business software industry, such as CRM providers and marketing automation platforms. These businesses can promote HearReview to their customers in exchange for a commission on sales.