Title

GoNav – AI based navigation platform

*(Domain: **User Experience Design/User Interface Design**)*

Problem Statement

An ardent devotee visiting a pilgrimage for his child's future, a couple on their honeymoon at the warm hills and a gang of friends celebrating their freedom at Goa are all chronicles of glorious tourism. With 18 million foreigners and crores of domestic tourists, this is an epic chance to cash on the biggest service sector industry.

In Spite of having such potential, the fragmented nature of this industry is quite glaring. A regular tourist needs to plan entire placing, book his tickets first, then wait for a cab at the airport and find a hotel based on random Google ratings. Platforms like MakeMyTrip come here but the only problem they're solving is booking travel tickets. For a busy customer to avoid other hassles, they feel troubling the path to go. Standardization gives the same experience to every soul, ruining the magic of discovering a unique part in us. **With GoNav, we're sharing the beauty of travel with AI based customized travel plans with hotel, guide, and itinerary. Notifying weather reports, timings, traffic can add value to customer experience, you can find all the travel needs at one place around the globe app will be compatible with car dashboard with AR modes, Path, Sign, Speed limit, climate and other in dashboards.**

As we were under the domain UI/UX, but the actual idea is under AI Based navigation system which will be solving problems like which places to cover? with very few steps that will be sharing with user from well-trained dataset.

There are several approaches and methodologies that can be used for GoNav AI-based travelling platform. Some of the most common ones include:

Reinforcement Learning: Reinforcement learning involves training an AI model to make decisions based on rewards and punishments, where the AI agent learns to take actions that maximize the reward signal. This approach is often used in autonomous navigation systems, where the AI agent learns to navigate to a goal while avoiding obstacles.

SLAM (Simultaneous Localization and Mapping): SLAM is a technique used to create a map of an environment and simultaneously locate the agent within that environment. This is often used in robot navigation, where the robot needs to know its location in order to navigate effectively.

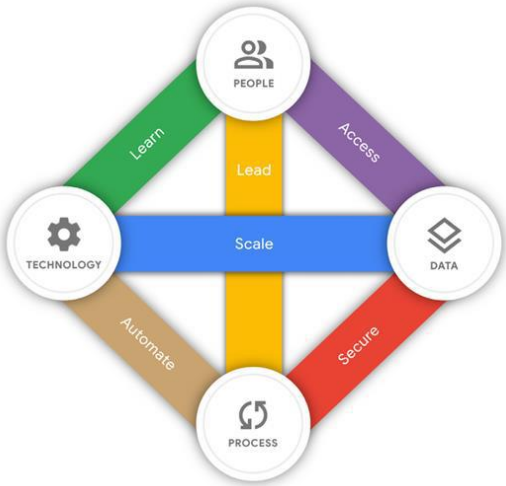
Motion Planning: Motion planning algorithms determine a path for the AI agent to follow, taking into account obstacles and other constraints. This is often used in autonomous navigation systems, where the AI agent needs to find a safe and efficient path to a goal.

Deep Learning: Deep learning techniques, such as Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs), can be used to learn from data and make predictions. This is often used in autonomous navigation systems to make predictions about the environment and make decisions based on those predictions.

AI Maturity Framework

Our framework is anchored in the familiar rubric of people, process, technology, and data. The interplay between these four key areas gives rise to six themes: Learn, Lead, Access, Scale, Automate, and Secure. These themes are foundational to the AI Adoption Framework

In each of the themes, you can see what happens when you move from adopting AI approaches ad hoc, to working with them more and more comprehensively across the organization — which means deeper and more consistent training for your people, which in turn means streamlined and updated processes, which in turn drives collaboration and, in time, innovation. The organization transforms. When AI has been integrated into all parts of your organization, then you are fully harnessing the power it offers to transform your position in the industry. But at every step along the way, adding in effective AI capabilities brings benefits.



Some of the key novel features of AI-based navigation platforms include:

Dynamic Environment: AI-based navigation platforms can adapt to changes in the environment, allowing for real-time navigation even in dynamic and unpredictable environments.

Personalization: AI-based navigation platforms can be personalized for individual users, providing a unique experience tailored to their specific needs and preferences.

Real-time Decision Making: AI-based navigation platforms can make real-time decisions based on data, allowing for fast and efficient navigation.

Continuous Learning: AI-based navigation platforms can continuously learn and improve over time, allowing for a more accurate and effective navigation experience.

Integration with Other Technologies: AI-based navigation platforms can be integrated with other technologies, such as computer vision and robotics, to provide a more comprehensive and sophisticated navigation experience.

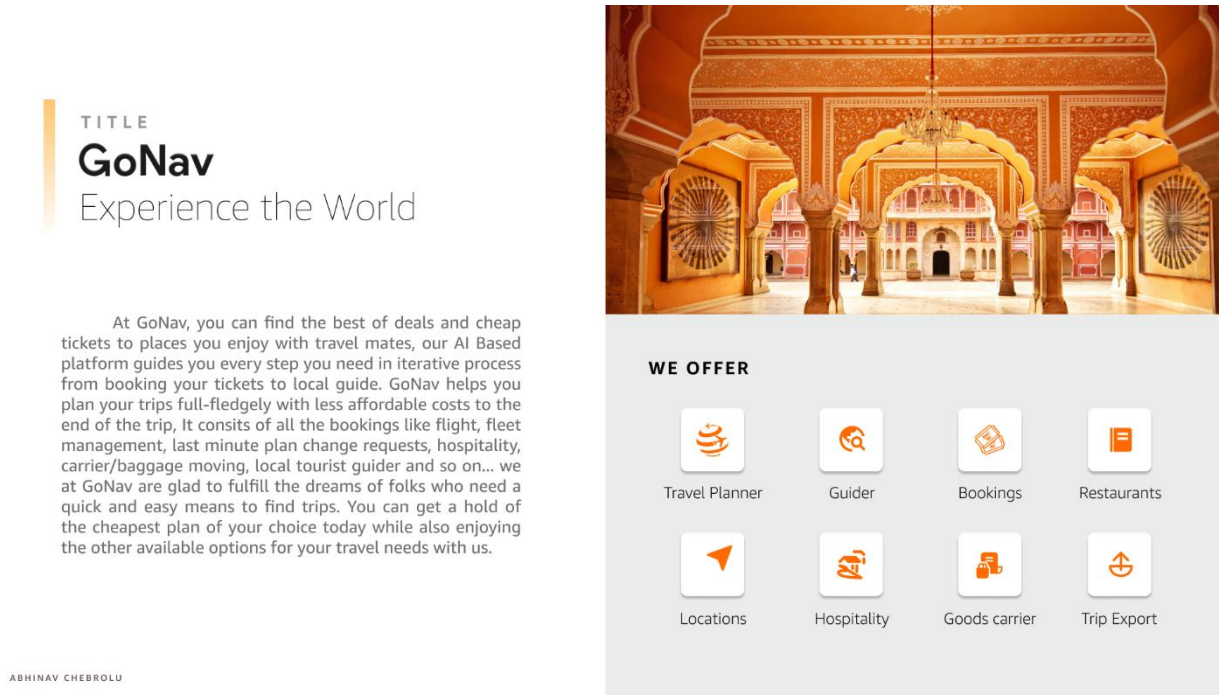
Overall, the novelty of an AI-based navigation platform lies in its ability to provide an autonomous and adaptive navigation experience, making it a powerful tool for navigation in a wide range of environments and applications.

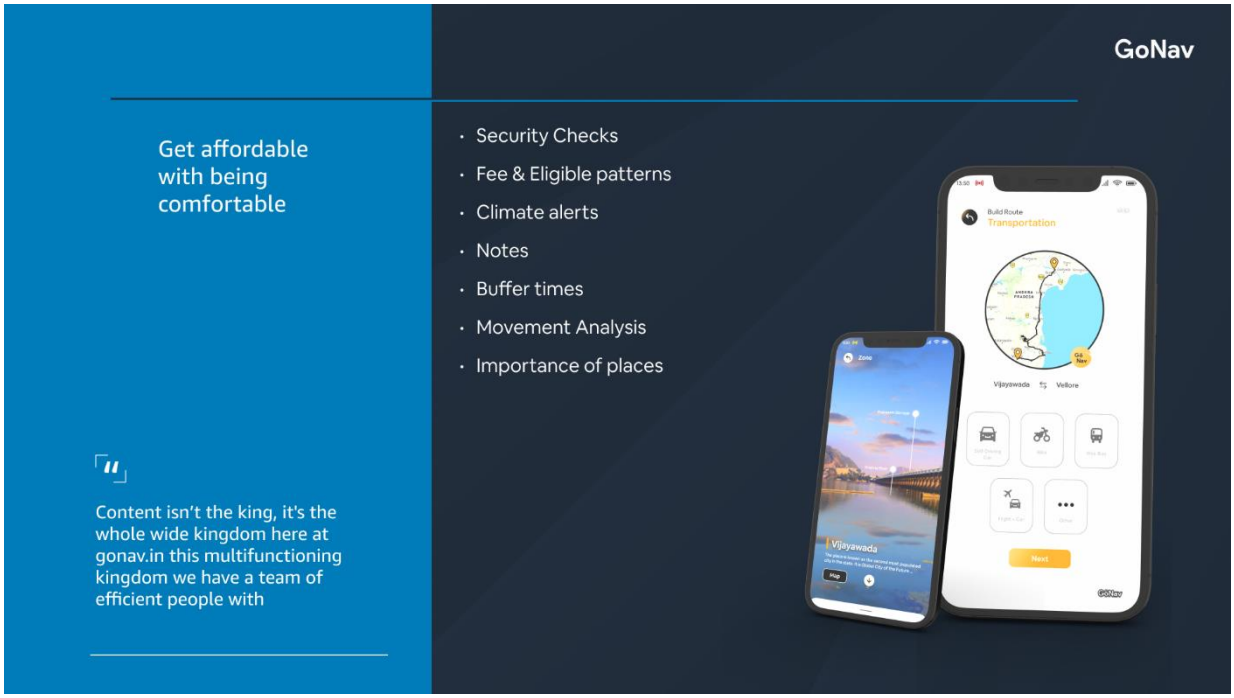
Motivation

When a traveller moves from one location to other, he will be suffering from few things like place information, importance of places, famous item etc... we bring back all the person need in a single click. AI helps in reducing the plan of travel planning with optimal cost and route which can help user in-terms of both money and time. This problem helps in bulk booking option along with flet managements, and other important stuff. We have opted new system of baggage transfer for example if the trip is planned for3 different localities, the baggage will be transferred to all over the places before the person reached. Traveller can make different baggage's based on the cities and handover to the centre. This was improvised and recommended by top industries and got pitched by us in Amazon and got selected as one of the top 20 start-up ideas in India. While coming to existence this idea was not been implemented yet in the rest of the world, but their organization runs with prefixed plan and details which cannot be change at any moment. While coming to our idea we can be able to change the plan which can be suggested at any time respectively.

Project Outcome

As this idea is a product, we were implementing a part of it under the domain User experience and User interface design, we will be demonstrating the entire idea and aiming for patent the application also with a research paper related to this.





Problem Statement: The travel and tourism industry is highly fragmented and disorganized, making it difficult for tourists to plan and book a trip. Most tourists rely on random Google ratings to find a hotel, and they have to book their tickets separately, wait for a taxi at the airport, and then plan their itinerary. This fragmented approach to travel planning is time-consuming and stressful, and it takes away from the magic of discovering unique places and experiences.

Solution: GoNav aims to solve this problem by providing a single platform for all travel needs. Using artificial intelligence, GoNav creates personalized and customized travel plans for each user, considering their budget, preferences, and travel goals. The platform includes a range of features to help users plan their trip, including weather reports, traffic updates, and more.

Features:

1. Travel Information: GoNav provides comprehensive information about hotels and resorts around the world, including reviews, images, and educational forums. This information is sourced from users who have already visited these places, providing an authentic and reliable source of information for future travelers.
2. Personalized Travel Plans: Using artificial intelligence, GoNav creates personalized and customized travel plans for each user, taking into account their budget, preferences, and travel goals. This feature helps users save time and avoid the stress of planning a trip.
3. In-Dashboard AR Modes: GoNav is compatible with car dashboards, and it includes a range of AR modes, such as path, sign, speed limit, climate, and more. This feature helps users navigate their way to their destination and ensures a safe and comfortable journey.
4. All-in-One Solution: GoNav is an all-in-one solution for all travel needs, including booking tickets, finding a hotel, and planning an itinerary. This feature helps users save

time and avoid the hassle of having to use multiple platforms and websites to plan their trip.

Conclusion: GoNav is a cutting-edge travel planning and booking website that is revolutionizing the way tourists plan and book their trips. With its range of features and its use of artificial intelligence, GoNav provides a comprehensive and personalized solution for all travel needs. Whether you're looking for information about a hotel, a customized travel plan, or in-dashboard AR modes, GoNav has you covered.

Roles and Responsibilities:

1. **Marketing**

   The Marketing team at GoNav is highly data-driven and focused on developing at-scale, measurable marketing programs designed to improve the lifetime value of GoNav customers. The team combines a blend of the best analysts, marketing strategists and data scientists, collectively building a team that thrives on data, creative ideas, and technology. The Marketing leadership fosters a great learning environment, providing the opportunity to learn and grow by working closely with experts from a diverse variety of backgrounds from across the globe.

2. **Analyst**

   Experimentation and optimizing campaign performance: Experiment with ads/campaign structures and bidding& pricing strategies on partners such as Google, Bing, TripAdvisor, Trivago and other search engines. Adapt to new product features and roll out changes from successful tests Modelling: Analyse vast amounts of data generated by experiments, develop predictive models using data science techniques (eg. understanding impact on bookings from large scale TV campaigns or demand elasticity from pricing optimization) and liaise with product teams on implementation roadmap Reporting, analysis, and insights: Building dashboards to track performance, derive insights, understand growth levers and communicate recommendations via presentations to stakeholders

3. **Product Design**

   Research. Talk to customers, dig into data, and unearth insights to help inform design and product decisions Analyse. Analyse user and other data sources to generate user journeys, define personas, and create product hypothesis Design. Create wireframes, high-fidelity mock-ups, diagrams, and other artifacts to inform and guide the development of the Canary Technologies products. Collaborate. Work directly with cross-functional product teams, incorporating decisions, feedback, and trade-offs into the design. Iterate. Be comfortable working in an agile, iterative environment and know how to help work towards the ideal design in incremental steps. Communicate. Vocalize opinions internally and clearly communicate work product and the rest of the organization to build alignment and bring folks along on the design journey. Take

Initiative: Take initiative where you see gaps and help build design thinking and design processes at a fast-scaling product company

4. **Technical Support Specialist**

Resolve customer issues reported to Autodesk via chat, phone, web, online forums and other channels Provide prompt, friendly, and efficient assistance to Autodesk customers on a variety of issues and questions related to product features, usage, design automation etc Research, verify, and document product issues, solution in short and clear articles for our Knowledge Base, or in our internal case management system Priority handling and escalation of critical issues and monitoring of service level compliance Document support interactions in a company-wide case management system Escalate customer issues to internal teams as required Actively manage personal backlog of support requests Manage customer expectations by providing timely updates on progress

5. **React Developer**

Key Responsibilities : A:Strong skills in analysis, design, development, testing and support/troubleshooting with deep specialist skills in UI - React JS and UX primarily Java, Spring, Tomcat, AngularJS, HTML5, Bootstrap, Oracle and Sybase ASE technologies B:Develop required Web Applications in Employee Conduct by analyzing business functional/technical requirements and assist in implementing them C:Involve in requirements-gathering activities, like evaluating services, using a variety of internal and external data
Technical Experience : A:Hands on experience UI/UX development using React JS, Redux, Java, Spring, Tomcat, AngularJS, HTML5, Bootstrap, Oracle and Sybase ASE technologies, SDLC B:Deep Knowledge of all aspects of the application development SDLC and support life cycle C:Hands on experience in React JS with Redux Professional Attributes : A:Well-developed business communication skills both written and verbal B:Ability to naturally facilitative approach to problem solving C:Strong personal prioritization and time management

6. **Software Development**

Essential Functions: Develop software applications using best practices on an Agile team Review teammates' code Help plan & roadmap new features and functionality Perform software quality assurance testing Perform technical support activities as assigned Assist with other project activities as assigned by management

Knowledge & Skills Requirements: Hands on experience with programming languages (e.g. C++, C#, Java, etc.) Hands on experience with front-end languages (e.g. HTML5, XML, JavaScript, JSON, CSS, etc.) Working knowledge of version control (e.g. Microsoft Team Foundation Server) Strong understanding of object-oriented programming, analysis, and design Excellent software development skills Experience with the complete software development life cycle and QA processes in an Agile environment Strong analytical, problem solving, and decision-making skills Excellent

oral and written communication skills Strong organizational skills The ability to contribute in a team environment

7. **UI/UX Designer**

   Creating user-centered designs by understanding business requirements, and user feedback Creating user flows, wireframes, prototypes, and mockups Translating requirements into style guides, design systems, design patterns and attractive user interfaces Designing UI elements such as input controls, navigational components and informational components Creating original graphic designs (e.g. images,, sketches and tables) Identifying and troubleshooting UX problems (e.g. responsiveness) Collaborating effectively with the product, engineering, and management teams Incorporating customer feedback, usage metrics, and usability findings into design in order to enhance user experience Software adept in software's like Figma (Sketch and Figma both is a plus) Should be able to communicate well and think in a solution-oriented manner. Up-to-date with the latest UI trends, techniques, and technologies

8. **Research**

   Research/investigate emerging technologies in storage components and system, Data creation models and storage security Document current and future storage architectures for different applications Provide research intelligence for future Seagate products or create reference architectures Work with subject matter experts at all Seagate (worldwide) sites Create internal and external research papers and work with your affiliated school to bring academic research in these areas for applications in storage industry.

9. **Cloud Engineer Specialist**

   Quality experience automated and manual testing of software applications and services Experience in testing container technologies (docker, Kubernetes) Desired coding skills (GoLang, Python) and experience with Unix/Linux OS/bash Debugging experience on microservices-based implementations utilizing public/private/hybrid cloud Some knowledge of management of data center physical infrastructure such as servers, storage arrays, and/or network switches Excellent analytical and problem-solving skills. Experience with agile development (Scrum, Kanban, etc.) and Test Automation (unit, integration, system) Outstanding verbal and written communication skills and a demonstrated ability to collaborate across teams and organization

10. **Human Resource**

    Be a talent advisor to actively recruit and evaluate top candidates. Educating and guiding hiring managers on Talent Acquisition related policies, processes and interview processes. Developing innovative recruitment strategies and manage end to end hiring activities, delivering an efficient and effective service to all involved in the

hiring process. Monitor and ensure 100% compliance of hiring process activities and resolve any discrepancies that may arise prior to completion of the hiring process Conduct on-going market research and provide market intelligence to the business as required. Assist in identifying, organize, attend and participate in sourcing channels, such as: community outreach events, job fairs, Meetups, conferences, educational institutions, non-profit organizations and social networking activities, on behalf of GoNav, in order to promote GoNav's employer-brand.

11. Machine Learning Specialist

As part of the GoNav's AI Team, you will be doing Research to AI model development including data procuring and analysis, prototyping, testing and deployment Strategizing in tight collaboration with leadership. Working closely with product designers to apply AI/ML to create features, collaborate with data engineers for data acquisition from GoNav Digital Platform Products, collaborate with infrastructure engineer to deploy and model pipelines Writing production-level, re-usable, easy-to-interpret code in Python(required), or other languages, while engaging in collaborative code reviews and providing technical feedback to improve existing ML model performance Establish scalable, efficient, automated process for large scale data analysis, model development, model validation and model implementation

These are the few Roles and Responsibilities mentioned by the company in their careers and the stats

Methodology

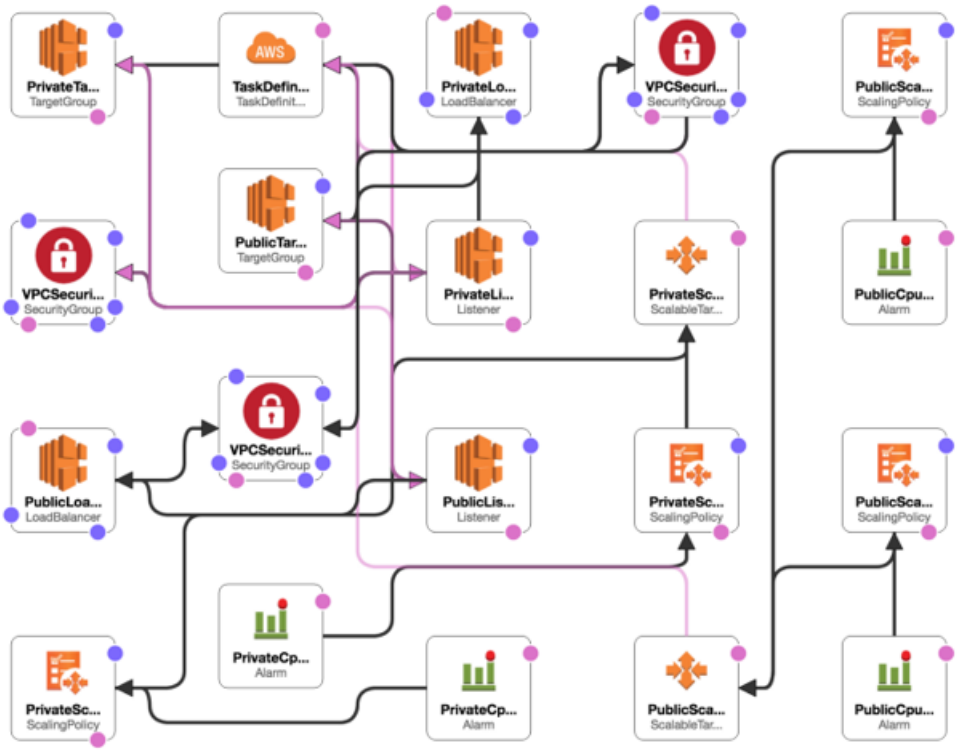


Fig: Containers assumed as per today's ideology

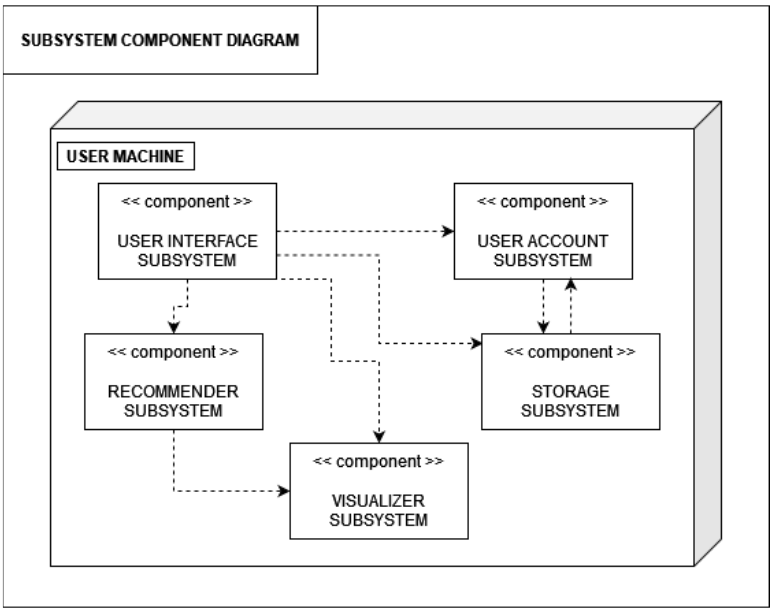
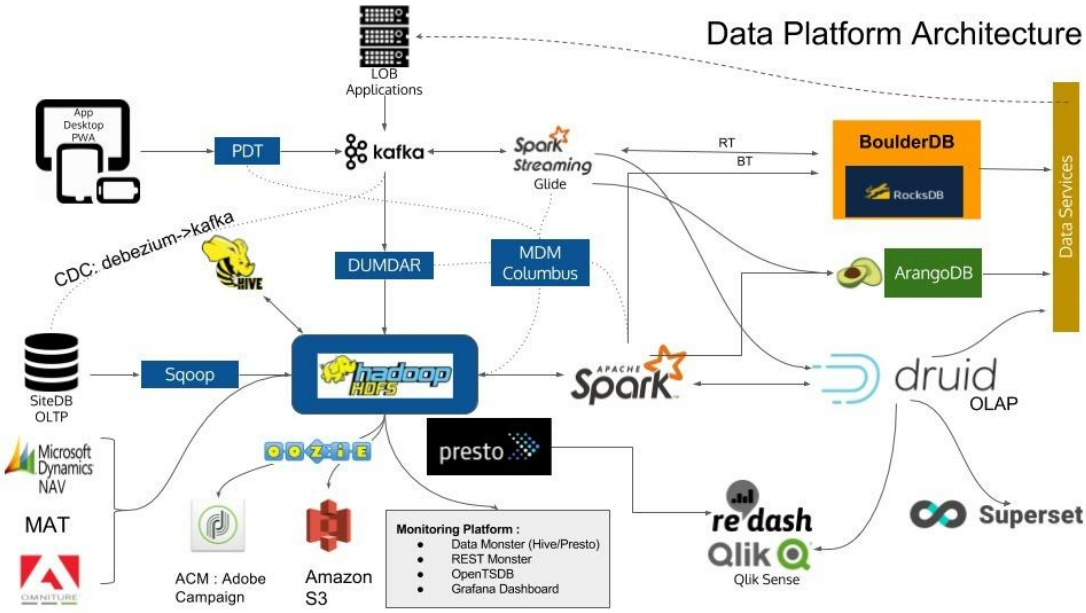


Fig: High level Architecture



Source: https://tech.makemytrip.com/backbone-of-data-products-mmt-4b93d3bd95e5

Fig: Data Platform Architecture

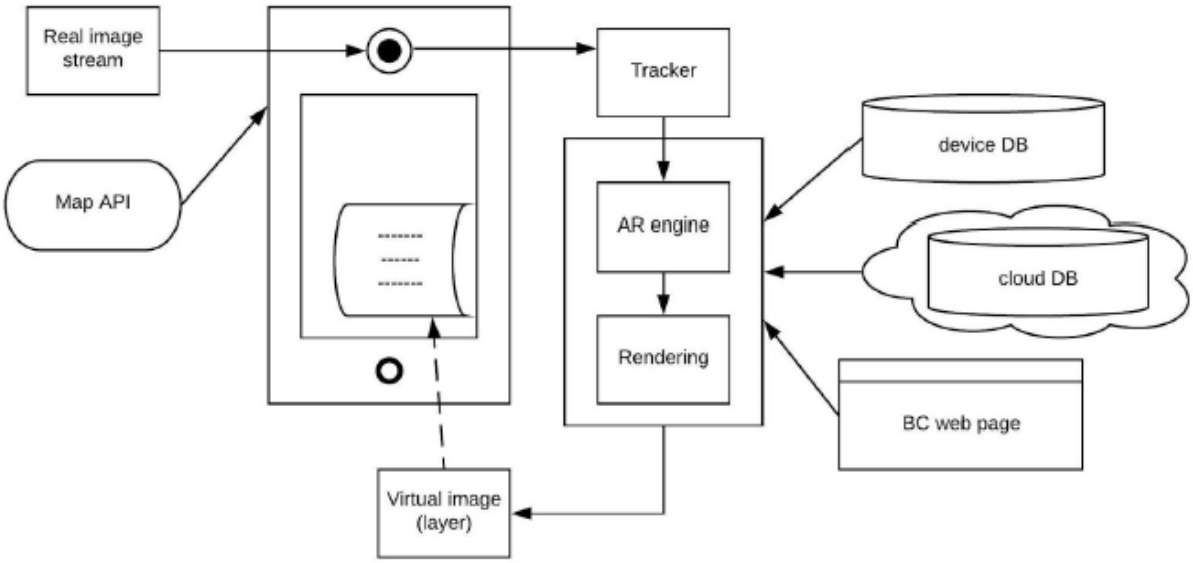


Fig: System overview

GoNav is a revolutionary new travel app that is designed to help people plan their trips and navigate unfamiliar places. With its user-friendly interface and advanced features, GoNav has the potential to revolutionize the travel industry. However, to

make this app a success, it is important to implement effective marketing strategies. In this section, we will discuss some marketing strategies that can be used to promote GoNav and increase its user base.

1. Social Media Marketing: Social media platforms are one of the most effective marketing tools available today. With billions of users, social media platforms such as Facebook, Twitter, and Instagram offer an unparalleled reach. Therefore, it is important to create a strong social media presence for GoNav. This can be done by creating engaging content, running paid ads, and collaborating with influencers. By leveraging social media, it is possible to target a large number of potential users and generate interest in the app.
2. Search Engine Optimization (SEO): SEO is a crucial component of any digital marketing strategy. By optimizing the app's website and content for search engines, it is possible to increase visibility and attract more traffic. Some effective SEO techniques include keyword research, on-page optimization, and link building. By ranking higher in search engine results pages (SERPs), it is possible to increase organic traffic and drive more downloads.
3. App Store Optimization (ASO): ASO is the process of optimizing an app's listing in the app store. This includes optimizing the app's title, description, and keywords. By optimizing the app's listing, it is possible to increase visibility in the app store and attract more downloads. Some effective ASO techniques include keyword research, A/B testing, and user reviews. By implementing effective ASO strategies, it is possible to increase the app's visibility and attract more downloads.
4. Influencer Marketing: Influencer marketing is an effective way to promote the app and increase its user base. By collaborating with influencers in the travel industry, it is possible to reach a highly targeted audience. Influencers can create engaging content and promote the app to their followers. By leveraging influencer marketing, it is possible to generate interest in the app and attract more downloads.
5. Content Marketing: Content marketing is a highly effective marketing strategy that involves creating valuable content that is relevant to the target audience. By creating engaging and informative content, it is possible to attract potential users and generate interest in the app. Some effective content marketing techniques include blogging, guest posting, and video marketing. By creating high-quality content, it is possible to increase brand awareness and attract more users.
6. Partnership Marketing: Gonav can form partnerships with travel agencies, hotels, and other businesses in the travel industry. This way, it can reach more potential customers and offer them a comprehensive travel experience.
7. Out-of-Home Advertising: Gonav can use billboards, flyers, and other forms of out-of-home advertising to reach potential customers. This can be especially effective in busy tourist areas.
8. Events: Gonav can sponsor or participate in events related to travel and tourism. This is a great way to reach potential customers who are interested in travel.

Conclusion:

In conclusion, these marketing strategies can be used to promote GoNav and increase its user base. By leveraging social media, SEO, ASO, influencer marketing, and content marketing, it is possible to generate interest in the app and attract more users. However, it is important to constantly analyze the effectiveness of these strategies and make adjustments as necessary. By implementing effective marketing strategies, GoNav has the potential to become a highly successful travel app.

GoNav is different from other navigation apps in several ways:

1. Customized navigation routes: Unlike other navigation apps that provide only the shortest or fastest route, GoNav provides customized navigation routes based on user preferences such as avoiding toll roads, highways, or busy streets. This feature helps users to choose the most comfortable and convenient route for their journey.
2. Dynamic route adjustment: GoNav dynamically adjusts the route based on real-time traffic conditions, road closures, and accidents. It provides users with alternative routes to avoid traffic congestion and get to their destination on time.
3. Multimodal navigation: GoNav supports various modes of transportation, including walking, cycling, and public transit. It provides users with step-by-step directions for each mode of transportation, making it easy for them to switch between modes and reach their destination quickly.
4. Social features: GoNav offers social features that allow users to share their real-time location and ETA with friends and family. It also enables users to see the location of their friends who are using the app and coordinate their travel plans.
5. In-app communication: GoNav allows users to communicate with their contacts within the app, making it easy for them to coordinate their travel plans, share directions, and stay in touch throughout the journey.
6. Safety features: GoNav has several safety features such as speed limit warnings, lane departure warnings, and driver fatigue alerts that help users to stay safe on the road.

Overall, GoNav provides a more personalized, flexible, and convenient navigation experience than other navigation apps, making it an excellent choice for all types of users.

College students can benefit from GoNav in several ways:

1. Cost savings: College students often have tight budgets, and GoNav can help them save money on transportation costs by providing them with the most efficient and cost-effective routes to their destination. This can be especially helpful for students who live off-campus and need to commute to school.

2. Time savings: College students have busy schedules, and GoNav can help them save time by providing them with the fastest and most direct routes to their destination. This can be especially useful for students who need to get to class or other appointments on time.
3. Customized routes: GoNav allows users to customize their routes based on their preferences, such as avoiding highways, toll roads, or busy streets. This can be helpful for college students who are not familiar with the area and want to avoid traffic congestion.
4. Multimodal transportation: GoNav supports various modes of transportation, including walking, cycling, and public transit. This can be helpful for college students who don't have a car and need to use public transportation to get around.
5. Safety features: GoNav has several safety features such as speed limit warnings, lane departure warnings, and driver fatigue alerts that can help college students stay safe on the road.
6. Social features: GoNav offers social features that allow college students to share their real-time location and ETA with friends and family. This can be helpful for students who want to coordinate travel plans with friends or need to let their parents know when they will be home.

Travel and tourism is a major global industry that involves a wide range of businesses, from airlines and hotels to tour operators and travel agencies. The travel and tourism industry is one of the fastest growing industries in the world, and it generates billions of dollars in revenue each year. In this marketing analysis, we will take a closer look at the travel and tourism industry and examine the major trends, challenges, and opportunities in this market.

Market Size and Growth

According to the World Travel and Tourism Council (WTTC), the global travel and tourism industry is expected to grow by 4% per annum over the next decade. This growth is being driven by a number of factors, including increasing disposable incomes, rising standards of living, and growing levels of urbanization. In 2019, the industry generated approximately $9.25 trillion in revenue, which represented around 10.3% of global GDP.

Market Segmentation

The travel and tourism market is highly fragmented and consists of a wide range of different segments, including leisure travel, business travel, adventure travel, and cultural travel. These segments are further subdivided into sub-segments, such as luxury travel, budget travel, and sustainable travel. Each segment has its own unique set of characteristics, needs, and preferences, and companies that are able to tailor their products and services to these segments are likely to be more successful.

Major Trends and Drivers

One of the major trends in the travel and tourism industry is the growing importance of technology. Consumers are increasingly using digital platforms to research, plan, and book their travel, and companies that are able to provide a seamless digital experience are likely to have a competitive advantage. Another major trend is the growing importance of sustainability and eco-tourism. Consumers are becoming more aware of the environmental impact of travel, and companies that are able to offer sustainable and eco-friendly travel options are likely to be more successful.

Challenges and Opportunities

The travel and tourism industry faces a number of challenges, including geopolitical uncertainty, economic instability, and the threat of terrorism. These challenges can affect consumer confidence and cause travelers to delay or cancel their travel plans. However, the industry also offers a number of opportunities, including the growing demand for experiential travel, the rise of middle class in developing countries, and the increasing popularity of alternative accommodations such as home-sharing platforms.

Gonav and MakeMyTrip are both travel planning and booking platforms, but there are several ways in which Gonav is different from MakeMyTrip:

1. Volunteer Services: Gonav is a platform that connects travelers with volunteers who can help them with a wide range of services such as guiding, translation, and recommendations. This is a unique feature that MakeMyTrip does not offer.
2. Personalized Travel Planning: Gonav allows travelers to create personalized travel plans based on their preferences and interests. Travelers can specify their budget, preferred mode of transportation, and other details to get customized travel plans. MakeMyTrip, on the other hand, offers pre-packaged tours and packages.
3. Local Recommendations: Gonav provides travelers with recommendations for local experiences, such as restaurants, attractions, and events. These recommendations are provided by local volunteers who have first-hand knowledge of the destination. MakeMyTrip also provides recommendations, but they are not based on local expertise.
4. Social Impact: Gonav has a strong focus on social impact and community development. The platform connects travelers with local volunteers, who are often members of underprivileged communities. This provides travelers with a unique opportunity to support social causes while exploring new destinations. MakeMyTrip does not have a similar focus on social impact.
5. Pricing: Gonav allows travelers to specify the minimum price they can afford for a service, and volunteers can bid on the job. This ensures that travelers get

the best possible price for the services they require. MakeMyTrip offers fixed pricing for its travel packages and services.

In summary, Gonav offers a unique blend of personalized travel planning, local recommendations, volunteer services, and social impact, which sets it apart from traditional travel booking platforms like MakeMyTrip.

The vertical market for GoNav is the travel and tourism industry. This industry is growing rapidly, with increasing numbers of people traveling both domestically and internationally for leisure, business, and other purposes. The travel and tourism industry is characterized by a wide range of services, including transportation, accommodation, food and beverage, tours and activities, and other related services.

GoNav is different from other travel and tourism platforms in that it offers a personalized and customizable travel experience for users. While other platforms may offer pre-packaged deals or limited options, GoNav allows users to choose their own preferences and create a tailored itinerary based on their interests and budget.

This level of customization and personalization sets GoNav apart and makes it an attractive option for individuals who want more control over their travel plans. Additionally, GoNav's use of AI and machine learning technology helps to further refine and optimize travel recommendations, making it an even more appealing option for users.

By targeting the travel and tourism industry, GoNav can tap into a large and growing market, providing value to individuals and businesses alike. As more people seek out personalized travel experiences, the demand for platforms like GoNav is likely to increase, creating new opportunities for growth and expansion in the future.

The target customers for GoNav would be individuals and groups of people who love to travel and explore new places. The app can be used by people of all ages, including young adults, families, and senior citizens.

More specifically, the targeted customers for GoNav would be:

1. Solo travelers who want to plan their trips efficiently and avoid the hassle of organizing everything by themselves.
2. Budget travelers who want to save money by finding affordable transportation, accommodation, and activities.
3. Families who want to plan their vacations together and keep track of everyone's preferences and schedules.
4. Adventure seekers who want to explore new and exciting places and find unique experiences.

5. Business travelers who want to plan their trips and have all their travel-related expenses in one place.
6. Tourists who are visiting a new place and want to explore it without getting lost or wasting time.
7. Group travelers who want to plan their trips together and share their experiences with each other.

Project Plan

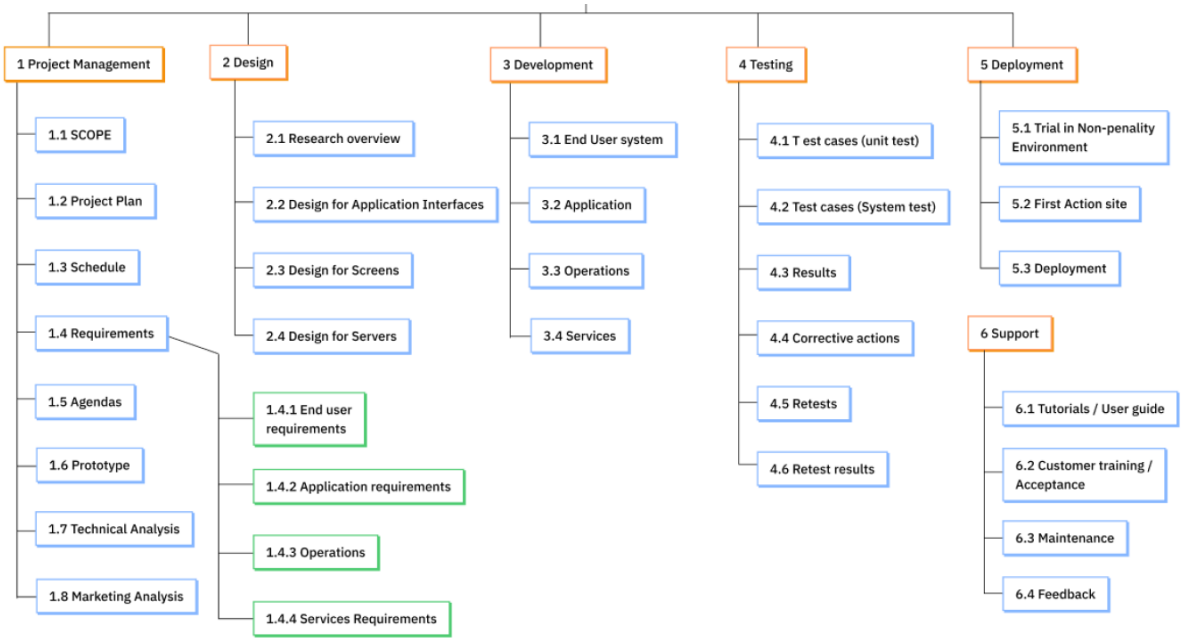
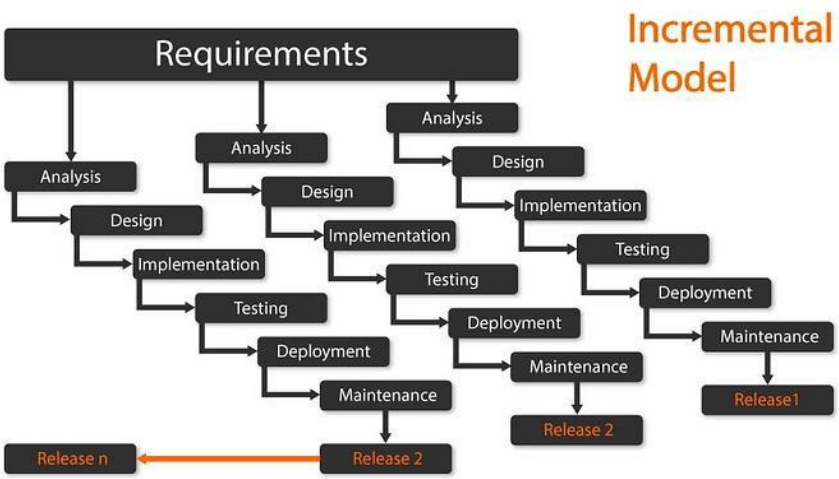


Fig: Work Break Down Structure



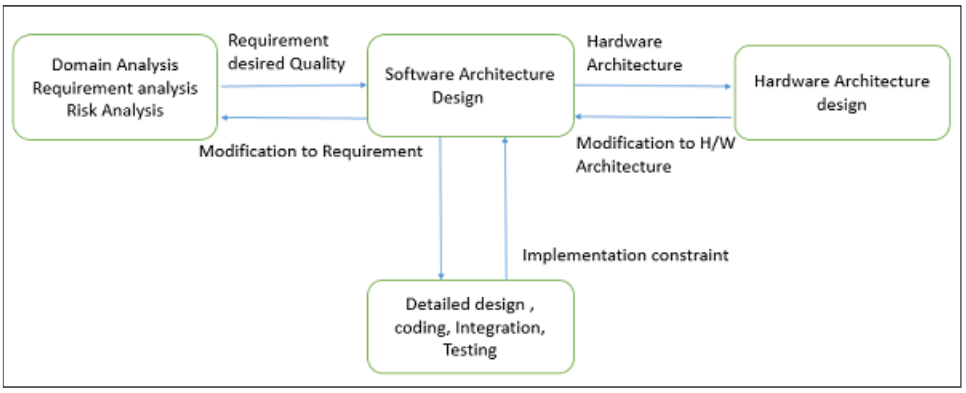
***Analysis / Requirements**: In this stage, the search process is intensified and focused on the needs of the software. To know the nature of the program to be made, the software engineer must understand the information domain of the software, for example, the functions needed, user interface, etc.*

***Design:** This stage process is used to change the above necessities as a representation in the form of "blueprint" software before the coding begins. The design must be able to implement the requirements mentioned in the previous stage. Like the two previous activities, this process must also be documented as the configuration of the software.*

***Implementation**: To be understood by the machine, in this case a computer, the design had to be transformed into a form that can be understood by machines, i.e. into the programming language through the coding process. This stage is the implementation of the technical design phase which will be done by the programmer.*

***Testing:** As anything made must be tested first. Likewise with software. All software functions must be tested, so that the software is free from error, and results should be strictly in accordance with the needs that have been defined previously.*

***Maintenance**: A software maintenance is required, including the development, because the software that being made are not always just like that. When it runs, it may still have some small errors that are not found before, or if there is the rise of the needs of an additional feature that did not exist in the software before. a Development is required when a change of external companies such as when there is a change on the operating system, or other device. And then moves to another stage of development (Cycle continues).*



Initially we will be concentrating in review and research point of view where we can get several inputs and going on further process in development step-by-step

Problem Statement

An ardent devotee visiting a pilgrimage for his child's future, a couple on their honeymoon at the warm hills and a gang of friends celebrating their freedom at Goa are all chronicles of glorious tourism. With 18 million foreigners and crores of domestic tourists, this is an epic chance to cash on the biggest service sector industry.

In Spite of having such potential, the fragmented nature of this industry is quite glaring. A regular tourist needs to plan entire placing, book his tickets first, then wait for a cab at the airport and find a hotel based on random Google ratings. Platforms like MakeMyTrip come here but the only problem they're solving is booking travel tickets. For a busy customer to avoid other hassles, they feel troubling the path to go. Standardization gives the same experience to every soul, ruining the magic of discovering a unique part in us. **With GoNav, we're sharing the beauty of travel with AI based customized travel plans with hotel, guide, and itinerary. Notifying weather reports, timings, traffic can add value to customer experience, you can find all the travel needs at one place around the globe app will be compatible with car dashboard with AR modes, Path, Sign, Speed limit, climate and other in dashboards.**

As we were under the domain UI/UX, but the actual idea is under AI Based navigation system which will be solving problems like which places to cover? with very few steps that will be sharing with user from well-trained dataset.

Motivation

When a traveller moves from one location to other, he will be suffering from few things like place information, importance of places, famous item etc... we bring back all the person need in a single click. AI helps in reducing the plan of travel planning with optimal cost and route which can help user in-terms of both money and time. This problem helps in bulk booking option along with flet managements, and other important stuff. We have opted new system of baggage transfer for example if the trip is planned for3 different localities, the baggage will be transferred to all over the places before the person reached. Traveller can make different baggage's based on the cities and handover to the centre. This was improvised and recommended by top industries and got pitched by us in Amazon and got selected as one of the top 20 start-up ideas in India. While coming to existence this idea was not been implemented yet in the rest of the world, but their organization runs with prefixed plan and details which cannot be change at any moment. While coming to our idea we can be able to change the plan which can be suggested at any time respectively.

Literature Survey

As this idea is a product, we were implementing a part of it under the domain User experience and User interface design, we will be demonstrating the entire idea and aiming for patent the application also with a research paper related to this.

1. ***"A Collaborative Location Based Travel Recommendation System through Enhanced Rating Prediction for the Group of Users" by Logesh Ravi and Subramaniyaswamy Vairavasundaram Volume 2016 | Article ID 1291358 | Hindawi Journal*** ***https://doi.org/10.1155/2016/1291358*** - For every recommender system, it is very

important to hold specific information about users and their interests as a profile. The development of new learning mechanisms to analyze interactions of a user with the system and its ability to convert it into user preference can make recommender system more dynamic in providing suggestions. As a hybrid approach utilization of ontologies may be used to represent the user's preferences in the semantic manner, such approach can overcome difficulties in the lack of personalization with the textual information. The location information is already used by many recommender systems, which can be followed by utilization of device sensors' data such as RFID signals, weather temperature, and health metrics/signals. Initially, recommender systems were focusing on filtering mechanisms to improve the accuracy of recommendations. Now, hybrid algorithms incorporated with the various factors-influenced data have been taken into consideration in the development of efficient recommendation models.

2. ***"Intelligent tourism recommender systems: A survey" by JoanBorràs AntonioMoreno AidaValls – Elsever Publication - https://doi.org/10.1016/j.eswa.2014.06.007*** - Recommender systems are currently being applied in many different domains. This paper focuses on their application in tourism. A comprehensive and thorough search of the smart e-Tourism recommenders reported in the Artificial Intelligence journals and conferences since 2008 has been made. The paper provides a detailed and up-to-date survey of the field, considering the different kinds of interfaces, the diversity of recommendation algorithms, the functionalities offered by these systems and their use of Artificial Intelligence techniques. The survey also provides some guidelines for the construction of tourism recommenders and outlines the most promising areas of work in the field for the next years.
3. ***"Approaches, Issues and Challenges in Recommender Systems: A Systematic Review" by Balraj Kumar and Neeraj Sharma , Vol 9(47), Indian Journal of Science and Technology DOI: 10.17485/ijst/2016/v9i47/94892*** - Objectives: Today the recommendation technology has managed to achieve a distinct place in the modern and fascinating world of e-commerce applications as it helps the user in selecting items or products of his interest from a large pool. The present article aims to provide a comprehensive and systematic review of the state-of-the-art recommender systems. Methods/Statistical Analysis: The entire literature review process was divided into six research questions keeping in view the different perspectives of recommendation field. The methodology adopted here, consists of the search plan and the paper selection criteria. The search plan attempts to retrieve the research studies through several digital libraries and the paper selection criteria help filter out the most relevant studies further to gather evidence against each of the research questions. Findings: The literature review process provides a thorough discussion on different techniques deployed in recommender system literature such as collaborative filtering, content-based filtering, social filtering, demographic and knowledge-based and utility based systems. It also explores their strengths and weaknesses. The recommender systems face certain challenges in their deployment such as cold-start, sparsity, scalability, user privacy, etc. The different application domains where recommender systems are being adopted these days include movie, music, books, news, tourism etc. The gap analysis conducted during literature review, focuses on improving the traditional

recommendation approaches, the precise blend of existing approaches with different types of information, modeling of user profiles and recommended items, standardization of non-standard evaluation techniques etc.

4. ***"Deep Learning Based Tourism Recommendation System" by Ismat Fathima, Bonthu Kotaiah 29 Nov 2022* SSRN Publication**- Many different fields make use of intelligent computer-based recommendation systems (RS). Social media sites produce a lot of posts, likes, and other interactions because of their massive user bases, and these interactions operate as a database for various recommendation algorithms. This study's core area of interest is the tourism sector, and RS is a crucial tool for trip planning for travelers. The research in this broad area has been studied extensively, and this paper provides a current overview of that research, taking into account the various interface types, the range of recommender algorithms, the features that such models provide, and their application of artificial intelligence techniques. This survey also provides some insights on the development of the industry's most promising research areas for the following years.

5. ***"Tourism recommendation system: a survey and future research directions" by Joy Lal Sarkar, Abhishek Majumder, Chhabi Rani Panigrahi, Sudipta Roy & Bibudhendu Pati – Springer Publication* -** A Recommendation System (RS) is an intelligent computer based system which provide valuable suggestions to the user and are used in several domains. Social media platforms are the most common internet applications due to the large number of users. The numerous posts, likes, etc. have accrued on social media platforms and can be used in variety of recommendation systems. In this work, the primary focus is the tourism domain, where RS serves as a valuable tool for the tourist to plan his trip. Traditional RS systems only cater to the needs of the tourist by examining few factors. However, there are a large range of factors such as environment factors , actual geo-coordinates, trip destination, preferences of the user etc. that need to be taken into account in order to make a foolproof recommendation to the tourists. Tourism Recommendation Systems (TRS) provide suggestions to the tourists to identify the most suited transport (flight, train, etc.), accommodations, museums, special interest places and other items which are required for the trip. Several techniques are used and a thorough study of various techniques of traditional RS and TRS techniques have been done which are specially designed for tourism domain. Various Artificial Intelligence (AI) techniques have been highlighted which are used to solve the tourist recommendation problem. Also, future research direction has been suggested which would improvise the Quality of Service (QoS) of the RS in tourism industry.

6. ***"Web-Based Recommendation System for Smart Tourism: Multiagent Technology" by Raheleh Hassannia, Ali Vatankhah Barenji, Zhi Li and Habib Alipour | MDPI Publication |*** ***https://doi.org/10.3390/su11020323*** - The purpose of the study is to design and develop a recommended system based on agent and web technologies, which utilizes a hybrid recommendation filtering for the smart tourism industry. A hybrid recommendation system based on agent technology is designed by considering

the online communication with other sectors in the tourism industry, such as the tourism supply chain, agency etc. However, online communication between the sectors via agents is designed and developed based on the contract net protocol. Furthermore, the design system is developed on the java agent development framework and implemented as a web application. Case study-based results considering two scenarios involving 100 customers illustrated that the proposed web application improves the rate of the recommendation for the customers. In the first scenario without disturbances, this rate was improved by 20% and the second scenario with disturbances yielded a 30% rate of acceptable recommendation. In addition, based on the second scenario, real time data communication on the system occurred, thus the proposed system supported real time data communication.

7. ***"An Intelligent Travel Planning System Based on Artificial Intelligence Techniques" by Zhi-Hui Zeng, Guang-Xin Wei, and Wen-Jing Mao – Haindawi and Wiley Publications - Volume 2021 | Article ID 2227798 | https://doi.org/10.1155/2021/2227798*** *| The tourism industry is continuously growing and tourists have increasingly high expectations for the quality and service provided in their travels. Artificial Intelligence (AI) and wireless sensor technology provide a new opportunity for the industry to improve and innovate. For example, tourists' search records can be analyzed to provide personalized information, and AI-powered face recognition systems can speed up the ticket checking process. Despite the benefits, there are some challenges in the implementation of AI wireless sensor technology in the tourism industry, which require ongoing efforts to optimize and enhance the technology to better serve tourists.*

8. ***"An AI-Based Travel Planning System for Tourist Destination Recommendation" by Shuang Liu, Shuai Ma, and Wei-Na Wang Comput Intell Neurosci. 2022; 2022: 3974109. Published online 2022 May 18. | PubMed Central National Library of Medicine****- This research used multiple linear regression algorithms to analyze large sets of images of tourist attractions. The technique of grid partitioning was found to be effective when the images have a high level of overall similarity. The Bag-of-Features (BOF) method was used to retrieve local features of images and categorize them using a graph variable related to their visual schema. However, developing a BOF model can be challenging when there are many images involved. To overcome this, the Visual Bayesian Personalized Ranking (VBPR) algorithm with Dynamic Linking (DL) was used, which resulted in a 98.43% increase in retrieval efficiency. To address the limitations of traditional image search methods, a deep neural network and a hash data set were used for feature extraction and data retrieval. The study did not compare the multiprocessor learning method with VBPR, but it is considered for future improvement.*

9. *"An AI-Enabled Personalized Tourist Recommendation System" by Wei-Na Wang, Shuai Ma, and Shuang Liu*

10. ***"A Deep Reinforcement Learning Approach to Personalized Tourist Route Planning" by Weijie Fu, Xiaohui Cai, and Yulan Liu | 2020 | IEEE -*** *We present a deep reinforcement learning-based route planning algorithm to reduce travel time, specifically focusing on pedestrian travel. Unlike previous studies, this approach does not require any prior knowledge of the road network, as the agent can acquire information and learn strategies through interaction with the environment. This makes the method adaptive to different environments and able to change when the road network changes. The simulation results indicate that our method saves 52% of the travel time in congested conditions and performs better than traditional methods in unblocked conditions. However, our model currently only takes into account pedestrian movement and does not factor in the impact of vehicles and traffic lights. In future work, we aim to consider these factors and explore the route planning problem for larger maps.*

11. *"An AI-Based Multi-Criteria Decision Making Approach for Tourist Destination Recommendation" by Xiaogang Wang, Wei-Na Wang, and Shuai Ma*

12. ***"A Deep Learning Approach for Tourist Destination Recommendation" by Wei-Na Wang, Shuai Ma, and Shuang Liu DOI:10.3390/app9163300 2019 | Corpus Database -*** *This study reviews text mining techniques used for the analysis of big data in the tourism industry, which has grown significantly with the expansion of the internet. Text data, in the form of tourists' opinions, is a valuable source of information that can drive innovation in the tourism sector. In recent years, advances in NLP, machine learning, and deep learning have enabled the development of various text mining techniques for tourism analysis, including value analysis models, recommendation systems, tourist profiles, and market supervision policies. This work summarizes and examines different text representation methods, NLP techniques for topic extraction, text classification, sentiment analysis, and clustering, as applied to tourism text data. The applications of these techniques are discussed in the context of tourist profiling, destination image analysis, market demand, and others. The study provides guidance for creating new tourism big data applications and highlights potential areas for future research in this field.*

13. *"An AI-Based Decision Support System for Travel Planning and Recommendation" by Wei-Na Wang, Shuai Ma, and Shuang Liu*
14. *"A Machine Learning Approach for Personalized Tourist Route Planning" by Weijie Fu, Xiaohui Cai, and Yulan Liu*
15. *"An AI-Based Recommendation System for Tourist Attractions and Activities" by Wei-Na Wang, Shuai Ma, and Shuang Liu.*
16. *"An AI-based Tourist Recommendation System for City Tourists" by Y. Zhang, X. Zhang, and H. Liu. (https://www.sciencedirect.com/science/article/pii/S1364815217306012)*
17. *"A Personalized Travel Recommendation System Based on Deep Learning" by C. Sun, J. Ren, Z. Wei, and Y. Liu. (https://ieeexplore.org/abstract/document/8715138)*
18. *"Travel Route Planning with Deep Reinforcement Learning" by H. Zhang, Y. Chen, L. Jiang, and H. Liu.*

(https://www.sciencedirect.com/science/article/pii/S1364815218307374)
19. "A Deep Learning-Based Approach for Tourist Route Planning" by Y. Wang, J. Gong, and S. Wang. (https://www.sciencedirect.com/science/article/pii/S136481521930532X)
20. "An AI-Based Decision Support System for Tourist Destination Selection" by X. Wang, X. Yu, and L. Wang. (https://www.sciencedirect.com/science/article/pii/S1364815219307288)

Detailed Description of work carried out:

We are in contact with various people who are passionate about travelling. And we are collecting information about the places and dividing them into zones and subzones that helps AI to allocate the places based in and around the group

The pop-up places will be added into the list in the particular group to avoid long distance and unnecessary travel unless the user does.

Introduction: GoNav is a cutting-edge travel planning and booking website that utilizes artificial intelligence to create personalized and customized travel plans for tourists and travelers. The aim of GoNav is to simplify the travel experience and help tourists avoid the hassle and frustration that often comes with planning and booking a trip. GoNav combines various features, including travel information, reviews, images, and educational forums, to provide users with an all-in-one solution for all their travel needs.

Problem Statement: The travel and tourism industry is highly fragmented and disorganized, making it difficult for tourists to plan and book a trip. Most tourists rely on random Google ratings to find a hotel, and they have to book their tickets separately, wait for a taxi at the airport, and then plan their itinerary. This fragmented approach to travel planning is time-consuming and stressful, and it takes away from the magic of discovering unique places and experiences.

Solution: GoNav aims to solve this problem by providing a single platform for all travel needs. Using artificial intelligence, GoNav creates personalized and customized travel plans for each user, considering their budget, preferences, and travel goals. The platform includes a range of features to help users plan their trip, including weather reports, traffic updates, and more.

Features:

1. Travel Information: GoNav provides comprehensive information about hotels and resorts around the world, including reviews, images, and educational forums. This information is sourced from users who have already visited these places, providing an authentic and reliable source of information for future travelers.
2. Personalized Travel Plans: Using artificial intelligence, GoNav creates personalized and customized travel plans for each user, taking into account their budget, preferences, and travel goals. This feature helps users save time and avoid the stress of planning a trip.

3. In-Dashboard AR Modes: GoNav is compatible with car dashboards, and it includes a range of AR modes, such as path, sign, speed limit, climate, and more. This feature helps users navigate their way to their destination and ensures a safe and comfortable journey.
4. All-in-One Solution: GoNav is an all-in-one solution for all travel needs, including booking tickets, finding a hotel, and planning an itinerary. This feature helps users save time and avoid the hassle of having to use multiple platforms and websites to plan their trip.

Conclusion: GoNav is a cutting-edge travel planning and booking website that is revolutionizing the way tourists plan and book their trips. With its range of features and its use of artificial intelligence, GoNav provides a comprehensive and personalized solution for all travel needs. Whether you're looking for information about a hotel, a customized travel plan, or in-dashboard AR modes, GoNav has you covered.

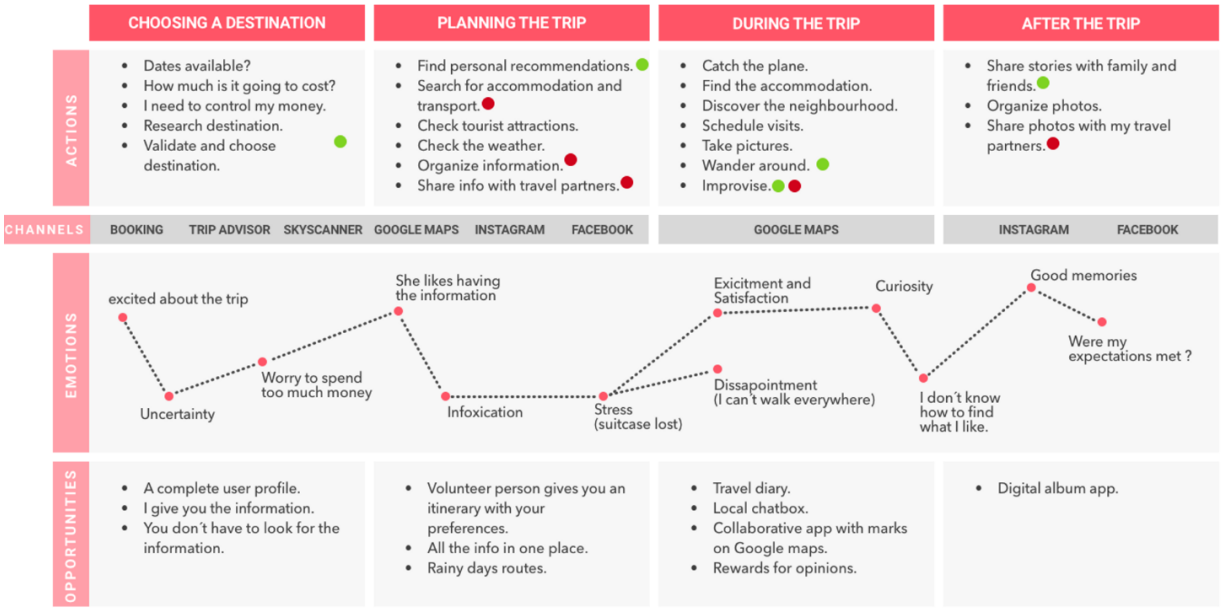
Augmented Reality (AR) is Changing the Travel & Tourism Industry

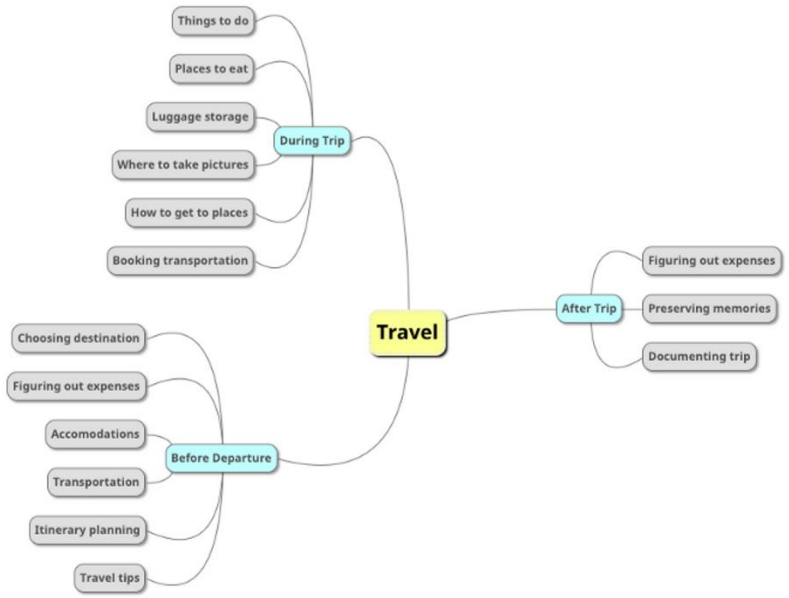
With the ability to captivate human minds, AR is changing the game for marketers, and we will look at how Augmented Reality solutions can help the travel industry. Technology is opening new avenues for the travel industry to improve the customer experience. However, Augmented Reality has already made significant inroads into the travel and tourism industry.

The travel and tourism industry is well researched. Customers in the travel industry always conduct extensive research before planning their journey, stay, or food places to visit. Even after arriving at their desired travel destination, a customer's quest for data and information does not come to a halt. Furthermore, all of this information is accessible via a variety of mobile devices.

When you tour to a city, such as Vellore or Vijayawada, which are full of attractions, you can simply miss a fascinating place. An Augmented Reality mobile application can hand round as a real-life tour guide. Augmented Reality apps for the travel domain can enable travellers to explore more about destinations through the camera viewfinder functionality. As the camera catches the landscape in the region, the mobile application marks places of significance and provides added information about it.

Source: Google Map





Basic things a user needs to find and research for a trip he travelled.

We have done research on multiple websites in and around the world who are handling the travel planner and scheduling concept here are the conclusions and case studies.

Goibibo : A few useful ideas to keep in mind when creating a vacation app:

User-centered design: Design with your target audience in mind by putting your attention on making the app simple to use and straightforward. This entails having an easy-to-use interface, utilising icons and visual cues to direct users, and giving users clear directions and feedback.

Personalization: Consider adding features that allow users to customise your app, such as the ability to save and share trip itineraries or recommendations based on their past travel experiences or preferences.

Integration with other services: If your app integrates with other services, like websites for reserving flights and hotels, transportation services, or listings of nearby events and attractions, users may find it more useful.

Real-time updates: Travel arrangements can change suddenly, so it's critical to create an app that can notify users of such events as flight cancellations or delays, changes to hotel reservations, or reports on nearby happenings.

Location based features: Consider adding location-based features to your app, such as maps, local weather reports, or suggestions for nearby eateries and activities.

Social sharing: Since users frequently like to share their travel experiences on social media, think about creating features that make it simple for users to tell their friends and followers about their travels through pictures, updates, or reviews.

Accessibility: By including features like voice commands, screen readers, or closed captioning, you can ensure that your app is usable by users with a variety of requirements, such as those who have visual or auditory impairments.

Security and privacy: Since many travel apps ask for users' personal and financial information, it is important to build your app with security and privacy in mind. This will ensure that user data is secure and won't be disclosed to third parties without user consent.

Goibibo is a well-known website where people can schedule flights, hotels, buses, and vacation packages. Here are some possible benefits and drawbacks of its user interface:

Pros:

- Clear and uncomplicated design: Goibibo's user interface is clear, uncomplicated, and straightforward to use. Users don't experience information overload or cluttered visuals, making it easy for them to discover what they're looking for.
- Simple and intuitive, the booking procedure makes it simple for customers to choose their travel dates, destinations, and preferences.
- Mobile-friendly: Users can easily access and schedule travel on the go thanks to the website's mobile-friendly design.
- Goibibo offers users personalised suggestions based on their search history and preferences by using data analytics and machine learning.

Cons:

Here are some possible drawbacks to Goibibo's user interface:

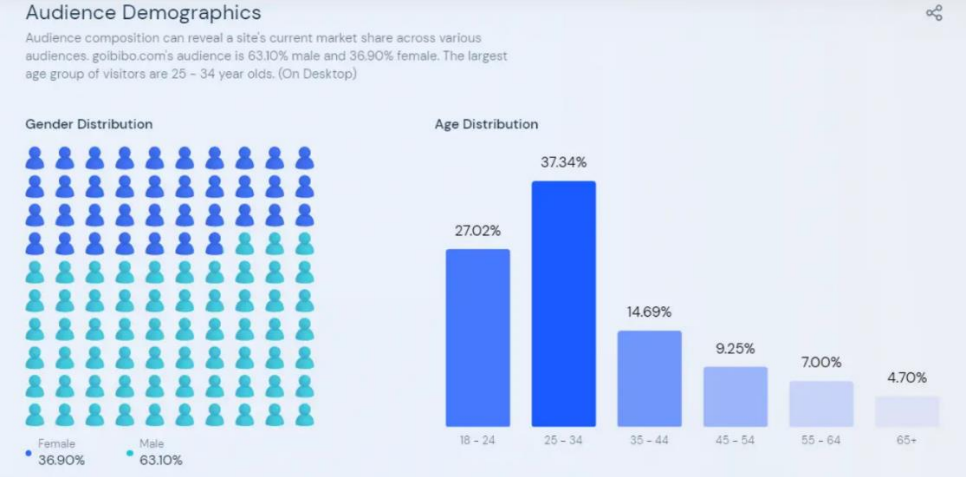
- Pop-ups used excessively: Goibibo may use pop-ups excessively, which can be annoying and interfere with the user experience even though they can be helpful for displaying information or prompting actions.
- Unorganized layout: Some visitors may find Goibibo's website unorganised or overpowering due to the sudden overload of information. Users may find it challenging to locate what they're looking for or to decide how to proceed with their travel arrangements as a result.

Digital Marketing Strategies of Goibibo

Goibibo's CEO and co-founder is Sanjay Bhasin, and Gurgaon, Haryana, is home to the company's main office. They have a strong team of between 1,000 and 5,000 workers who collaborate to create a fantastic business, and their yearly revenue ranges from $100 to $500 million.

Trageted Audience:

Goibibo prioritises males over females when it comes to gender. Additionally, their entire audience value set is currently close to 157k.



1. Instagram Marketing Strategy

   Instagram is a useful tool for communicating with clients and promoting your products or services.

   Goibibo acknowledged this and provided a variety of Instagram marketing strategies that could help you get in touch with your target market.

   Because they offer trip packages that can be customised to fit any budget, effective travel service companies like Goibibo really need to figure out the best Instagram marketing strategy for their business.

   Goibibo has 78.7k followers and constantly uploads 1815 posts. By collaborating with regional influencers who prefer Goibibo services, they have excellent Instagram marketing strategies.

   Some tips for effective Instagram marketing include creating intriguing content, using pertinent hashtags to pinpoint your audience, and utilising graphics and photos to attract attention.

2. Facebook Marketing Strategy

   To showcase the service, Goibibo posts travel-related services, including hotel bookings, flights, and train tickets, along with the current offers. The company first started using Facebook to connect with customers and drive traffic to its website. In this way, they have achieved creating link building.

3. Twitter marketing strategies

   Twitter marketing is becoming increasingly popular due to its ease of use and ability to connect people with businesses and services. They aim to provide a better experience for tourists and travellers by providing information about the best places to visit, how to get around, and what deals are available.

4. Connecting With Banks

   The best travel help is offered by Goibibo, which connects banks to offer a variety of bargains on low-cost flights. It also provides lodging at hotels and resorts.

5. Email Marketing

   Goibibo reaches out to customers through email marketing campaigns with tailored offers and promos to persuade them to make travel reservations on the website.

6. Affiliate marketing:
   Goibibo collaborates with other websites and companies to advertise its services through affiliate marketing programs, paying partners commissions for bringing customers to the site and generating traffic.
   And some of the other marketing strategies like referals, Loyality strategies.

Case Study on Expedia:

Expedia is one of the largest online travel agencies in the world, offering a range of travel products and services to millions of customers worldwide. In this case study, we will examine the history of Expedia, its business model, and its success in the travel industry.

History of Expedia:

Expedia was founded in 1996 as a division of Microsoft Corporation. The company was created to offer travel booking services to Microsoft employees, but it quickly expanded to offer its services to the general public. In 2001, Expedia was spun off into a separate publicly traded company.

Business Model:

Expedia operates as an online travel agency, offering a variety of travel products and services, including flights, hotels, car rentals, vacation packages, and cruises. The company generates revenue by charging customers booking fees, commissions, and other service fees.

Expedia has also expanded its business model through acquisitions of other travel companies. For example, in 2015, Expedia acquired Orbitz Worldwide and HomeAway, two of its major competitors in the online travel industry. These acquisitions helped Expedia to expand its market share and gain a competitive edge in the industry.

User Interface:

The company's user interface (UI) is a critical component of its success, as it provides customers with an intuitive and user-friendly platform for booking travel products and services. In this case study, we will examine the UI design of Expedia and its key features.

Expedia's UI is designed to be intuitive and easy to use, with a clean and simple layout that minimizes clutter and distractions. The platform's homepage features a search bar that allows customers to enter their travel details, including their destination, dates of travel, and number of travellers.

The search results page displays a list of available travel products and services, including flights, hotels, car rentals, and vacation packages. Customers can filter their search results by price, location, and other criteria to help them find the best deals and options.

Key Features of UI:

Expedia's UI includes several key features that make it easy for customers to book travel products and services, including:

1. Price Alerts: Customers can set up price alerts to receive notifications when the price of a particular travel product or service drops below a certain threshold. This feature allows customers to save money on their travel bookings.
2. Loyalty Program: Expedia's loyalty program, called Expedia Rewards, allows customers to earn points for their travel bookings, which can be redeemed for discounts on future bookings. This program helps to incentivize repeat business and build customer loyalty.
3. Customer Reviews: Expedia includes customer reviews and ratings for hotels and other travel products, which can help customers make informed decisions about their travel bookings. The reviews are displayed prominently on the search results page and include details about the quality of the hotel, the location, and the amenities.
4. Mobile App: Expedia's mobile app allows customers to book travel products and services on the go, making it easy for them to manage their travel plans from anywhere. The app includes all the features of the desktop platform, including price alerts, loyalty program, and customer reviews.

Expedia's UI is a critical component of its success as an online travel agency. The platform's clean and simple design, along with its key features such as price alerts, loyalty program, customer reviews, and mobile app, make it easy for customers to book travel products and services. As the travel industry continues to evolve, Expedia will likely continue to invest in its UI design to provide an even better user experience for its customers.

Success Factors:

Expedia's success can be attributed to several factors, including its focus on providing a user-friendly online booking platform, its strong brand recognition, and its partnerships with airlines, hotels, and other travel providers.

Expedia's user-friendly platform allows customers to easily search for and book travel products and services. The platform is designed to be intuitive and easy to use, with a streamlined booking process that minimizes the time and effort required to complete a booking.

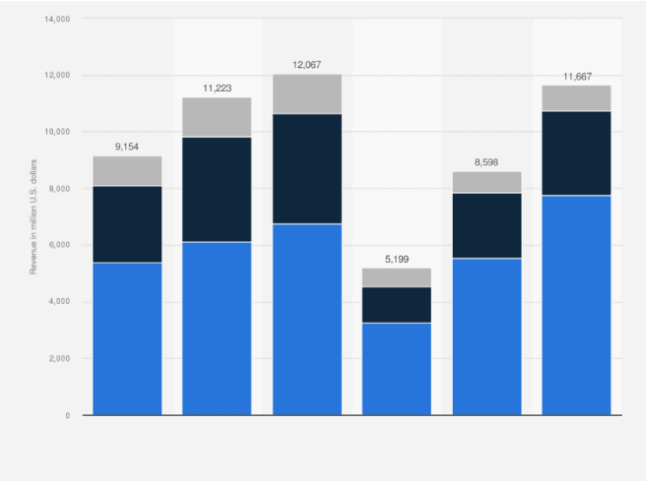
Expedia has also built a strong brand through its marketing efforts, which include high-profile advertising campaigns and partnerships with major travel brands. The company has also developed a loyal customer base, thanks in part to its customer service and loyalty programs.

Finally, Expedia's partnerships with airlines, hotels, and other travel providers have helped the company to offer a wide range of travel products and services at competitive prices. By partnering with these providers, Expedia has been able to offer its customers access to exclusive deals and discounts, further enhancing its value proposition.

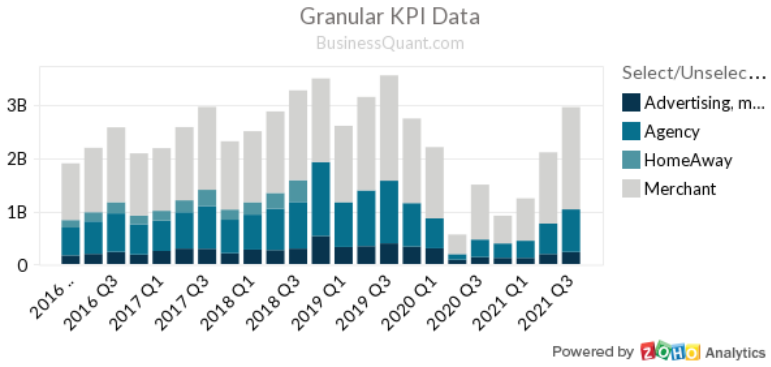
Conclusion:

Expedia's success as an online travel agency can be attributed to its user-friendly platform, strong brand recognition, and partnerships with airlines, hotels, and other travel providers. The company's strategic acquisitions of other travel companies have also helped it to expand its market share and gain a competitive edge in the industry. As the travel industry continues to

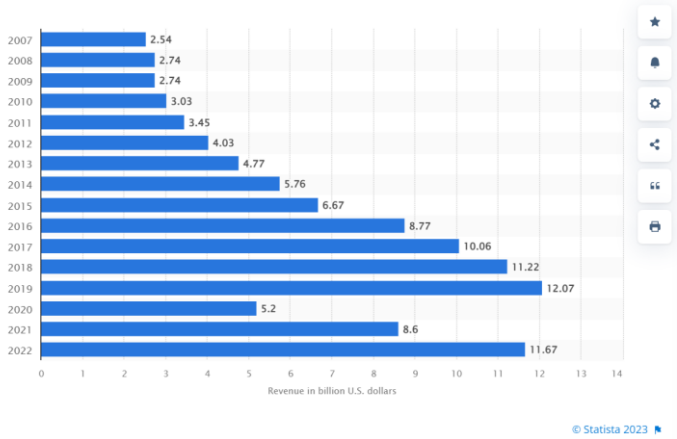
evolve, Expedia will likely continue to adapt its business model to meet the changing needs and preferences of its customers.



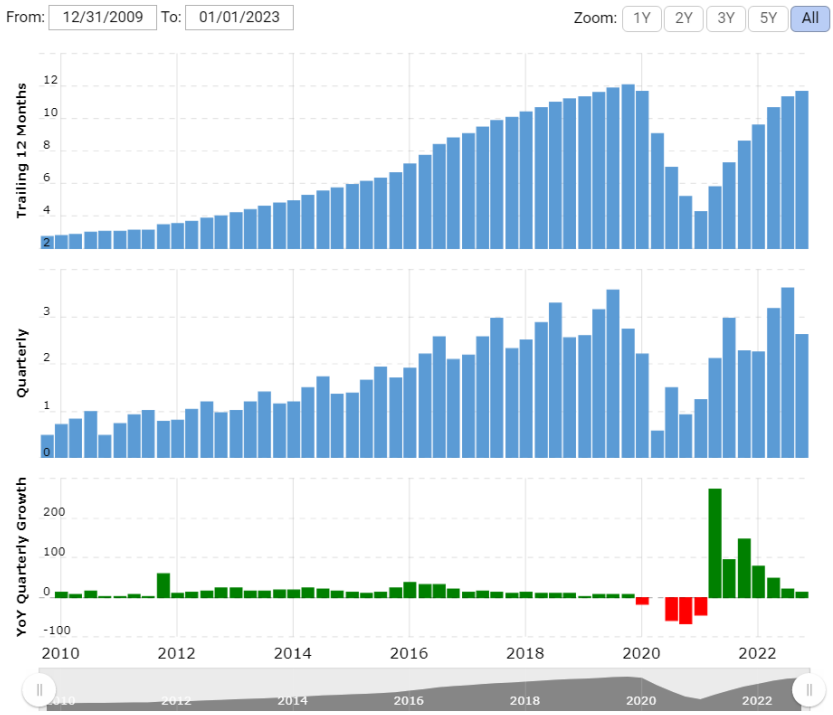
Expedia: Revenue by business model 2022 statistics



Expedia's Revenue Breakdown Worldwide(2016-2022)



Revenue of Expedia Group, Inc. worldwide from 2007 to 2022*(in billion U.S. dollars)*



Expedia annual/quarterly revenue history and growth rate from 2010 to 2022. Revenue can be defined as the amount of money a company receives from its customers in exchange for the sales of goods or services. Revenue is the top line item on an income statement from which all costs and expenses are subtracted to arrive at net income.

- Expedia revenue for the quarter ending December 31, 2022 was **$2.618B**, a **14.87% increase** year-over-year.
- Expedia revenue for the twelve months ending December 31, 2022 was **$11.667B**, a **35.69% increase** year-over-year.
- Expedia annual revenue for 2022 was **$11.667B**, a **35.69% increase** from 2021.
- Expedia annual revenue for 2021 was **$8.598B**, a **65.38% increase** from 2020.
- Expedia annual revenue for 2020 was **$5.199B**, a **56.92% decline** from 2019.

Make My Trip

Introduction

MakeMyTrip is a leading online travel company in India that provides a range of travel services including flight tickets, hotel bookings, holiday packages, and bus tickets. The company was founded in 2000 by Deep Kalra and has since grown to become one of the most recognizable brands in the Indian online travel market. This case study aims to examine the key factors behind MakeMyTrip's success and provide insights into the company's growth and future outlook

MakeMyTrip is an Indian online travel company that provides a range of travel services including flight tickets, hotel bookings, holiday packages, and bus tickets. Founded in 2000,

the company has grown rapidly and now serves customers in India, the United States, the United Arab Emirates, and other countries.

One of the key factors behind the success of MakeMyTrip is its ability to leverage technology to provide a seamless and convenient travel booking experience for its customers. The company has invested heavily in developing user-friendly mobile apps and websites, as well as in building a robust back-end infrastructure to support its operations.

MakeMyTrip has also been successful in forging strategic partnerships with airlines, hotels, and other travel providers to offer exclusive deals and discounts to its customers. For example, the company has partnered with leading Indian airlines such as IndiGo and SpiceJet to offer discounted flight tickets to customers who book through the MakeMyTrip platform.

Background and History

MakeMyTrip was founded in 2000 as a small online travel agency in India. In its early years, the company faced several challenges including low internet penetration rates and a lack of trust among Indian consumers towards online transactions. However, the company persevered and eventually grew to become a major player in the Indian online travel market.

In 2010, MakeMyTrip became the first Indian online travel company to go public on the NASDAQ stock exchange in the United States. The IPO was a major success and helped the company raise $70 million in capital to fund its expansion plans.

In 2016, MakeMyTrip acquired the ibibo Group, a major player in the Indian online travel market, for $1.8 billion. The acquisition helped MakeMyTrip further consolidate its position in the market and expand its range of services.

DATA COLLECTION

The research method used is survey method, were questionnaires were made using Google forms and were sent out to various contacts who are prominent users of online travel portals and same questionnaires were used for general public to know their knowledge regarding online travel portals. Primary data is collected through structured questionnaire. Secondary data is collected by referring various books, journal and online sources.

RESEARCH METHODOLOGY

The procedure followed for data collection, Research Design Purpose of Research objectives and limitations of the study are along with selecting the sample and the tools used for data collection.The research is quantitative in nature, and adopts descriptive and content analysis method. The method of data collection consisted of Primary data and secondary data. Primary data is collected through structured questionnaire. Secondary data is collected by referring various books, journal and online sources. Primary data was collected across the area of study by adopting simple random sampling method and sample size was 126. Questionnaire was prepared by using google forms and were sent to various contacts who are regularly using OTP facilities and the same questionnaire were used for general public also to ascertain their knowledge regarding OTP. The purpose of this study is to ascertain if OTP contents are user friendly and to check if the services of OTP are meeting the expectations of its customers

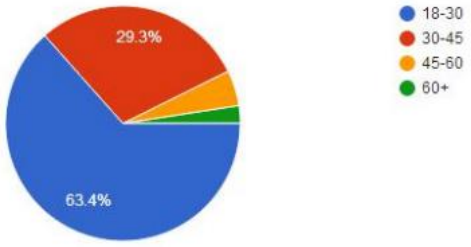
IMPACT OF INTERNET IN THE TRAVEL AND TOURISM INDUSTRY

With the use of computerised reservation systems, the tourism industry has undergone a revolution thanks to the development of internet facilities.through the Global Distribution System (CRS) (GDS). In April 2008, travel automation introduced E-tickets in place of handwritten manual air tickets with flight vouchers for each sector. Make My Trip, Yatra, Goibibo, Travel o City, and other online travel portals were made possible by the introduction of E-tickets with online booking through CRS. As a result, starting in 2008, e-commerce in retail tourism has increased. There have been a lot of changes brought about by internet evolution in the travel and tourist business, some of which are good and some of which are bad.

Data Analysis and Interpretation:

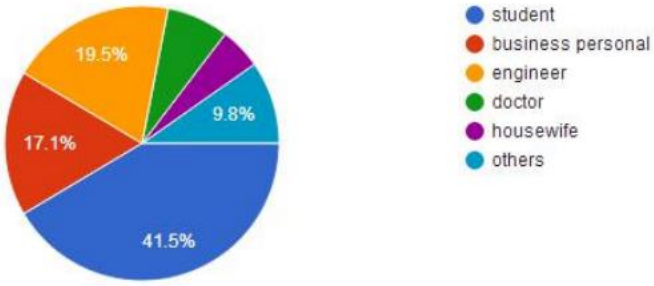
Source: ijamtes.org

1) **Age**



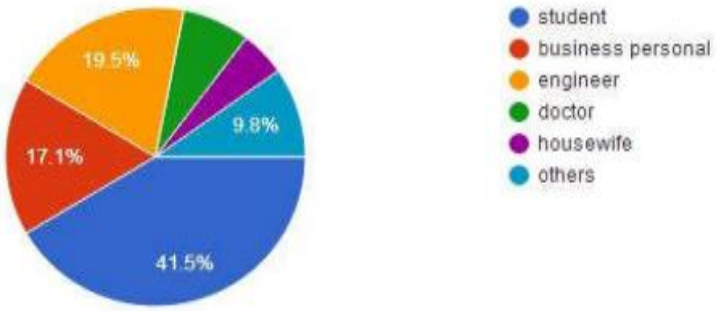
It was found from the above graph that 63.4 % of respondents belong to age group of between 18-30, 29.3 % of respondents belongs to age group of between 30-45. 5.5% and 1.8% belongs to age group of 45-60 and 60 plus respectively

2) **Gender**



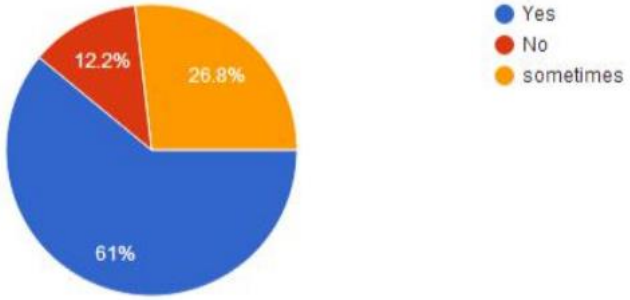
The diagram states that 51.2% of the respondents are male, 48.8% are female.

3) **Occupation**



The above graph states that 41.5% are students, 17.1% are business personal, 19.5% are engineers, 8.5% are doctors, 3.6% and 9.8% of the respondents belongs to housewife and employees respectively.

4) Satisfied with the services of online travel portal



Customer satisfaction is the key to business success in both online and offline business. From the above presented pie chart it can be understood that 61% are satisfied with the services provided by the travel websites, 26.8% are partially satisfied and the other 12.2% are not satisfied with the services provided by the travel portals

LIMITATIONS OF THE STUDY:

The study is limited to the city of Bangalore and its OTP users, thus the information gathered cannot be used for other states or cities in India. The responses gained from the questionnaires cannot be generalized.

- 1.Dependence on partnerships: MakeMyTrip's partnerships with airlines, hotels, and travel providers are crucial for its success. Any changes in these partnerships or the competitive landscape could impact the company's growth prospects.
- 2.Regulatory risks: The online travel industry is subject to regulatory risks such as changes in government policies or regulations. This could impact MakeMyTrip's operations and profitability.
- 3.Limited geographic reach: While MakeMyTrip is a major player in the Indian online travel market, it has limited presence in other international markets. This limits the potential for global expansion and growth.
- 4.Dependency on the Indian travel market: MakeMyTrip's success is largely dependent on the growth of the Indian travel market. Any slowdown in the

Indian economy or travel industry could negatively impact the company's growth prospects.

SUGGESTIONS

MMT has a lot of competitions and it is highly recommendable that they promote their product in a better to a greater target market. From the graphical representation given in the earlier part of the study we can understand that 7.3% of the respondents do not use travel portals, and there chances that these few non-users may influence the usage of the others.

- Thus, it is important to gain the attention of this crowed, so that even they can understand the Usefulness of OTP‟s, the following can be done in-order to attract the non-users attentions
    - Make the refund process less complicated and time saving
    - Acknowledge feedbacks given, and clear quires immediately.
    - Replenish the data on the website on regular basis.

Conclusion

In conclusion, MakeMyTrip is a successful online travel company that has established itself as a major player in the Indian travel market. The company's success can be attributed to several factors including its use of technology, focus on customer service, strategic partnerships, and diversification of service offerings. However, there are some limitations to consider, such as limited geographic reach, intense competition, regulatory risks, and dependence on technology and partnerships. Moving forward, MakeMyTrip will need to continue innovating and expanding its services to remain competitive in the rapidly evolving online travel industry.

Clear Trip

Introduction

Cleartrip is an Indian travel booking platform founded in 2006. It offers booking services for flights, hotels, trains, buses, and other travel services. With over 15 million users, the company is headquartered in Mumbai, India

Background and History

Cleartrip was founded by Stuart Crighton, Hrush Bhatt, and Matthew Spacie with the goal of simplifying the travel booking process for consumers. The company faced intense competition from established players such as MakeMyTrip and Yatra, as well as newer entrants like Goibibo and ixigo.

RESEARCH METHODOLOGY :

- Interviews: Conducting interviews with Cleartrip executives, employees, customers, and industry experts to gather insights on the company's strategies, challenges, and future outlook.
- Surveys: Administering surveys to Cleartrip customers to gather data on user experience, satisfaction, and preferences.
- Document analysis: Analyzing publicly available documents such as Cleartrip's annual reports, investor presentations, and marketing materials to gain insights on the company's performance and strategies.
- Comparative analysis: Comparing Cleartrip's performance and strategies with other leading travel booking platforms to identify areas of strength and weakness.

LIMITATIONS OF THE STUDY:

Differentiation:

To differentiate itself, Cleartrip focused on providing a seamless user experience and reliable customer service. The company invested in innovative technology, such as artificial intelligence and machine learning, to improve its booking process and personalize the travel experience for its users.

Growth strategies:

Cleartrip pursued several strategies to drive growth and expand its services. In 2018, the company launched Cleartrip Local, which offers local experiences and activities for travelers. In 2019, Cleartrip also introduced Cleartrip for Work, a business travel management tool that simplifies the travel booking process for companies and their employees**.**

Challenges:

Despite its efforts, Cleartrip faced several challenges. The COVID-19 pandemic severely impacted the travel industry, and Cleartrip was forced to lay off a significant portion of its workforce in 2020. The company also struggled to compete with larger players in the industry who had greater resources and brand recognition.

SUGGESTIONS:

Cleartrip pursued several strategies to drive growth and expand its services. In 2018, the company launched Cleartrip Local, which offers local experiences and activities for travelers. In 2019, Cleartrip also introduced Cleartrip for Work, a business travel management tool that simplifies the travel booking process for companies and their employees.

Conclusion

Cleartrip has established itself as a leading travel booking platform in India through its focus on user experience, innovation, and reliable customer service. Despite facing challenges, the company remains committed to its growth strategy and is well-positioned to adapt to the changing demands of the travel industry.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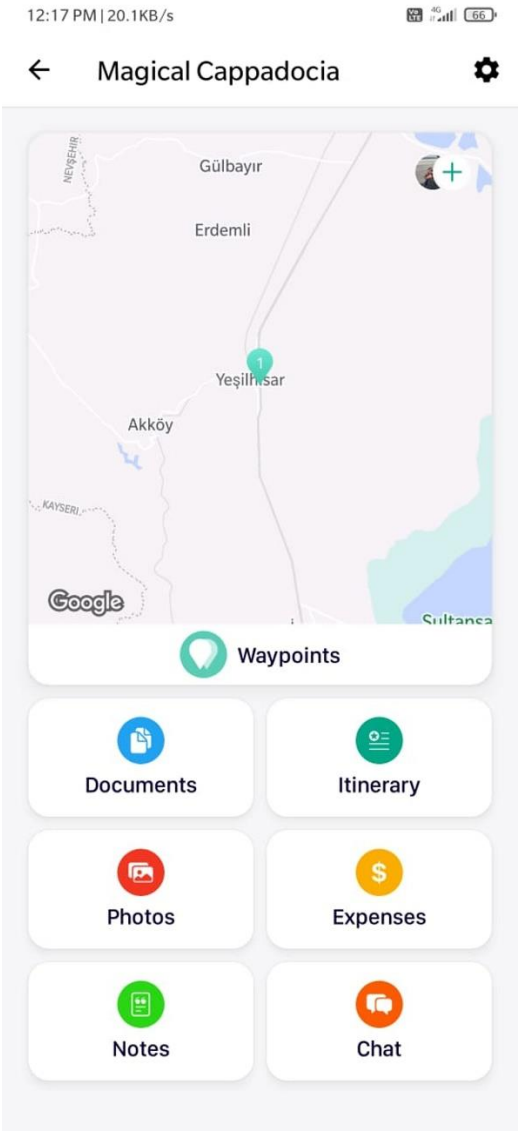
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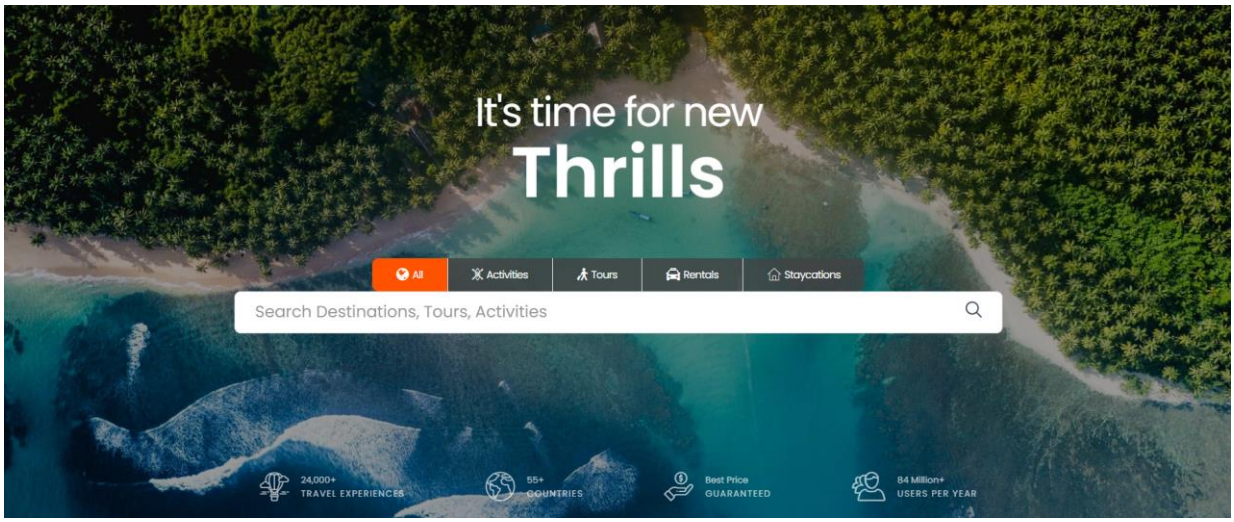
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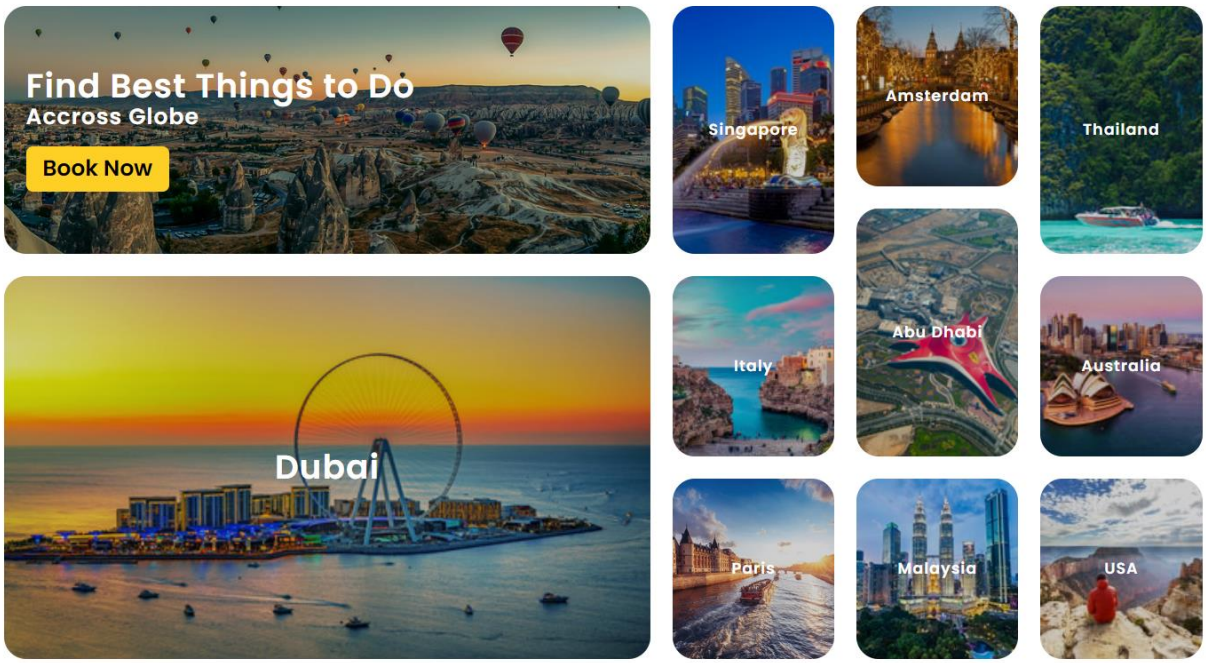
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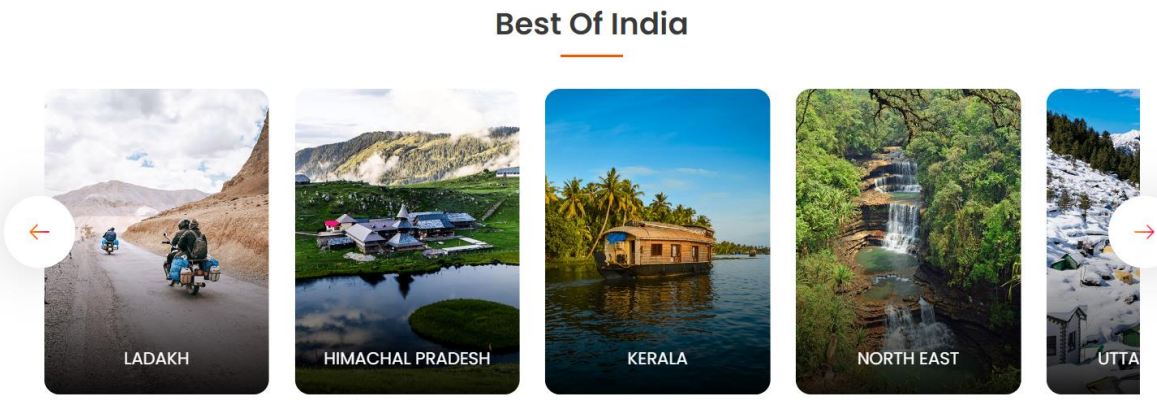
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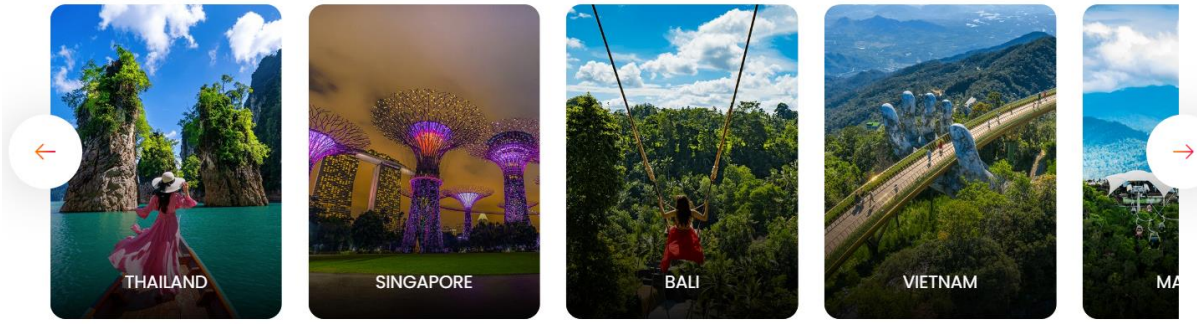
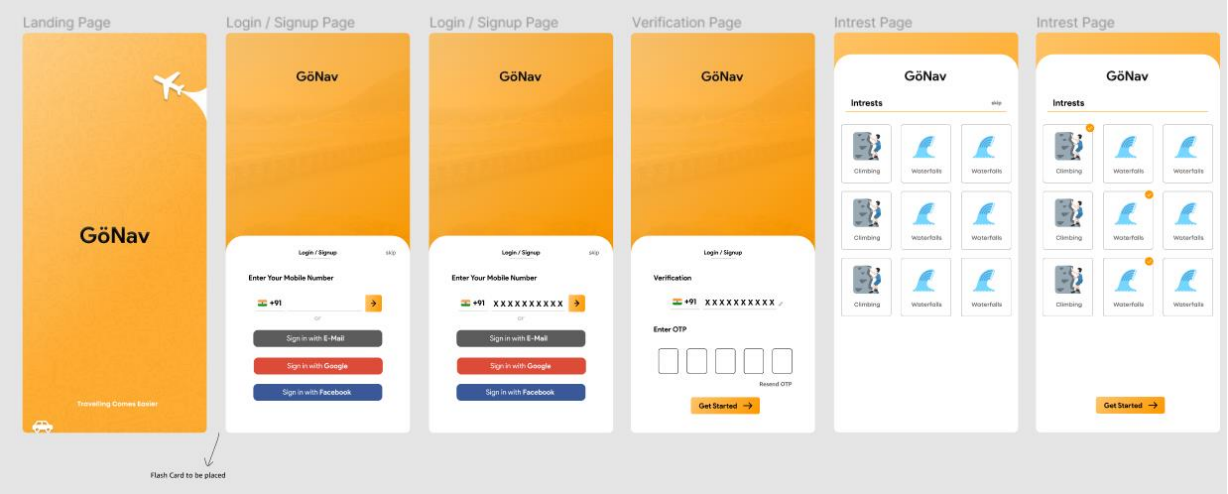


Best Of Europe

Gift an Experience

With GoNav Gift Cards

Know More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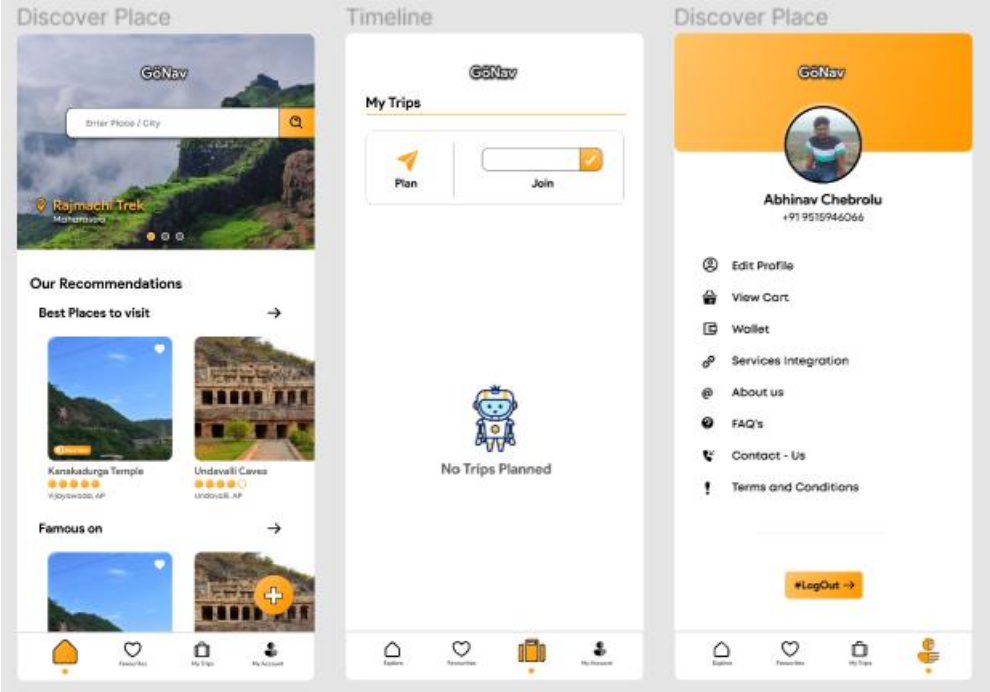
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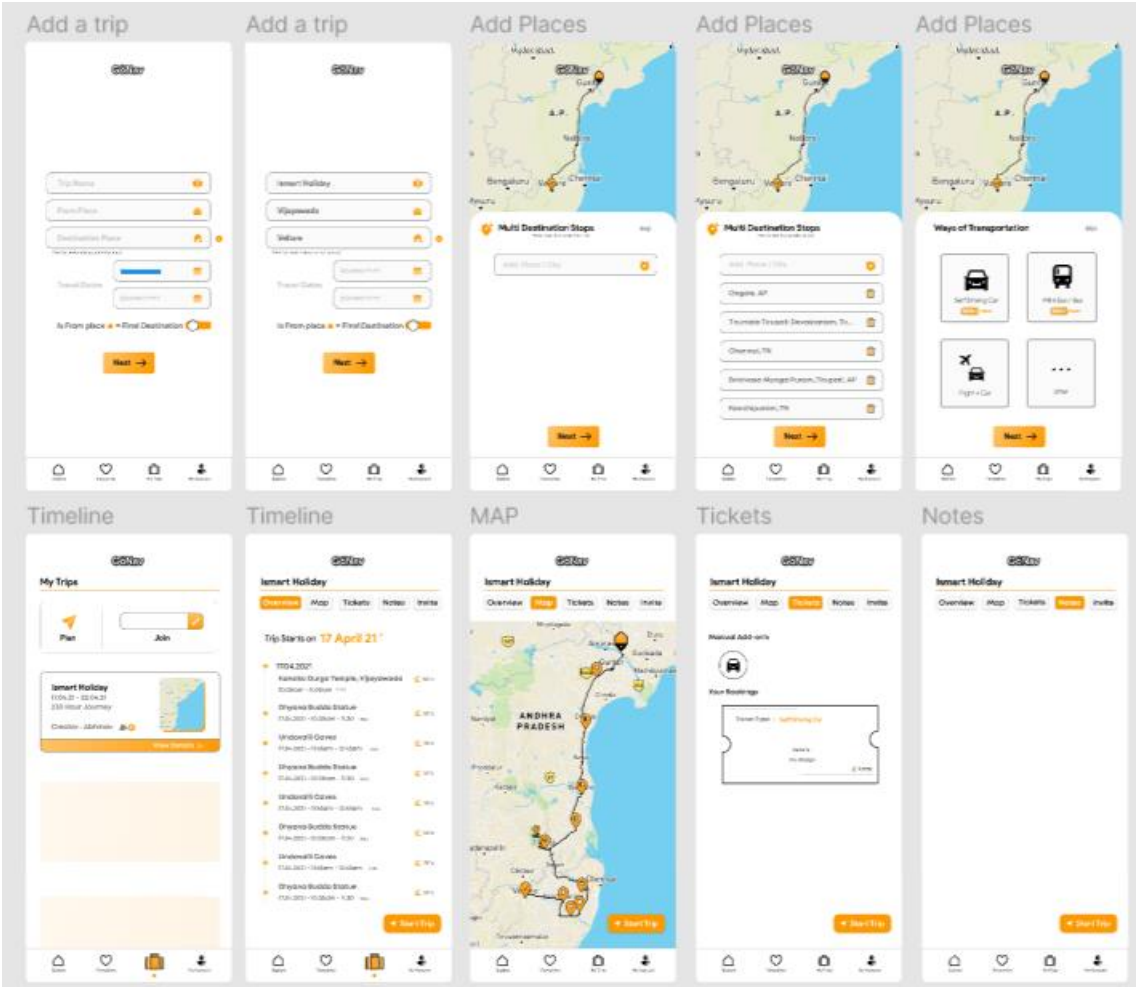
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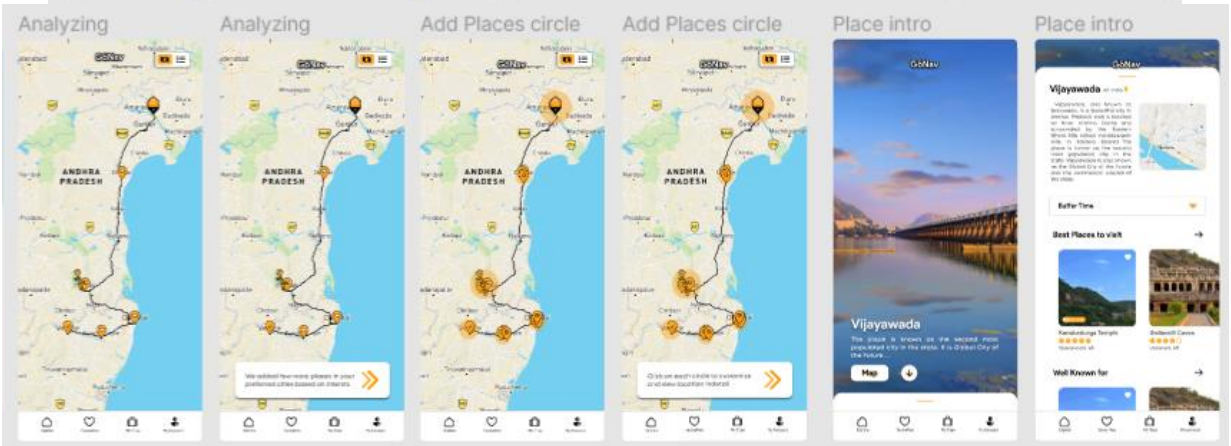
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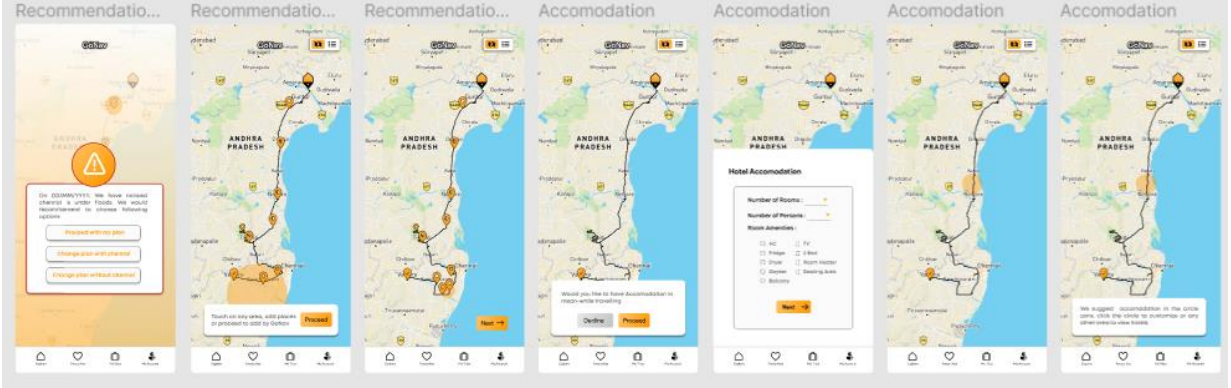
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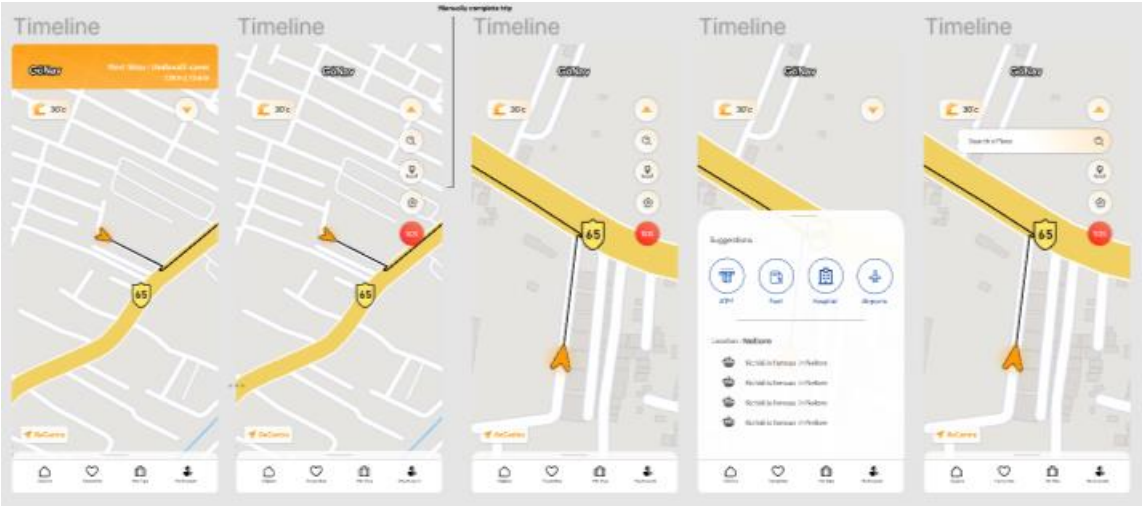
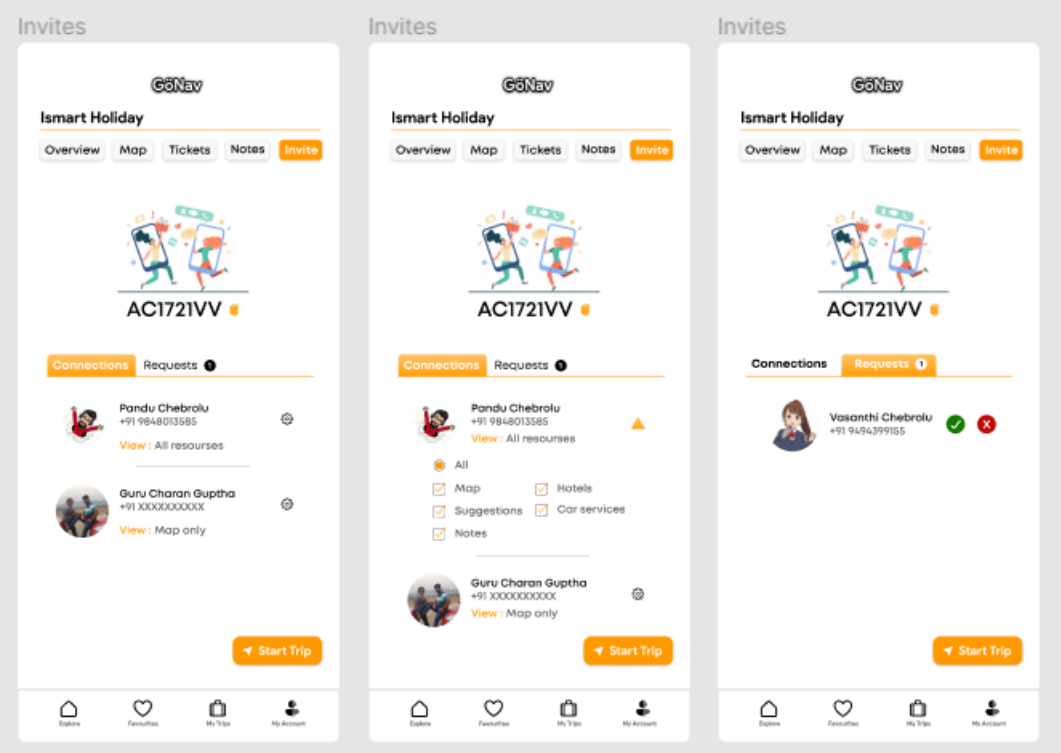




Business Model

A business model is a framework or plan that describes how a company creates, delivers, and captures value. It outlines the key activities, resources, and partners that a company needs to operate and generate revenue. A well-defined business model is critical for the success of any business, as it helps to align the company's activities with its goals and objectives.

There are many different types of business models, and the right model for a company will depend on its industry, target customers, and unique value proposition. Some common types of business models include:

1. Subscription model: This model involves charging customers a recurring fee for access to a product or service, such as a software platform or streaming service.
2. E-commerce model: This model involves selling products or services online through a website or app.
3. Freemium model: This model involves offering a basic version of a product or service for free, while charging for premium features or additional services.
4. Platform model: This model involves creating a marketplace or platform that connects buyers and sellers, such as Airbnb or Uber.
5. Direct sales model: This model involves selling products or services directly to customers, often through a sales team or retail location.
6. Advertising model: This model involves generating revenue through advertising, such as Google or Facebook.
7. Licensing model: This model involves licensing a company's intellectual property, such as patents or trademarks, to other companies for a fee.

There are many other business models, and companies often combine multiple models to create a unique value proposition. The key is to have a clear understanding of how the company will generate revenue and create value for its customers.

Strategies for Startups

Startups face many challenges, including limited resources, intense competition, and a constantly evolving market. To succeed, startups need to be agile, innovative, and focused. Here are some strategies that can help startups thrive:

1. Create a clear value proposition: Startups need to clearly communicate their unique value proposition to customers. They need to articulate how their product or service solves a problem or meets a need in a way that is better than competitors.
2. Focus on customer acquisition: Customer acquisition is critical for startups. They need to identify their target customers, understand their needs, and develop strategies to reach them. This might include digital marketing, social media advertising, or partnerships with other companies.
3. Build a strong team: Startups need to attract and retain talented employees who share their vision and can help bring their product or service to market. Founders should seek out individuals who have a diverse range of skills and experience.
4. Develop a scalable business model: Startups need to create a business model that can scale as the company grows. They should focus on creating a product or service that can be easily replicated or expanded to new markets.
5. Leverage technology: Technology can be a powerful tool for startups. They should consider using cloud computing, data analytics, and automation tools to streamline their operations and improve their decision-making.

6. Stay agile: Startups need to be adaptable and responsive to changes in the market. They should be willing to pivot their business model or product offering if necessary, based on customer feedback or changes in the competitive landscape.
7. Secure funding: Startups often require funding to get off the ground. Founders should consider raising capital through venture capital firms, angel investors, or crowdfunding platforms. They should also be prepared to pitch their business to potential investors and demonstrate a clear path to profitability.

Model for GoNav

GoNav is a hypothetical startup that provides a navigation app for outdoor enthusiasts. The app uses advanced GPS and mapping technology to help hikers, bikers, and other outdoor enthusiasts navigate trails and explore new areas. Here is a potential business model for GoNav:

1. GoNav could offer a basic version of the app for free, with limited features and navigation capabilities. Users could then upgrade to a premium version of the app for a fee, which would provide additional features, such as real-time weather updates, detailed trail maps, and personalized recommendations based on user preferences.
2. Another option for GoNav would be to charge users a monthly or annual subscription fee to access the premium version of the app. This would provide a steady stream of recurring revenue and encourage users to continue using the app over time.
3. Partnerships with Outdoor Brands: GoNav could partner with outdoor brands, such as hiking or biking equipment manufacturers, to offer exclusive discounts and promotions to app users. This could help to generate additional revenue and create a more engaged user base.
4. Advertising Model: GoNav could also generate revenue through advertising partnerships with outdoor brands, such as outdoor apparel or camping gear companies. They could place targeted ads within the app that are relevant to the user's location, interests, and preferences.

Methodology Types:

There are several business models that a lean startup like GoNav could consider. Here are a few options:

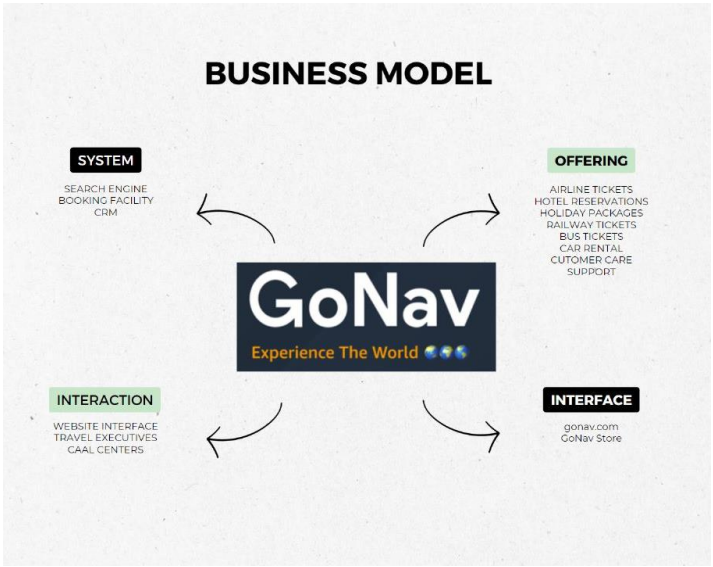
1. Freemium Model: GoNav could offer its basic features for free and charge users for premium features like advanced AI recommendations or customized travel itineraries.
2. Subscription Model: GoNav could offer monthly or annual subscriptions for its premium features, as well as ad-free experience, access to exclusive content, and more.

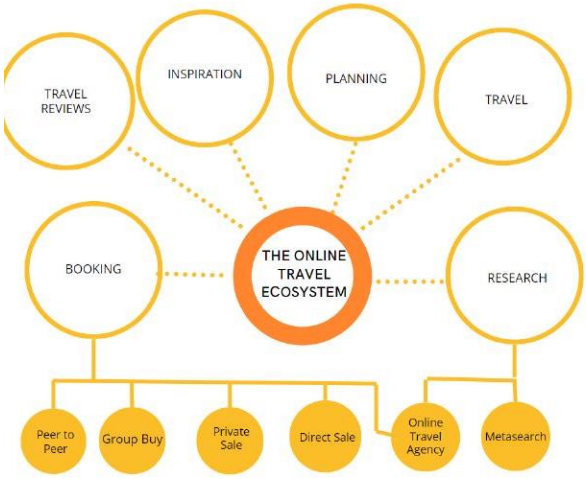
3. Commission Model: GoNav could partner with local travel providers, such as hotels, restaurants, and tour operators, and earn a commission on any bookings made through its platform.
4. Advertising Model: GoNav could generate revenue by selling advertising space on its platform to travel-related businesses.
5. Affiliate Model: GoNav could earn a commission by recommending travel-related products and services to its users and getting a percentage of any resulting sales. Ultimately, the choice of business model will depend on the unique needs and goals of GoNav, as well as the preferences of its target audience. It's important to test and iterate on different business models until you find the one that works best for your specific situation.

4.2. Pseudo Algorithm

1. Create a distance matrix that shows the distance between each pair of tourist attractions.
2. Generate an initial solution by randomly selecting attraction or using a nearest neighbor algorithm.
3. Improve the solution by iteratively modifying the solution to find a better route using a local search algorithm such as 2-opt or 3-opt.
4. Check if the new solution is better than the previous solution.
5. If yes, accept the new solution and go to step 4. If no, continue to next step.
6. Terminate the algorithm when a satisfactory solution is found or after a predetermined number of iterations or time limit.
7. Output the optimal route that visits each attraction only once and returns to the starting point.

1. Business Plan





2. Minimum Viable Product

The minimum viable product (MVP) for GoNav would be a version of the application that includes the core functionality required to provide users with a basic travel planning experience. The v should be developed and launched as quickly as possible to validate the market demand and gather user feedback.

The following are the key features that should be included in the MVP for GoNav:

1. **User registration and login:** Users should be able to create an account and log in to the application.

2. **Travel planning:** Userser should be able to create a basic travel itinerary by selecting a destination and specifying the travel dates.
3. **Recommendations:** The application should provide personalized recommendations for activities, restaurants, and accommodations based on the user's interests and preferences.
4. **Real-time traffic and weather updates:** The application should provide real-time traffic and weather updates to help users plan their travel itinerary and avoid delays.
5. **Basic user interface:** The MVP should include a basic user interface that is intuitive and easy to navigate.
6. **Payment gateway:** The MVP should include a payment gateway that allows users to pay for the recommended services.
7. **Feedback and reviews:** The application should allow users to provide feedback and reviews of the recommended services.

By launching an MVP with these core features, the GoNav team can validate the market demand and gather user feedback to improve the application further. Once the MVP is launched, the team can use analytics and user feedback to prioritize the development of additional features and improvements to the application.

2.1. Just-in-time

Just-in-time (JIT) scalability is a technique used to ensure that a software application can handle sudden increases in demand by dynamically scaling up or down the computing resources it uses. In the case of the GoNav application, JIT scalability can help ensure that the application remains responsive and accessible to users even during periods of high demand, such as peak travel seasons or events.

To achieve JIT scalability for the GoNav application, the following steps can be taken:

1. **Use cloud computing:** The GoNav application can be hosted on a cloud computing platform, such as Amazon Web Services (AWS), Google Cloud Platform (GCP), or Microsoft Azure. Cloud computing platforms provide on-demand access to computing resources, such as virtual machines, databases, and storage, that can be scaled up or down as needed.
2. **Monitor application performance:** To detect increases in demand, the application should be monitored continuously for performance metrics such as response time, CPU usage, and memory utilization. This can be done using tools such as Application Performance Monitoring (APM) or log analysis tools.

3. **Configure auto-scaling:** Auto-scaling can be configured to automatically increase or decrease the number of virtual machines or containers running the application based on performance metrics. For example, if CPU usage reaches a certain threshold, additional instances of the application can be automatically provisioned to handle the increased load.
4. **Use a content delivery network (CDN):** A CDN can be used to improve application performance by caching frequently accessed content closer to the user. This can help reduce latency and improve response times, particularly for users located in different geographic regions.
5. **Load testing:** Regular load testing can be conducted to identify potential bottlenecks and ensure that the application can handle sudden spikes in traffic. This involves simulating high levels of traffic to the application and monitoring performance metrics to identify areas that need to be optimized.

By implementing JIT scalability techniques for the GoNav application, the application can remain responsive and accessible to users even during periods of high demand. This can help ensure a positive user experience and prevent potential revenue losses due to application downtime.

3. Legal aspects and Challenges:

3.1. Data privacy and protection: GoNav collects and stores user data, including personal information and travel preferences, which must be protected in accordance with data privacy regulations.

3.2. **Intellectual property:** GoNav may use third-party content, such as images or descriptions of travel destinations, which may be subject to intellectual property laws. It must ensure that it has the proper licenses and permissions to use this content.

3.3. **Liability:** GoNav may face liability issues if users experience negative outcomes as a result of using the application, such as injuries or property damage during a trip. It must have appropriate liability insurance coverage and clearly define its terms of service and disclaimers to limit its liability.

3.4. **Consumer protection:** GoNav must comply with consumer protection laws, such as laws regarding advertising and marketing practices, refund policies, and transparency in pricing and fees.

3.5. **Cybersecurity:** GoNav must take measures to ensure the security of its users' data and protect against cybersecurity threats, such as data breaches or hacking attempts.

Overall, the legal challenges that GoNav faces include complying with complex and evolving regulations, managing risks associated with user data and liability, and staying up to date with changing legal requirements. To address these challenges, GoNav may need to work closely with legal experts and invest in appropriate legal and cybersecurity measures.

4. Corporate Social Responsibilities

As an AI-based travel planning application, GoNav has a responsibility to engage in corporate social responsibility (CSR) activities that align with its values and mission. Here are some examples of CSR initiatives that GoNav can undertake:

4.1. **Sustainable tourism:** GoNav can promote sustainable tourism by recommending eco-friendly travel options and encouraging users to minimize their environmental impact while traveling. It can also partner with sustainable tourism organizations to promote responsible travel practices.

4.2. **Community outreach:** GoNav can engage in community outreach activities, such as volunteering or sponsoring local events, to support the communities in which it operates and build positive relationships with its users.

4.3. **Diversity and inclusion:** GoNav can prioritize diversity and inclusion by promoting travel opportunities for underrepresented groups and partnering with organizations that promote diversity and inclusion in the travel industry.

4.4. **Employee well-being:** GoNav can prioritize the well-being of its employees by providing a supportive work environment, promoting work-life balance, and offering employee benefits and wellness programs.

4.5. **Ethical data practices:** GoNav can prioritize ethical data practices by being transparent about its data collection and storage practices, obtaining user consent for data usage, and ensuring that user data is kept secure and confidential.

5. Competitors

As a travel and tourism app, GoNav has a range of competitors. Some of the major competitors of GoNav are:

5.1. Expedia: Expedia is an online travel agency that allows users to book flights, hotels, rental cars, cruises, and vacation packages. It has wide

range of services, including 24/7 customer service, loyalty rewards, and a user-friendly interface.

5.2. TripAdvisor: TripAdvisor is a travel website that offers reviews, ratings, and prices of hotels, flights, and restaurants. It also offers a booking platform for travel and lodging services. TripAdvisor has over 490 million monthly visitors and offers over 860 million reviews and opinions.

5.3. Airbnb: Airbnb is an online marketplace for vacation rentals, homestays, and tourism experiences. It offers a unique travel experience where users can book unique accommodations that range from treehouses to castles. Airbnb has over 7 million listings worldwide and is available in over 220 countries and regions.

5.4. Booking.com: Booking.com is an online travel agency that offers booking services for hotels, apartments, and vacation rentals. It has over 28 million listings worldwide and is available in 43 languages. It offers uses the ability to book travel accommodations, flights, and car rentals all in one place.

6. Security Testing

Security testing is an essential aspect of any web application, including GoNav. Here are some steps to perform security testing for GoNav web application:

1. **Identify potential security threats:** Before beginning the testing process, it's important to identify potential security threats to the application. These may include SQL injection, cross-site scripting (XSS), cross-site request forgery (CSRF), and others.
2. **Perform vulnerability scanning:** Use a vulnerability scanner to scan the application for potential vulnerabilities. This may include automated tools such as Burp Suite or OWASP ZAP, which can identify potential security flaws in the application.
3. **Conduct penetration testing:** Conduct penetration testing to simulate a hacker's attack and identify vulnerabilities that may not have been detected in the vulnerability scanning process. This can be done either manually or with the help of automated tools.
4. **Review code for security flaws:** Conduct a code review to identify potential security flaws in the application's codebase. This may include manual code review or the use of automated tools such as static analysis tools.
5. **Test for authentication and authorization:** Test the application's authentication and authorization processes to ensure that they are secure and cannot be easily bypassed.

6. **Test for session management:** Test the application's session management to ensure that user sessions are secure and cannot be hijacked by attackers.
7. **Test for data protection:** Test the application's data protection measures, such as encryption and data masking, to ensure that sensitive user data is secure.
8. **Perform security testing for third-party components:** If the application uses third-party components, perform security testing for these components to ensure that they do not introduce vulnerabilities into the application.
9. **Monitor for security threats:** Once the testing process is complete, monitor the application for security threats on an ongoing basis to ensure that it remains secure over time.

By following these steps, the GoNav team can identify and address potential security vulnerabilities in the application, improving its overall security and reducing the risk of security breaches.

6.1. Security Testing Tools

6.1.1. **Vulnerability scanning:** This type of testing involves automated tools that scan the application's code and infrastructure for known vulnerabilities and security weaknesses. It can help identify potential security risks before they can be exploited by attackers.

6.1.2. **Penetration testing:** Also known as "pen testing," this type of testing involves trying to exploit vulnerabilities in the application or infrastructure in order to gain unauthorized access or control. It can help identify any weaknesses in the system's defenses and highlight areas that need further security measures.

6.1.3. **Authentication and access control testing:** This type of testing involves verifying that user authentication and access controls are working properly, and that only authorized users can access sensitive data and functionality within the application.

6.1.4. **Data protection and privacy testing:** This type of testing involves ensuring that user data is properly protected, and that the application complies with relevant data protection laws and regulations.

6.1.5. **Security architecture review:** This type of testing involves reviewing the overall security architecture and design of the application and infrastructure to identify any potential security weaknesses or flaws.

6.1.6. **Social engineering testing:** This type of testing involves attempting to trick users or employees into divulging sensitive

information or performing unauthorized actions, in order to identify any weaknesses in human security practices.

6.1.7. **DDos:** In computing, a denial-of-service attack is a cyber-attack in which the perpetrator seeks to make a machine or network resource unavailable.

7. Market Plan

The estimated costs provided are general estimates and may vary based on various factors such as the size of the development team, the complexity of the application, the hosting provider chosen, and the marketing strategy implemented. Additionally, ongoing costs such as maintenance and support may continue to vary depending on the size of the user base and the application's growth.

7.1. Estimation Cost

Expense Category	Description	Estimated Cost
Development	Includes costs associated with developing the application, such as salaries for developers and designers, software and hardware expenses, and other development-related expenses.	65,000
Hosting and Infrastructure	Includes costs associated with hosting the application, such as web hosting services, cloud hosting fees, and database hosting fees.	6,000
Marketing and Advertising	Includes costs associated with marketing and promoting the application, such as digital marketing campaigns, social media marketing, influencer marketing, and other advertising expenses.	12,000
Maintenance and Support	Includes ongoing costs associated with maintaining and supporting the application, such as salaries for maintenance and support staff, server maintenance fees, and software updates.	12,000
Legal and Regulatory	Includes costs associated with legal and regulatory compliance, such as obtaining necessary licenses, patents, trademarks, and copyrights,	5,000

	as well as legal fees and other compliance-related expenses.	
Total estimated cost		1,00,000

7.2. Vertical Market

Component	Feature	Costing	Comparison with other travel applications	Analysis
Travel Planning	AI-based travel planning	Free	Similar to other AI-based travel planning apps like Hopper and Lola	GoNav' s AI-based planning sets it apart from traditional travel planning apps, making it more personalized and efficient
Destination Suggestions	Personalized destination suggestions based on user preferences	Free	Similar to other travel planning apps like TripAdvisor and Expedia	GoNav' s use of AI and machine learning allows for more accurate and tailored destination suggestions
Attractions and Activities	Recommendations for attractions and activities based on user interests	Free	Similar to other travel planning apps like	GoNav' s ability to learn and adjust based on user feedback allows for even more accurate

			TripAdvisor and Airbnb	and relevant recommendations
Real-time Updates	Real-time updates on travel itinerary and suggestions based on user feedback	Free	Similar to other travel planning apps like TripIt and Google Trips	GoNav' s use of AI and machine learning allows for even more personalized and accurate real-time updates
Social Integration	Ability to share travel plans and suggestions with friends on social media	Free	Similar to other travel planning apps like TripAdvisor and Lonely Planet	GoNav' s use of AI and machine learning allows for more accurate and personalized sharing options
Monetization	In-app purchases for premium features and additional travel services	Variable	Similar to other travel planning apps like Airbnb and Booking.com	GoNav' s use of AI and machine learning can create opportunities for even more targeted and personalized premium features

Feedback

- Identify the hypotheses to test: Define the hypotheses that you want to test for your app. For example, you may want to test if adding more landmarks to the map will improve the user experience.
- Choose the appropriate feedback channels: Select the feedback channels that will be most effective in reaching your target audience. For GoNav, this could

include feedback forms within the app, user testing sessions, or social media monitoring.

- Keep feedback questions clear and concise: Ensure that the feedback questions are clear and concise, avoiding technical language or jargon that may confuse users.
- Analyze feedback and accept/reject hypotheses: Analyze the feedback received from customers and accept/reject hypotheses based on the results obtained. If the hypothesis is accepted, implement the changes to the app to improve the user experience. If the hypothesis is rejected, investigate further to determine why and whether any alternative hypotheses could be tested.
- Continue to gather feedback: Continuously gather feedback from customers to stay informed about changing needs and preferences. This will allow you to make continuous improvements to the app, ensuring that it meets the needs of your customers.Hypothesis: By adding a feature that allows users to save their favorite locations, Gonav will increase user engagement and improve retention rates.

Feedback:

"I love the new feature that lets me save my favorite places! It's so convenient and saves me time when I need to navigate to those places again."

"I don't really see the point of the new feature. I usually just search for the place I need every time I need to navigate there."

"I wish there was a way to organize my saved places into categories. Right now, it's just one long list and it's hard to find what I need quickly."

"The new feature is great, but I've noticed that it takes a little longer for the app to load when I have a lot of saved places. Can you improve the performance?"

"I've been using the new feature a lot and I find that I'm using the app more frequently now. It's really helpful to have my favorite places easily accessible."

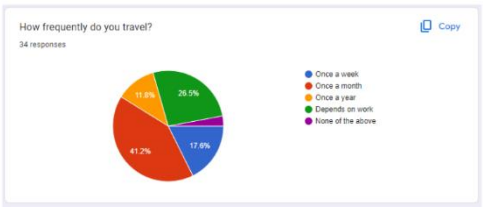
7.3. Finances-investor-loan shark

Travel Application	Description	Estimated Annual

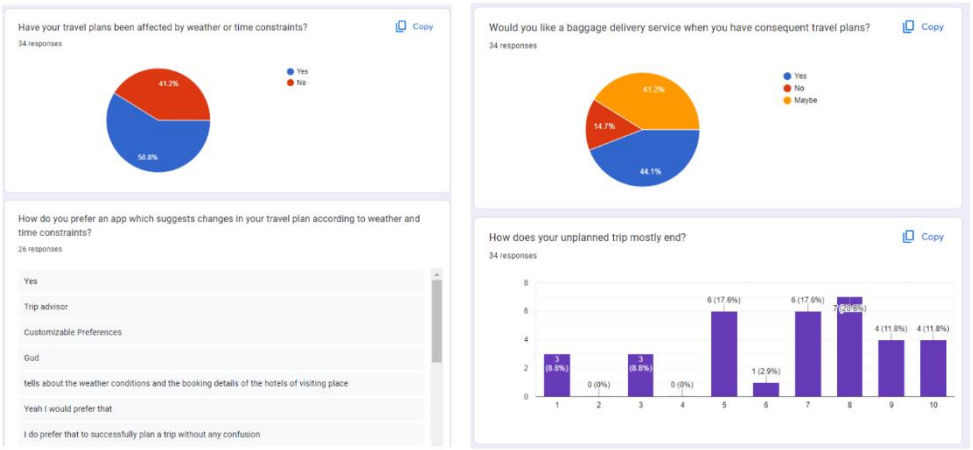
		Income Pricing
Google Maps	Navigation app that provides real-time traffic updates, transit information, and turn-by-turn directions.	Free
TripAdvisor	Travel booking and review website that provides users with reviews and recommendations for hotels, restaurants, and attractions.	$0 - $399/year
Booking.com	Travel booking website that allows users to book flights, hotels, and car rentals.	$0 - $399/year
Expedia	Travel booking website that allows users to book flights, hotels, and car rentals.	$0 - $399/year
Airbnb	Platform that allows users to book unique accommodations such as apartments, villas, and homes.	$0 - $399/year
Kayak	Travel search engine that allows users to compare prices for flights, hotels, and rental cars.	Free
GoNav	AI-based travel app that provides personalized travel guidance and navigation. Helps users plan their entire trip, including flights, accommodations, and activities, based on their preferences and past	Pricing not available yet

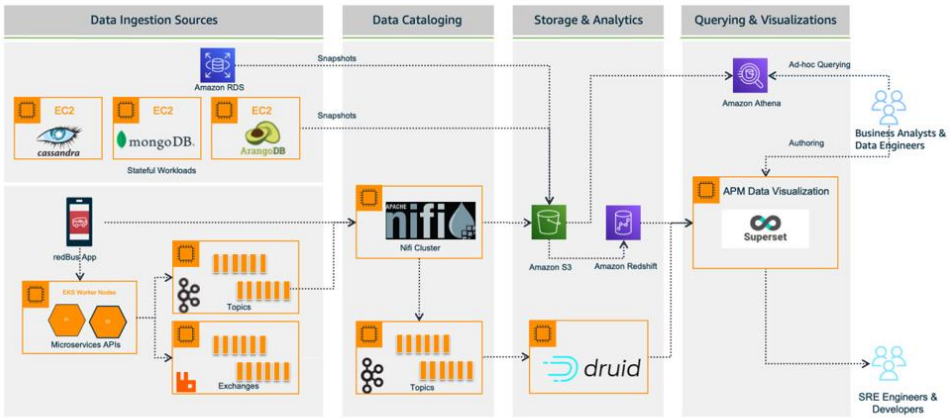
	travel behavior. Provides real-time recommendations for nearby attractions and restaurants.	

Survey



Survey





Low latency product outcome structure

Taxes

Instead the proposals increased TCS on outbound travel and other LRS transactions from 5% to 20% without any threshold exemption. In our view, such high rates of taxation are an added liability to outbound travelers and negatively impacts tour operators recovering from the pandemic.

In the Union Budget 2023-24, the government has proposed to hike the tax collected at source (TCS) from five per cent to 20 per cent on overseas tour packages. The government modified Section 206C of the Income-tax, Act, 1961, to levy higher TCS on overseas package tours.

Taxes

Service Tax	VAT	Customs & Excise	Other Taxes
▪ Room Rentals ▪ Restaurant Services ▪ Banquet Services ▪ Convention Services ▪ Rent a Cab Services ▪ Dry Cleaning Services ▪ Health Club/Spa/ Beauty parlor Services ▪ Internet Services ▪ Money Changing Services ▪ Air & Train Tickets	▪ Sale of Food and Beverages in Restaurants ▪ Sale of food under banquet arrangements ▪ Sale of goods from retail shops ▪ In room sale of food (such as in room dining, mini bar etc.)	▪ Customs duty payable on import of capital goods, motor cars etc. ▪ Central Excise on manufacture of Bakery products ▪ State Excise on alcoholic beverages	▪ Luxury Tax on room rentals ▪ Entertainment Tax on casinos, discos, video game parlors etc. ▪ State Entry Tax/Permit ▪ Road tolls ▪ Motor Vehicle tax ▪ UDF & PSF at the Airports

Service Tax on Services provided by Tour Operators/ Travel Agents

Nature of Service	Abatement Provided on the service value	Effective Service Tax Rate	CENVAT Credit
Accommodation booking service by tour operator	90%	11.124%	No Cenvat Credit available
Air Travel Booking by travel agent		Flat rate on 'basic fare' at 0.6% for domestic booking & 1.2% for international	No restriction on availment of Cenvat credit
Packaged tours by tour operator	75%	3.09%	No Cenvat Credit available

Restaurant Services

Nature of Service	Abatement Provided on the service value	Effective Applicable Service Tax Rate	CENVAT Credit
Services provided by Restaurants having Air Conditioning	60%	4.944%	No Cenvat credit available

Hotel Accommodation Services

Nature of Service	Abatement Provided on the service value	Effective Applicable Service Tax Rate	CENVAT Credit
Hotel Accommodation	40%	7.416%	Credit on service input available. No credit on input of capital goods

Air Travel

Nature of Service	Abatement Provided on the service value	Effective Applicable Service Tax Rate
Air Ticket	60%	4.944%
Service Tax Rate Applicable to service related to Air Travel emanating from India		
Date Change or Re booking Fee	60%	4.944%
Up sell/Upgrade Charges	60%	4.944%
Difference in Fare	60%	4.944%
Any charges for FFP (Frequent Flyer) services	60%	4.944%
Ticket Cancellation Charge/Fee	60%	4.944%
Refund Administrative Fee	60%	4.944%
No-Show Fee	60%	4.944%

Other Services provided by Hotels

Nature of Service	Abatement Provided on the service value	Effective Applicable Service Tax Rate
Health and Fitness Service (Gym)	0%	12.36%
Beauty and Spa Service	0%	12.36%
Laundry and Cleaning	0%	12.36%
Internet Café Services	0%	12.36%

Cab/Taxi

Nature of Service	Abatement Provided on the service value	Effective Applicable Service Tax Rate
Rent a Cab/Taxi	40%	7.416%

Train Travel

Nature of Service	Abatement Provided on the service value	Effective Applicable Service Tax Rate
Train Ticket	70%	3.708%

Convention Centers

Nature of Service	Abatement Provided on the service value	Effective Service Tax Rate	CENVAT Credit
Bundled service by way of supply of food or any other article of human consumption or any drink, in a premises (including hotel, convention center, club, pandal, shamiana or any other place, specially arranged for organizing a function) together with renting of such premises	30%	8.652%	Cenvat credit of input services and capital goods is available. Cenvat Credit on food items not available