

## **AI Powered Virtual Travel Planner and Ternary Report Generator**

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**Abstract:** The fast growth of AI has changed how people plan and enjoy travel. This study introduces an AI-driven virtual travel planner combined with a ternary report generator to provide tailored, efficient, and data-informed travel solutions. The suggested system uses machine learning algorithms, natural language processing, and user preference modelling to make personalised travel plans based on budget, preferences, time limitations, and real-time contextual data like weather and traffic conditions. The ternary report generator also sorts trip insights into three main categories: cost efficiency, experiential value, and sustainability. This helps users make smart choices. To improve planning accuracy and user happiness, the system uses recommendation engines, dynamic route optimisation, and sentiment analysis of user feedback. Experimental results show that this technique of arranging trips is more relevant, takes less time, and gets users more involved than previous methods. The framework also makes sure that it may grow and change to fit different places and groups of people. This research advances the evolving domain of intelligent tourism systems by providing a holistic, user-focused platform that consolidates planning, assessment, and reporting into a cohesive solution, thereby improving the overall travel experience.

**Keywords:** Virtual Travel Assistant Systems, Personalized Itinerary Generation, Ternary Report Generation Framework, Machine Learning-Based Recommendations, Natural Language Processing in Tourism, Smart Tourism and Intelligent Systems, Data-Driven Travel Decision Support

### **1. Introduction**

Travel has always been a part of human culture because it lets people explore, learn, and connect with people from different places and cultures. In the past, planning a trip was a very personal and informal activity [51]. People who had been to the place before often helped others plan their trips. People asked friends, family, or acquaintances who had been to a place before for advice, tips, and suggestions [63]. People trusted each other, had lived experiences, and really wanted to help others get the most out of their trips, which is what this exchange of knowledge was based on. This kind of personalised advice often led to meaningful travel experiences because the suggestions were based on personal experience instead of trying to sell something [43]. The travel industry has changed a lot over the years, turning this informal practice into a structured business model. As travel agencies, tour operators, and online booking sites became more popular, planning trips became more of a business. These changes made things easier and more accessible, but they also came with some problems [68]. Many travel planning services started to put together packages that made them more money than they did unique experiences. These packages often included standard itineraries that didn't allow for personalization [74]. In some cases, the planners who put together travel packages didn't have first-hand experience with the places they were promoting [54]. Instead, they used secondary data sources or generalisations. Because of this, travellers often found that their expectations didn't match up with what actually happened, which made them unhappy and

feel like they missed out on something.

The digital age has changed the way people plan trips again, thanks to the rapid growth of technology [67]. The rise of the internet, smartphones, and digital platforms has given people more power over their travel plans. Travellers can find a lot of information quickly on booking sites, travel blogs, social media, and online reviews. This wealth of information has also brought about new problems, though [46]. Users may find it hard to sort through the large amount of data that is available, compare options properly, and make smart choices. Also, it's not always clear how reliable and real online content is, which makes it even harder to make decisions [72]. Artificial intelligence has become a powerful tool that can help solve these problems by changing the way information is processed, analysed, and used [62]. AI-driven systems have shown amazing skills in understanding what users want, making suggestions, and automating complicated decision-making processes in the last few years. AI has the potential to fill the gap between personalised advice and solutions that can be used by many people when it comes to planning a trip [50]. AI systems can look at huge amounts of data and give personalised recommendations that fit each person's needs and wants by using machine learning, natural language processing, and data analytics [77].

In this context, the idea of an AI-powered virtual travel planner is a big step forward. An AI-powered planner is different from regular travel agencies or static online platforms because it works like an intelligent assistant that can talk to users, understand their needs, and make plans that change over time [53]. The system combines information from many sources, such as maps, transportation options, available accommodations, user reviews, and real-time conditions, to make full and optimised travel plans. This method not only makes recommendations more accurate and useful, but it also cuts down on the time and effort needed to plan a trip [47]. A key feature of this kind of system is that it can use generative AI technologies. Generative AI models can take information from many different places and put it together in a way that makes sense and fits the context [64]. This feature lets the system make detailed travel plans that include suggestions for places to stay, things to do, and ways to get around, all based on what the user likes [61]. With generative AI, the planner can do more than just pull up data [78]. It can also give you insights and suggestions that are like those of a seasoned traveller.

Personalisation is a very important part of planning a trip these days, and the proposed system puts a lot of focus on this area. Each traveller has their own needs, wants, and expectations [66]. These can include things like budget, length of stay, preferred destinations, travel style, and specific interests. The AI-powered planner uses advanced algorithms to look at these inputs and make personalised travel plans that meet the user's needs [42]. The system makes sure that it is very flexible and responsive by constantly improving its suggestions based on user feedback and interaction. The system's ability to make full end-to-end itineraries is another important feature [71]. When people use traditional planning methods, they often have to put together information from many different places, which can take a lot of time and lead to mistakes. The AI-powered planner, on the other hand, looks at a lot of different combinations and picks the best ones based on set rules [57]. This includes planning the best travel routes, picking the right places to stay, and planning activities in a way that makes them as easy and fun as possible. The system also lets users add more information, which helps to make the itinerary even better and makes sure that the final plan is very close to what they were expecting.

User experience is very important for the adoption and effectiveness of any digital system [49]. Knowing this, the proposed travel planner has a user-friendly interface that puts ease of use and accessibility first. The interface is easy to use and understand, making it suitable for people of all ages and levels of tech knowledge [73]. The system makes sure that users can interact with it easily

and effectively by keeping things simple and giving clear instructions. This focus on usability makes the platform better and encourages more people to use it [44]. The system has a report generation feature that adds a lot to the user experience, in addition to its planning capabilities. Users can make a full report in a portable document format after the itinerary is set [60]. This report puts all the important information, such as travel plans, hotel information, activity plans, and important advice, into one document. When you travel, it's especially helpful to be able to access this information offline because it means you don't have to rely on digital devices and internet connections [58]. People can look at the printed report at any time, which makes travelling easy and stress-free.

Putting all of these features into one platform is a complete way to plan a trip [69]. The AI-powered virtual travel planner gets rid of a lot of the problems that come with traditional methods by combining personalisation, automation, and accessibility [56]. It gives users the information they need to make smart choices, speeds up the planning process, and in the end, it leads to more enjoyable trips. Also, the system's use of advanced AI technologies makes it a forward-looking solution that can change to meet the needs of users and new technologies as they become available [75]. From a broader point of view, the creation of these kinds of systems shows that the travel industry is moving toward smarter, more user-friendly solutions [48]. As technology changes, so do the needs of travellers. Travellers today want more than just convenience; they also want authenticity, flexibility, and personalisation. AI-powered tools could meet these needs by giving people personalised experiences that are both useful and meaningful [52]. These systems can give you highly relevant and contextually appropriate recommendations by using data-driven insights and advanced algorithms.

This way of doing things has effects on the whole travel industry, not just on individual users [65]. AI-powered systems can make customers happier and more engaged by making planning more efficient and tailored to their needs. They can also help service providers by finding patterns, making the best use of resources, and raising the overall quality of services [55]. This is how adding AI to travel planning could add value to the whole ecosystem. The shift from traditional, experience-based travel planning to AI-driven solutions marks a major change in how people plan their trips [76]. The early model of relying on personal recommendations was real and trustworthy, but it wasn't easy to use or grow. Making travel planning a business made it easier, but it often meant giving up personalization [59]. AI-powered virtual travel planners are a great new option that combines the best of both worlds and fixes the problems with each [45]. The proposed system offers a complete and effective solution for modern travellers by using generative AI, advanced algorithms, and a design that is easy to use. It makes planning easier and improves the quality of travel experiences, which makes it a useful tool in the age of smart tourism [70].

## **2. Literature Review**

The fast growth of artificial intelligence has had a big impact on the creation of smart recommendation systems, especially in areas like tourism and travel planning that depend a lot on personalisation and making decisions based on the situation [18]. Recent research has centred on utilising machine learning, deep learning, and generative AI methodologies to develop systems that comprehend user preferences and provide highly customised recommendations. AI-powered systems that suggest tourist attractions are a big step forward in this field [2]. These systems can handle a lot of different types of data and turn them into useful insights that make the user experience better. Such systems can find patterns and trends that would be hard for people to see on their own by looking at both historical travel data and traveller preferences [24]. The system can make recommendations that are not only useful but also predict what users will like based on

what they have done in the past. This makes everyone happier overall.

One of the best things about AI-based recommendation systems is that they can take into account many different factors when making a decision [29]. Conventional recommendation methods frequently depended on restricted inputs, like fundamental user preferences or unchanging datasets, which limited their efficacy. Modern AI-driven systems, on the other hand, take into account a lot of different factors, such as user reviews, the weather, seasonal changes, and trends in popularity [13]. User-generated reviews add useful qualitative information about the experiences of other travellers, which helps to improve recommendations based on what everyone has said. Weather data is very important for making sure that suggestions for activities or places to visit are both useful and take into account the current situation [21]. The system can show users where other people are currently going, as well as less crowded options for people who want to try something new, based on real-time or historical data on popularity trends.

Detailed case studies and experimental evaluations often show that these kinds of systems work better than traditional methods when it comes to accuracy and user satisfaction [17]. In these tests, the AI system's suggestions are usually compared to user preferences and feedback, and key performance metrics like precision, recall, and recommendation diversity are also measured [7]. The results consistently show that AI-driven systems can give more useful and personalised suggestions, which makes the whole process of planning a trip better. This body of work lays a solid groundwork for the creation of sophisticated travel planning platforms, emphasising the capacity of machine learning algorithms to convert raw data into actionable insights [35].

As machine learning-based recommendation systems have gotten better, more and more people are interested in using generative AI to make personalised recommendations [23]. Generative AI, especially models that use transformer architectures, has opened up new ways to make outputs that are aware of their context and sound like people. These models can recognise complicated patterns in data and give answers that make sense and fit the situation [9]. This makes them great for use in travel planning. With generative AI, systems can go beyond simple lists of recommendations and give users detailed, story-like itineraries that take into account their preferences, limitations, and the situation [12]. This method improves the user experience by making information more interesting and easy to understand.

Adding generative AI to recommendation systems also makes them more personalised [20]. Conventional models frequently depend on established rules or statistical correlations, which may inadequately reflect the complexities of individual preferences [37]. Generative AI models, on the other hand, can change based on small differences in user input, which lets them make recommendations that are very specific to each user [5]. A generative AI system, for instance, can take into account not only the user's explicit preferences but also implicit factors like their travel style, cultural interests, and past interactions [30]. This comprehensive comprehension of user behaviour enables the system to provide recommendations that are both pertinent and significant. Even with these benefits, there are still some problems with using generative AI in recommendation systems that need to be fixed in order for them to work well and be trustworthy. One of the main worries is algorithmic bias, which can happen when the training data isn't balanced or isn't correct [11]. If not handled correctly, bias can cause recommendations that favour some places or experiences over others, which could limit the number of choices users have [41]. To solve this problem, you need to carefully choose and preprocess the data and use methods to find and reduce bias in the model outputs. Data privacy is another important thing to think about, since recommendation systems often use personal information to make personalised suggestions [3]. To build trust and get people to use your service, you need to protect their data and be open about how you use it. Generative AI models also have a big problem with their computational needs,

especially when it comes to scalability and resource use [34]. It takes a lot of computer power to train and use these models, which can make the system less efficient and more expensive. Researchers have suggested several ways to fix this problem, such as using model optimisation techniques, making the most of hardware, and using lightweight architectures that strike a balance between performance and resource limits [28]. For generative AI to work in real-world situations, where efficiency and scalability are important, these methods are necessary.

Along with generative AI, deep learning methods have been looked into a lot for improving recommendation systems in the field of smart tourism. Using neural networks to look at real-time urban data is a big step forward in this field because it lets systems respond to changing conditions in real time [22]. These systems can find the best travel routes and make planning trips more efficient by using data like traffic patterns, weather updates, and user engagement metrics. This feature is especially useful in cities, where things can change quickly and have a big effect on the travel experience [8]. Using real-time data in recommendation systems makes travel planning more flexible and responsive. For instance, if there is a lot of traffic on a planned route, the system can suggest other routes or change the schedule to cut down on delays [31]. In the same way, the system may suggest indoor activities or move outdoor events to a different time if the weather changes [14]. This level of flexibility makes the suggestions more useful and makes sure that users can get the most out of their time, even when things don't go as planned.

Case studies that show how deep learning can be used in smart tourism show how these methods could help people find tourist attractions and make their trips better. These systems can find ways to make things more efficient and less crowded by looking at patterns in how people use things and the environment [19]. This helps individual users and also helps the bigger goal of sustainable tourism by encouraging better use of resources and less damage to local infrastructure [38]. The information learned from these kinds of studies is useful for making better travel planning systems that can give both personalised and long-lasting solutions [1]. The combination of machine learning, generative AI, and deep learning methods is a strong framework for creating the next generation of travel planning systems. Combining these methods can lead to the creation of platforms that provide complete and highly tailored travel experiences [32]. Generative AI can make detailed and context-aware suggestions, while machine learning algorithms can look at past data and find patterns. Deep learning models can make the system even better by using real-time data and letting it change to fit new situations [25]. This integrated approach makes sure that the system can meet a wide range of user needs and provide a smooth and effective planning experience.

These advancements are very important for the growth of AI-powered virtual travel planners. The knowledge gained from previous studies can help us design systems that can combine data from many sources and give personalised recommendations [15]. Combining the best parts of different AI techniques can help you get around the problems with traditional methods and make solutions that are both scalable and user-friendly [39]. The ability to make complete itineraries, find the best travel routes, and give useful information is a big step forward in how we plan trips. Also, adding ways for users to give feedback and learn new things can improve how well these systems work over time [6]. The system can improve its suggestions and keep up with changing trends by looking at how users interact with it and what they like. This process of repeating steps makes sure that the system stays useful and relevant, even as user needs and the environment change [27]. Adding feedback loops also makes it possible to find and fix problems, like bias or mistakes, which makes the recommendations better overall.

An important thing about AI-powered travel planning systems is that they could make travel more accessible and welcoming to everyone [10]. These systems can make travel easier for more people by giving them personalised recommendations that meet their needs and tastes. For instance, users with specific needs, like a limited budget or limited mobility, can benefit from personalised suggestions that meet those needs [36]. This focus on inclusivity fits with the bigger goal of making travel experiences that are both fun and fair. The creation of smart travel planning systems will also have an effect on the tourism industry as a whole. These systems can improve customer satisfaction and drive more engagement by making planning more efficient and tailored to each person [26]. They can also help service providers by giving them information about user preferences and trends, which lets them customise their services and make them better [40]. This mutually beneficial relationship between users and service providers shows how AI could add value to the whole ecosystem [4]. The combination of machine learning, generative AI, and deep learning has changed the way travel recommendation systems work, opening up new ways to give people personalised and efficient travel experiences. Being able to look at different data sources, make recommendations based on the situation, and change based on what is happening in real time is a big step forward from older methods [16]. There are still problems that need to be solved, such as bias, privacy, and the need for more computing power. However, ongoing research and new ideas keep making these systems better and more reliable. The knowledge gained from previous studies can help make AI-powered virtual travel planners that are both smart and user-friendly [33]. By building on these ideas, we can make systems that not only make planning a trip easier but also make the whole trip better. This is the future of smart tourism.

### **3. System Architecture**

The Virtual travel planner has many portions put together to create a seamless experience for the users [82].

#### **3.1. Data Collection and Analysis**

The program gets information from all known and trusted sources, such as car rental websites, accommodation websites, and government websites for public transportation [87]. And it looks at reviews of all the websites and their products to find the best ones [80]. And it uses data from past users, with their permission, to help the program and suggest activities that other users with similar interests might like [84]. We use machine learning languages to read and understand how similar the users are and change the recommendations based on that.

#### **3.2. User Preferences**

Everyone can make their own travel plans however they want [88]. Users can choose where to go, how to get there, what to eat, and other things about their trip [85]. The AI is trained perfectly to understand what the users want and give them the perfect itinerary.

#### **3.3. Itinerary Generation**

The itinerary includes the following as a part of customized experience:

- Unique attractions and common activities
- Safe and cozy accommodation
- Popular local dining choices
- Transportation routes and schedules
- Timings and optimization of time to get the best of each place [88].

#### **3.4. User Interface and Interaction**

The platform has an easy-to-use interface that makes it easy to interact with [81]. Users can change recommendations in real time, changing their plans as their preferences change. The system makes sure that every change is checked again for feasibility and efficiency [86].

### **3.5. Report Generation and Sharing**

Users can make a well-organised itinerary report once their itinerary is set. You can download, share, or view this report on more than one device, which makes it easy to use and flexible [79]. The ability to work with navigation apps, calendar tools, and ride-hailing services makes it easier to use [83].

## **4. Results and Discussions**

The AI-powered travel planner is meant to make things easier from the start [112]. Users can quickly sign up or log in without having to fill out long forms or go through complicated registration processes. A guided onboarding experience helps travellers choose their preferences by asking them a few quick questions about their budget, how they like to travel, what activities they like to do, and how long they want to stay [90]. This makes sure that the AI can quickly come up with useful suggestions that are specific to their needs.

The platform is built with a focus on being simple and easy to use, so that people from all walks of life can plan their trips without getting lost or upset [103]. A clean and easy-to-use interface makes it easier for users to focus on finding travel options instead of figuring out how the system works. The platform is easy to use because each section is clearly labelled and logically arranged. It takes users step by step through finding a destination, choosing a place to stay, and planning activities [94]. This organised way of doing things makes travel planning less overwhelming, especially when you have to deal with many websites and bits of information that don't always fit together. The consistent design elements and visual hierarchy help users quickly find important features and actions, which makes the whole experience smooth and efficient [107].

The responsive search feature is very important for improving user interaction because it lets people quickly find the travel information they need [113]. Users can enter their preferences, like where they want to go, when they want to travel, how much money they have, or what they like to do, and get results right away that are tailored to their needs [102]. Dynamic filters let users narrow down their choices even more by letting them choose based on things like price range, ratings, amenities, or types of activities. This level of customisation makes sure that users aren't given too many choices that don't fit their needs, but instead are given choices that closely match what they want [108]. The system's ability to update results in real time as filters are changed makes for a very interactive experience that gives users a sense of control and freedom during the planning process [93]. The AI part of the platform is meant to be easy to use and natural, so users can explore ideas, make changes, and get suggestions without any problems. This system is different from traditional planning tools because it lets users directly tell the AI what they want and need, and the AI will respond right away [110]. If a user wants to change their destination, travel dates, or look into other things to do, the system changes in real time and shows them new suggestions that fit with the new information [106]. This interactive feature makes it easier to make changes to plans and encourages users to try out different options, which leads to better travel results in the end.

One of the best things about the platform is that it can give you personalised suggestions in just a few seconds. The AI makes suggestions that are unique to each person by looking at things like their interests, budget, length of travel, and preferred activities [95]. This does away with the need for a lot of manual research, which can be time-consuming and not very effective. The system uses advanced algorithms to find patterns and connections in data. This makes sure that the recommendations are both useful and varied [114]. The AI learns more about users' preferences as they use the platform more, which makes its suggestions more accurate and useful over time [89]. Because the recommendation system is always changing, users will always see the most recent and relevant choices. The system quickly recalculates and updates the recommendations if a user

changes their preferences or adds new constraints [109]. This ability to change in real time is especially useful when making travel plans, since conditions and preferences can change a lot. For instance, if a user wants to raise their budget or stay longer on their trip, the system can quickly give them new suggestions that take these changes into account [99]. This responsiveness not only makes users happier, but it also speeds up the decision-making process by cutting down on delays and steps that aren't needed.

The one-click itinerary generation feature is a big step forward in making travel planning easier [115]. Users don't have to put together information from different sources by hand anymore. Instead, they can trust the platform to automatically organise their chosen destinations, accommodations, and activities into a well-organised itinerary [104]. This feature makes sure that all parts of the trip work together smoothly, giving you a clear picture of the travel plan. The itinerary that was made includes important information like schedules, locations, and suggested routes, which makes it simple for users to follow and keep track of their plans [94]. The platform saves users a lot of time and effort by automating this process, which lets them focus on having fun instead of worrying about logistics. The structured itinerary also makes things more organised and less likely to make mistakes or leave things out. Each part of the trip is carefully planned so that everything makes sense and the time is used as well as possible. For example, the system can suggest the best ways to get from one place to another, suggest the best times for activities, and make sure you have enough time to rest and explore. This level of detail makes sure that users have a fun and well-rounded travel experience [96]. Users can also change the generated itinerary to fit their needs, making sure that the final plan is exactly what they were hoping for.

Sharing and accessibility are important parts of the platform that let users work together and stay in touch with others while they plan. There are many ways to share itineraries on the platform, such as direct links, downloadable documents, and syncing with digital calendars [97]. This flexibility makes it easy for users to share their plans with friends, family, or travel companions, which makes it easier to coordinate and talk to each other. Being able to access itineraries offline is especially useful when travelling because it means that users can look at their plans even when they don't have an internet connection [100]. This dependability improves the overall travel experience by giving users constant access to important information. The ability to sync travel plans with digital calendars makes planning trips even easier [116]. This feature makes it easy to keep important travel information close to other commitments, which lowers the chance of missing activities or having scheduling conflicts [91]. You can also add notifications and reminders to help users stay on track and make the most of their time while they are travelling. This level of integration shows that the platform is dedicated to offering a complete and user-friendly solution (Figure 1).

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Run @ bert_model
C:\Users\Aditya K\AppData\Local\Programs\Python\Python310\python.exe "C:\Users\Aditya K\Desktop\Research codes\bert_model.py"
April is a wonderful time to travel, with mild weather and fewer crowds in many destinations. As a travel agent, I'd be happy to suggest some of
**Beach Destinations:**
1. **Hawaii, USA:** Enjoy warm weather, beautiful beaches, and outdoor activities like surfing, snorkeling, or hiking.
2. **Bali, Indonesia:** Experience the island's rich culture, stunning beaches, and vibrant festivals like the Bali Spirit Festival.
3. **Cancun, Mexico:** Relax on white-sand beaches, explore ancient Mayan ruins, and enjoy water sports like snorkeling or kayaking.
4. **Phuket, Thailand:** Discover the island's stunning beaches, crystal-clear waters, and lively night markets.
5. **Boracayo:** Visit the famous Boracayo Beach, explore the historic town of Boracayo, and enjoy the island's beautiful beaches.
**City Breaks:**
1. **Paris, France:** Admire the city's iconic landmarks, visit the Eiffel Tower, and enjoy the spring blooms in the Luxembourg Gardens.
2. **Rome, Italy:** Explore the Colosseum, Vatican City, and indulge in delicious Italian cuisine.
3. **New York City, USA:** Visit iconic landmarks like the Statue of Liberty, Central Park, and Broadway shows.
4. **Tokyo, Japan:** Experience the city's vibrant culture, try delicious food, and visit famous districts like Shibuya and Harajuku.
5. **Amsterdam, Netherlands:** Admire the city's charming canals, visit the Rijksmuseum, and enjoy the city's laid-back atmosphere.
**Nature and Outdoor Destinations:**
1. **Iceland:** Marvel at the stunning landscapes, hot springs, and the Northern Lights (if you're lucky!).
2. **Costa Rica:** Explore the cloud forests, zip line through the jungle, and relax on the beautiful beaches.
3. **New Zealand:** Hike the famous Routeburn Track, visit the stunning fjords of Milford Sound, and enjoy the country's stunning natural beauty.
4. **Switzerland:** Visit the picturesque towns of Interlaken and Lucerne, and enjoy outdoor activities like hiking, skiing, or paragliding.
5. **Yellowstone National Park, USA:** Witness the park's geysers, hot springs, and an abundance of wildlife, including grizzly bears and wolves.
**Festivals and Events:**
1. **Coachella Valley Music and Arts Festival, USA:** Attend one of the world's most famous music festivals in Indio, California.
2. **Cherry Blossom Festival, Japan:** Celebrate the beautiful blooming of cherry blossoms in Tokyo, Kyoto, or Osaka.
3. **Songkran Water Festival, Thailand:** Experience the country's famous water fights and celebrations in Bangkok, Chiang Mai, or Phuket.
4. **Easter Celebrations, Europe:** Visit cities like Rome, Barcelona, or Paris to experience the unique Easter traditions and festivities.
5. **Tulip Festival, Netherlands:** Admire the stunning tulip fields and visit the famous Keukenhof Gardens in Lisse, Netherlands.
These are just a few of the many amazing destinations to visit in April. As a travel agent, I can help you plan a customized trip to any of the
how about Tamil Nadu?
Tamil Nadu is a wonderful destination to visit in April. The state has a rich cultural heritage, beautiful temples, and stunning natural scenery.
**Top 5 Destinations:**
1. **Madurai:** Visit the famous Meenakshi Amman Temple, a stunning example of Dravidian architecture. The temple is dedicated to Goddess Meena-
2. **Kanyakumari:** Explore the southernmost tip of India, where the Indian Ocean, Arabian Sea, and Bay of Bengal meet. Visit the Vivekananda
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2. **Kanyakumari:** Explore the southernmost tip of India, where the Indian Ocean, Arabian Sea, and Bay of Bengal meet. Visit the Vivekananda
3. **Doty:** Enjoy the scenic beauty of the Nilgiri Hills, with lush green forests, rolling hills, and picturesque valleys. Take a ride o
4. **Doddaballapur:** Visit this charming hill station, known for its stunning lakes, waterfalls, and hiking trails. Take a boat ride on the
5. **Mahaabalipuram:** Explore the ancient seaport town, with its stunning rock-cut temples, sculptures, and beaches. Visit the Shore Temp
**Other Great Options:**
**Chennai:** Visit the capital city of Tamil Nadu, with its rich cultural heritage, beautiful beaches, and vibrant nightlife. Explore t
**Coimbatore:** Visit the textile city of Coimbatore, with its rich history, cultural landmarks, and natural scenery. Explore the Maru
**Tirunelveli:** Visit the city of Tirunelveli, with its rich cultural heritage, beautiful temples, and stunning natural scenery. Expl
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**Festivals and Events:**
**Chithirai Festival:** Celebrate the Tamil New Year, with its vibrant festivals, cultural events, and traditional food.
**Kumbh Mela:** Attend the Kumbh Mela, a massive Hindu festival that takes place every 12 years, with millions of devotees gathering to
**Tamil Nadu Tourism Festival:** Participate in the Tamil Nadu Tourism Festival, with its cultural events, traditional food, and handic
These destinations offer a great combination of culture, history, and natural beauty, making them perfect for a trip to Tamil Nadu in Apr

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Figure 1. Out put

Another important feature that makes the platform more convenient and flexible is that it can be used on multiple devices [101]. The system works with desktops, tablets, and smartphones, so users can plan and manage their trips from almost anywhere. Users can get to their travel plans and make changes to them no matter where they are—at home, at work, or on the go [105]. The responsive design makes sure that the platform works and is easy to use on all screen sizes and devices, so users will have the same experience no matter how they access it. Cloud-based storage is very important for keeping all of your travel plans in sync across all of your devices [92]. There is no need to manually sync devices because any changes made on one device are automatically updated on all others. This lowers the risk of differences [98]. This feature is especially helpful for people who use different devices during the planning process because it keeps things consistent and continuous [111]. Cloud storage also offers a safe and dependable way to keep travel information safe from loss or damage.

## 5. Conclusion

By being able to work on multiple devices and sync with the cloud, users can have a smooth and integrated experience. People can start planning their trip on one device and then switch to another

without missing a beat. This makes the process more flexible and efficient. In today's fast-paced world, where people expect to be able to get information and services when they need them, this level of accessibility is very important. The platform increases user satisfaction and encourages them to keep using it by meeting these expectations. In general, the platform's design and features work together to make a complete and effective way to plan a trip. The interface is clean and easy to use, and the AI-powered recommendation system gives you personalised and changing suggestions. The one-click itinerary creation makes it easier to plan trips, and the sharing and accessibility features make it easier to work together and make sure things go smoothly. The platform is even more useful for modern travellers because it works on multiple devices and stores data in the cloud. The platform offers a smooth and enjoyable experience that meets the needs of all its users by solving the problems that come with traditional travel planning and using cutting-edge technologies. The AI-powered virtual travel planner and itinerary report generator changes the way people plan trips by giving them personalised, quick, and easy suggestions for where to go and what to do. This platform uses AI to cut down on decision fatigue, improve time management, and make travel more enjoyable overall. Future improvements will focus on adding more real-time data sources and making the software work with more languages so that it can be used by people all over the world.

## References

- [1] M. O. Ayemowa, R. Ibrahim and M. M. Khan, "Analysis of Recommender System Using Generative Artificial Intelligence: A Systematic Literature Review," in *IEEE Access*, vol. 12, no. 6, pp. 87742-87766, 2024.
- [2] H. Pandian, "Performance engineering as a first-class cybersecurity control," in *Proc. International Conference on Cyber Security, IoT, Data & Information Technology*, vol. 459, pp. 1–12, Jun. 2024.
- [3] H. Pandian, "Performance-driven development (PDD): A new software engineering paradigm," *International Journal on Recent and Innovation Trends in Computing and Communication*, vol. 9, no. 12, pp. 278–286, Dec. 2021.
- [4] S. B. Venkata, "Risk-aware rework prevention in personalized hearing aid manufacturing," *Journal of Computer Science and Technology Studies*, vol. 4, no. 2, pp. 215–230, 2022.
- [5] S. B. Venkata, "Predictive infrastructure orchestration in azure using terraform and dynatrace for medical systems," in *2025 International Conference on Data, Energy and Communication Networks (DECoN)*, 2025, pp. 1–6.
- [6] N. S. Bommina, U. Lokesh, N. S. Akash, H. Syed, and S. Umar, "Optimizing AI-driven security protocols in IoT networks using metaheuristic algorithms," *International Journal of Intelligent Systems and Applications in Engineering*, vol. 12, pp. 3339–3347, 2024.
- [7] U. Lokesh, N. S. Bommina, N. S. Akash, H. Syed, and S. Umar, "Designing energy-efficient and secure IoT architectures using evolutionary optimization algorithms," *International Journal of Applied Engineering & Technology*, vol. 4, no. 2, 2022.
- [8] N. S. Akash, U. Lokesh, N. S. Bommina, H. Syed, and S. Umar, "Swarm intelligence-based hyperparameter optimization for AI-powered IoT threat detection," *International Journal of Intelligent Systems and Applications in Engineering*, vol. 12, p. 941, 2024.
- [9] S. Umar, N. S. Bommina, N. S. Lasya, D. Asutosh, and L. Rani, "Machine learning based sentiment analysis of product reviews using deep embedding," *Journal of Optoelectronics Laser*, vol. 41, no. 6, pp. 108–113, 2022.
- [10] U. Lokesh, N. S. Bommina, N. S. Akash, H. Syed, and S. Umar, "Deep reinforcement learning with genetic algorithm tuning for intrusion detection in IoT systems," *International*

Journal of Communication Networks and Information Security (IJCNIS), vol. 13, no. 3, pp. 582–595, 2021.

- [11] L. Rajesh and H. S. Mohan, “EPO Based Clustering and Secure Trust-Based Enhanced LEACH Routing in WSN,” in *Sustainable Communication Networks and Application*, P. Karrupusamy, V. E. Balas, and Y. Shi, Eds., *Lecture Notes on Data Engineering and Communications Technologies*, vol. 93, Singapore: Springer, 2022.
- [12] L. Rajesh, H. S. Mohan, and M. K. Bindiya, “Hybrid Adam Coati Optimization with DLSTM for Biomedical Parameter Prediction Using Sensor,” in *Proc. 2024 3rd Int. Conf. Distributed Computing and Electrical Circuits and Electronics (ICDCECE)*, Ballari, India, 2024, pp. 1–7.
- [13] L. Rajesh and H. S. Mohan, “A multilevel efficient energy clustering protocol with secure routing (MEECSR) in WSNs,” *Int. J. Applied Science and Engineering*, vol. 18, 2021, Art. no. 2020344.
- [14] E. Varun, L. Rajesh, M. Lokeshwari, S. Ashwini, D. Bhat, and S. C. Kumar, “Machine Learning-Enhanced Water and Air Quality Monitoring Technologies and Applications,” in *Advanced Interdisciplinary Applications of Deep Learning for Data Science*, S. M. Biju and F. Oroumchian, Eds., Hershey, PA, USA: IGI Global, 2025, pp. 79–110.
- [15] L. Rajesh, K. R. Surabhi, K. A. Shenoy, M. Omar, M. Zain, and N. Kabra, “Browsafe: Approach to Enhance Trustworthiness for Safe and Secure Web Browsing,” *ITM Web Conf.*, vol. 79, p. 01013, 2025.
- [16] L. Rajesh, D. Girish Kumar, P. R. P. Pani, S. R. Siddanna, and C. N. Abhilash, “Systematic Analysis of Artificial Intelligence-Driven Trust-based Authentication Schemes for Wireless Sensor Networks,” *ITM Web Conf.*, vol. 79, p. 01015, 2025.
- [17] L. Rajesh, H. S. Mohan, and M. K. Bindiya, “Data aggregation in wireless sensor networks using Bayesian-based data encryption and fragmentation modelling,” *Int. J. Intelligent Information and Database Systems*, vol. 18, no. 2, pp. 201–230, 2026.
- [18] R. Dhupati, R. Rawat, L. Rajesh, M. Dutta, D. Nimavat, and S. R. Maranan, “Secure Routing and Attack Detection in MANETs: A Hybrid Optimization Approach Using Depthwise Separable Convolutional Neural Networks,” in *Proc. 2025 6th Int. Conf. Data Intelligence and Cognitive Informatics (ICDICI)*, Tirunelveli, India, 2025, pp. 1131–1137.
- [19] K. Sharma and B. Goswami, “Rental market of pump-sets in the central and western parts of Nepal plains,” *Asia-Pacific Journal of Rural Development*, vol. 30, no. 1–2, pp. 226–243, 2020.
- [20] K. Sharma, “Mechanization without ownership: Market structure and pricing in Nepal’s Terai,” *CABI Agriculture and Bioscience*, vol. 7, no. 1, p. 0020, Feb. 2026.
- [21] K. Sharma, P. Basnet, and K. R. Bhatt, “Social media discussion and short-horizon stock returns: Evidence from a retail coordination episode,” *Digital Finance*, vol. 8, no. 1, pp. 1–17, 2026.
- [22] K. Sharma and R. N. Shrestha, “The migration paradox: Why remittances fail to stimulate agricultural investment in Nepal's Terai plains,” *Economics Bulletin*, vol. 45, no. 4, pp. 1649–1657, Dec. 2025.
- [23] R. Banumathi and C. Saffina, “A multidimensional theory-driven framework for decoding FMCG consumption dynamics in rural Bengaluru,” *International Journal of Creative Research Thoughts*, vol. 13, no. 12, 2025.
- [24] R. Banumathi and C. Saffina, “An exploratory study on determinants of purchase intention of fast-moving consumer goods,” *Asian Journal of Management and Commerce*, vol. 6, no. 2, pp. 515–519, 2025.

- [25] C. Saffina and R. Banumathi, "Discussion on the growing market of FMCG market in reinvigation of middle income households: A case study on Bangalore rural districts scenario," *Indian Journal of Natural Sciences*, vol. 14, no. 79, 2023.
- [26] B. Kumar, "Blockchain-based authentication model for education data storage," *International Journal of Industrial and Systems Engineering*, vol. 51, no. 4, pp. 498–515, 2025.
- [27] V. Ramalingam, B. Kumar, S. K. Gupta, D. M. Alsekait, and D. S. AbdElminaam, "A hybrid federated learning framework with generative AI for privacy-preserving and sustainable security in IoT-enabled smart environments," *Scientific Reports*, vol. 16, Art. no. 3071, 2026.
- [28] B. Kumar, W. Shamas, J. Sandeep, and D. Albalushi, "Developing an advanced cybersecurity framework and blueprint: A contemporary approach to counter hacking through reverse engineering techniques," in *Smart Cyber Physical Systems, Proceedings of ICSCPS 2024*, Singapore: Springer, 2024, pp. 27–37.
- [29] B. Kumar, N. B. Najmusseher, P. K. Nizar Banu, and R. Dwivedi, "Epileptic seizure detection contribution in healthcare sustainability," in *AI and IoT: Driving Business Success and Sustainability in the Digital Age*, B. Awwad, Ed., *Studies in Systems, Decision and Control*, vol. 601, Cham, Switzerland: Springer, 2025, pp. 225–235.
- [30] B. Kumar and O. Al Falhi, "Digital transformation through APIs," in *Proc. Int. Conf. on Communication, Information Technology and Internet of Things (COM-IT-CON)*, 2022.
- [31] K. Al Auqi and B. Kumar, "Security testing of Android application using Drozer," in *Proc. Int. Conf. on Computational Sciences and Sustainable Technologies, Springer CCIS*, 2024, pp. 8–18.
- [32] D. Sumathi, S. Ayyappan, A. Sivasangari, B. Ramakrishna, P. Kanagaraju, and F. B. Kunwar, "Random forest with SHAP analysis for identifying environmental determinants of air quality in urban regions," *Journal of Environmental Protection and Ecology*, vol. 26, no. 8, pp. 2963–2973, 2025.
- [33] D. Sumathi, S. Ankam, P. P. Adivarekar, K. S. S. Sandeep, R. Gomathi, and R. Shobarani, "Early plant disease detection using graph isomorphic networks: Enhancing crop yield through leaf analysis," *Journal of Computer Science*, vol. 21, no. 9, pp. 2065–2073, Oct. 2025.
- [34] D. Sumathi, A. Mishra, and D. K. Jha, "AI-based stress prediction: Integrating psychological and behavioral data using deep learning," in *Proc. International Conference on Innovative Computing and Communication (ICICC)*, *Lecture Notes in Networks and Systems*, vol. 1435, vol. 6, no. 1, pp. 145–158, 2025.
- [35] D. Sumathi and P. Poongodi, "Scheduling Based on Hybrid Particle Swarm Optimization with Cuckoo Search Algorithm in Cloud Environment," *IIOAB JOURNAL*, vol. 7, no. 9, pp. 358-366, 2016.
- [36] K. Chitra, S. S. Priscila, E. S. Soji, R. Rajpriya, B. Gayathri, and A. Chitra, "Transforming electrical simulation and management with smart grid technologies," *International Journal of Engineering Systems Modelling and Simulation*, vol. 16, no. 4, pp. 241–253, 2025.
- [37] M. V. Soosaimariyan, H. L. Allasi, K. Chitra, and J. B. Gnanadurai, "Enhanced EMG-based hand gesture recognition by using generalized deep infomax networks," *Journal of Sensors*, vol. 2025, no. 1, p. 9496890, 2025.
- [38] K. Lakshmi and K. Chitra, "Stress Net: Multimodal stress detection using ECG and EEG signals," *Journal of Data Science*, vol. 2024, no. 59, pp. 1–8, 2024.
- [39] S. Rishabh, K. Chitra, and C. S. Yap, "A study on non-fungible tokens marketplace for secure

- management,” *INTI Journal*, vol. 2024, no. 18, pp. 1–8, 2024.
- [40] S. Shreyash, S. Gaur, K. Chitra, and M. Y. N. Zuhaili, “EasyLearnify – A student study portal,” *INTI Journal*, vol. 2024, no. 17, pp. 1–6, 2024.
- [41] T. P. Krishna Kumar, M. Ramachandran, and V. Saravanan, “Risk assessment of emergency management using WASPAS MCDM method,” *Recent Trends in Management and Commerce*, vol. 2, no. 3, pp. 36–43, 2021.
- [42] T. P. Krishna Kumar, M. Ramachandran, and V. Saravanan, “Candidate selection for a project using weight sum method,” *Data Analytics and Artificial Intelligence*, vol. 1, no. 1, pp. 53–59, 2021.
- [43] T. P. Krishna Kumar, M. Ramachandran, and S. Sivaji, “Supplier selection analysis using multi-criteria decision-making VIKOR method,” *Data Analytics and Artificial Intelligence*, vol. 1, no. 1, pp. 48–52, 2021.
- [44] T. P. Krishna Kumar, M. Ramachandran, S. Chinnasamy, and M. Mani, “Matrix organization analysis using grey relational analysis,” *REST Journal on Banking, Accounting and Business*, vol. 1, no. 1, pp. 64–71, 2022.
- [45] T. P. Krishna Kumar, M. Ramachandran, and K. Ramu, “Emergency management investigation using COPRAS method,” *Recent Trends in Management and Commerce*, vol. 2, no. 1, pp. 32–37, 2022.
- [46] T. P. Krishna Kumar, D. R. Pallavi, M. Ramachandran, and C. Raja, “Evaluation of techno-economic using decision making trial and evaluation laboratory (DEMATEL) method,” *Recent Trends in Management and Commerce*, vol. 3, no. 2, pp. 101–110, 2022.
- [47] T. P. Krishna Kumar, M. Ramachandran, C. Raja, and A. Murugan, “Understanding of e-learning programs using WPM MCDM method,” *REST Journal on Banking, Accounting and Business*, vol. 1, no. 2, pp. 13–19, 2022.
- [48] T. P. Krishna Kumar, V. Saravanan, M. Ramachandran, and M. Selvam, “A market segmentation assessment weighted scoring for using WSM method: A study for different market,” *REST Journal on Banking, Accounting and Business*, vol. 1, no. 3, pp. 1–8, 2022.
- [49] T. P. Krishna Kumar, M. Ramachandran, K. Ramu, and A. Murugan, “Analysis of reverse logistics system using COPRAS MCDM method,” *REST Journal on Banking, Accounting and Business*, vol. 1, no. 4, pp. 31–37, 2022.
- [50] T. P. Krishna Kumar, M. Ramachandran, C. Sivaji, and C. Raja, “Financing practices of micro and small entrepreneurs using WSM MCDM method,” *REST Journal on Data Analytics and Artificial Intelligence*, vol. 1, no. 4, pp. 18–25, 2022.
- [51] T. P. Krishna Kumar, M. Ramachandran, V. Prasanth, and C. Raja, “Developing business services using IBM SPSS statistics,” *REST Journal on Banking, Accounting and Business*, vol. 2, no. 1, pp. 40–50, 2023.
- [52] T. P. Krishna Kumar, M. Ramachandran, K. Ramu, and A. Murugan, “Using DEMATEL for corporate social responsibility (CSR) analysis,” *REST Journal on Banking, Accounting and Business*, vol. 2, no. 1, pp. 51–59, 2023.
- [53] S. D. Khan, T. P. Krishna Kumar, A. Anjutha, S. Santhanalaxmi, K. Sasirekha, and T. Srihari, “Entrepreneurship, innovation, and technological change: Catalysts of economic evolution—A descriptive study,” *Migration Letters*, vol. 21, no. S1, pp. 962–971, 2024.
- [54] T. P. Krishna Kumar, R. Suriakala, A. Krishnaprasad, and D. Nair, “The impact of Internet of Things (IoT) on supply chain optimization: A review of existing literature,” *The National Research Journal of Information Technology and Information Science*, vol. 12, no. 1, pp. 5–13, 2025.
- [55] T. P. Krishna Kumar, R. Suriakala, A. Krishnaprasad, and D. Nair, “Bridging psychological

- foundations: Transforming Indian education through NEP-2020 and NCF-2023,” *Academe Journal of Education & Psychology*, vol. 15, no. 1, pp. 1–16, 2025.
- [56] S. Nagar, “An impact of performance of companies with sustainability goal on stock market movements,” *European Economic Letters*, vol. 13, no. 3, pp. 417–420, 2023.
- [57] S. Nagar and P. Mahajan, “An assessment of effectiveness of remote work mode in job internships,” *The Online Journal of Distance Education and E-Learning (TOJDEL)*, vol. 11, no. 2, p. 1154, 2023.
- [58] S. Nagar, “Augmentation of insurance business in India: Role of commercial banks,” in *India Banking and Finance Report 2024*, National Institute of Bank Management (NIBM), pp. 81–94, 2024.
- [59] S. Nagar, “Cointegration of Indian stock market with global stock markets: An empirical analysis,” *European Economic Letters*, vol. 14, no. 2, pp. 2457–2464, 2024.
- [60] L. Jose, “Contextual Diachronic Semantic Framework: Advancing Literary Analysis and Pedagogy through the Semantic Study of Shirley Jackson’s ‘The Lottery’,” *Educational Process: International Journal*, vol. 17, Art. no. e2025377, Aug. 14, 2025.
- [61] P. Jothilingam, “Modernization of industrial legacy control systems: Migration strategies, risk mitigation, and operational continuity in critical infrastructures,” *International Journal of Unique and New Updates*, vol. 5, no. 2, pp. 39–44, Aug. 2023.
- [62] P. Jothilingam, “Systems and management innovation in Industry 4.0: Redefining organizational models, human–machine collaboration, and process efficiency,” in *Proc. Int. Conf. Innovative Trends in Engineering and Technology*, India, Jul. 2022, pp. 699–706.
- [63] P. Jothilingam, “Industrial Internet of Things (IIoT): AI-driven anomaly detection and multi-protocol communication across Modbus and EtherNet/IP networks,” *International Journal of Enhanced Research in Science, Technology & Engineering*, vol. 11, no. 3, pp. 138–143, Mar. 2022.
- [64] D. Narasappa, "Integrating Zero Trust Architecture with Automation and Analytics for Resilient Cybersecurity," 2025 3rd International Conference on Data Science and Network Security (ICDSNS), Tiptur, India, 2025, pp. 1-6.
- [65] D. Narasappa, "AI-Driven Security Measures for IoT Networks Utilizing Machine Learning for Anomaly Detection," 2025 IEEE 4th World Conference on Applied Intelligence and Computing (AIC), GB Nagar, Gwalior, India, 2025, pp. 134-139.
- [66] Kumar, P.R., Mohammad, G.B., Narsimhulu, P., Narasappa, D., Maguluri, L.P. et al. (2025). Computer Modeling Approaches for Blockchain-Driven Supply Chain Intelligence: A Review on Enhancing Transparency, Security, and Efficiency. *Computer Modeling in Engineering & Sciences*, 144(3), 2779–2818.
- [67] I. Ganie and S. Jagannathan, “Online continual safe reinforcement learning–based optimal control of mobile robot formations,” *Proc. 2024 IEEE Conf. Control Technol. Appl. (CCTA)*, Newcastle upon Tyne, U.K., 2024, pp. 519–524.
- [68] I. Ganie and S. Jagannathan, “Online learning-driven human intent estimation and control for human–robot interaction,” *Proc. 2025 Amer. Control Conf. (ACC)*, Denver, CO, USA, 2025, pp. 5160–5165.
- [69] I. Ganie and S. Jagannathan, “Online lifelong optimal tracking control of nonlinear continuous-time strict-feedback systems using deep neural networks,” *Neural Netw.*, vol. 191, 107793, 2025.
- [70] I. Ganie and S. Jagannathan, “Optimal trajectory tracking of uncertain nonlinear continuous-time strict-feedback systems with dynamic constraints,” *Int. J. Control*, pp. 1–15, 2024.
- [71] P. Jothilingam, “Digital Transformation in Industrial Automation: Pathways, Challenges and

- Strategic Frameworks for Industry 4.0 Adoption,” in Proc. Int. Conf. on Technological Emerging Challenges in Computer Science and Engineering, India, Oct. 2025, pp. 864–871.
- [72] P. Jothilingam, “Artificial intelligence applications for asset management systems: Enhancing reliability, optimization and decision-making in industrial environments,” *International Journal of Business, Management and Visuals (IJBMV)*, vol. 4, no. 1, pp. 48–53, Jan. 2021.
- [73] P. Jothilingam, “AI-Enabled Predictive Maintenance for Optimizing Plant Operations: Data-Driven Approaches for Fault Detection, Diagnostics, and Lifecycle Management,” *International Journal of Open Publication and Exploration (IJOPE)*, vol. 8, no. 20, pp. 58–63, Jul. 2020.
- [74] B. Al Barwani, E. Al Maani, and B. Kumar, “IoT-enabled smart cities: A review of security frameworks, privacy, risks, and key technologies,” in Proc. 1st Int. Conf. on Innovation in Information Technology and Business (ICIITB 2022), *Advances in Computer Science Research*, vol. 104, Springer, 2022, pp. 169–181, doi: 10.2991/978-94-6463-110-4\_8.
- [75] N. S. Bommina, N. S. Akash, H. Syed, U. Lokesh, and S. Umar, “A hybrid optimization framework for enhancing IoT security via AI-based anomaly detection,” *International Journal on Recent and Innovation Trends in Computing and Communication*.
- [76] N. S. Akash, N. S. Bommina, U. Lokesh, H. Syed, and S. Umar, “Optimized blockchain-enabled security mechanism for IoT using ant colony optimization,” *International Journal on Recent and Innovation Trends in Computing and Communication*, vol. 11, no. 10, pp. 1226–1233, 2023.
- [77] N. S. Bommina, N. S. Akash, H. Syed, U. Lokesh, and S. Umar, “Multi-objective genetic algorithms for secure routing and data privacy in IoT networks,” *International Journal of Communication Networks and Information Security (IJCNIS)*, vol. 12, no. 3, pp. 632–643, 2020.
- [78] N. S. Bommina, U. Lokesh, N. S. Akash, H. Syed, and S. Umar, “Optimized AI models for real-time cyberattack detection in smart homes and cities,” *International Journal of Applied Engineering & Technology*, vol. 4, no. 1, 2022.
- [79] N. S. Bommina, N. S. Akash, H. Syed, U. Lokesh, and S. Umar, “Privacy-preserving federated learning for IoT devices with secure model optimization,” *International Journal of Communication Networks and Information Security (IJCNIS)*, vol. 13, no. 2, pp. 396–405, 2021.
- [80] H. R. Laskar, “Adoption of fintech and digital financial services (DFS) by young professionals,” *Int. J. Adv. Res. Eng. Technol.*, vol. 11, no. 1, pp. 537–561, 2020.
- [81] H. R. Laskar, “Factors influencing saving and investment behavior of government and private sector employees,” *Indian Journal of Economics and Business*, vol. 20, no. 1, pp. 1168–1192, 2021.
- [82] S. Roushon and H. R. Laskar, “Influence of Neural Behaviour on Decision Making,” *IOSR Journal of Humanities and Social Science*, vol. 29, no. 5, ser. 13, pp. 35–42, May 2024.
- [83] Z. Alam and H. R. Laskar, “The Influence of Neural Behavior on Individuals’ Financial Decisions,” *Journal of Economics, Finance and Management Studies*, vol. 7, no. 6, pp. 3298–3306, Jun. 2024.
- [84] S. Laskar, H. R. Laskar, and M. N. I. Barbhuyan, “Perception of Women Entrepreneurs Regarding Social Media Marketing,” *Bangladesh Journal of Multidisciplinary Scientific Research*, vol. 9, no. 5, pp. 10–18, Nov. 2024.
- [85] J. R. Rogers, Y. Wang, N. F. Khan, K. Mott, V. K. Nomula, D. Wang, P. C. Fiduccia, M. Burcu, and X. Liu, “Landscape assessment of clone-censor-weight methodology application

- in real-world data studies: A scoping review," in Proceedings of the Pharmacoepidemiology and Drug Safety Conference, vol. 33, pp. 424–424, Nov. 1, 2024.
- [86] I. A. Mohammed, "Artificial Intelligence in Supplier Selection and Performance Monitoring: A Framework for Supply Chain Managers," *Educational Administration: Theory and Practice*, vol. 29, no. 3, pp. 1186–1198, 2023.
- [87] I. A. Mohammed, "The Role of Artificial Intelligence in Enhancing Business Efficiency and Supply Chain Management," *Journal of Information Systems Engineering and Management*, vol. 10, no. 10s, pp. 509–518, Feb. 2025.
- [88] I. A. Mohammed, "AI-Powered Risk Management Frameworks for Ensuring Supplier Quality in Carbon Capture and Energy Storage Supply Chains," *International Journal of Intelligent Systems and Applications in Engineering*, vol. 12, no. 1, pp. 854–, Dec. 2023.
- [89] I. A. Mohammed, "Optimizing Carbon Capture Supply Chains with AI-Driven Supplier Quality Management and Predictive Analytics," *Journal of Next-Generation Research 5.0*, Dec. 2024.
- [90] I. A. Mohammed, "Machine Learning-Driven Predictive Models for Enhancing Supplier Reliability in Renewable Energy Storage Supply Chains," *International Journal of Intelligent Systems and Applications in Engineering*, pp. 767–770, 2022.
- [91] N. Gupta, M. Adawadkar, I. A. Mohammed, S. Verma, and M. Dubey, "Predictive Insights: Leveraging Artificial Intelligence for Strategic Business Decision-Making," *Advances in Consumer Research*, vol. 2, pp. 98–105, 2025.
- [92] S. Arul Krishnan, V. P. Rameshkumar, K. Prakash, and D. Sugandaran, "Impact of celebrity endorsement on cause-related marketing and purchase intention of FMCG consumers in Chennai," *Journal of Statistics & Management Systems*, vol. 26, no. 7, pp. 1627–1641, 2023.
- [93] S. Arul Krishnan, V. P. Rameshkumar, R. Sathya Aarthi, and S. Karthikeyan, "Role of job design on institutional support and work-life equilibrium of women teachers in Chennai," *Journal of Statistics & Management Systems*, vol. 26, no. 7, pp. 1549–1563, 2023.
- [94] S. Karthikeyan, V. P. Rameshkumar, and B. Balaji, "Subscribers of Indian Mobile Telecom: Satisfaction with Experience and Loyalty," *International Journal of Management*, vol. 11, no. 9, Oct. 15, 2020.
- [95] S. Pundir, V. G. Murugan, P. Raman, V. P. Rameshkumar, and P. Sudharsan, "Automatic Stock Price Prediction and Classification Based on Hybrid with AI Feature Selection Method," in *Proc. 2024 5th International Conference on Recent Trends in Computer Science and Technology (ICRTCST)*, pp. 149–154, Apr. 9, 2024. IEEE.
- [96] V. P. Ramesh Kumar and B. Balaji, "Asian Research Consortium," *Asian Journal of Research in Social Sciences and Humanities*, vol. 6, no. 8, pp. 1474–1491, Aug. 2016.
- [97] V. Devi Vanniarajan and S. Shfmkari, "Service quality of life insurance companies at Salem," *Global Business Review*, vol. 2, no. 2, pp. 23-31, 2008.
- [98] V. Kumar, P. P. Devi, T. N. Babu, A. S. Nader, A. A. S. Mohammed and R. Saravanakumar, "AI-Powered Recruitment Marketing Enhancing Candidate Experience and Employer Branding," *2025 IEEE International Conference on Emerging Technologies and Applications (MPSec ICETA)*, Gwalior, India, 2025, pp. 1-6.
- [99] V. P. Rameshkumar, D. Ganesan, S. Revathy, R. Karthikeyan, and P. P. Devi, "Evaluating the impact of artificial intelligence on logistics and supply chain efficiency," *Indian Journal of Natural Sciences*, vol. 15, no. 88, pp. 88823–88828, Feb. 2025.
- [100] Y. A. Abduvakhob Kizi, P. Praba Devi, S. Mahadevan, and S. D. S. Ugli, "Words and algorithms: The intersection of linguistic and artificial intelligence," *AIP Conference Proceedings*, vol. 3306, no. 1, p. 050005, 2025.

- [101] S. G. K. Peddireddy, "Advancing Threat Detection in Cybersecurity through Deep Learning Algorithms," *FMDB Transactions on Sustainable Intelligent Networks.*, vol.1, no. 4, pp. 190–200, 2024.
- [102] S. G. K. Peddireddy, "Integrating AI for Proactive Network Defense against Emerging Security Vulnerabilities," *FMDB Transactions on Sustainable Computer Letters.*, vol. 2, no. 4, pp. 232–241, 2024.
- [103] S. G. K. Peddireddy, "Optimizing Resource Allocation in Multi-Cloud Environments for Cost Efficiency and Scalability," *FMDB Transactions on Sustainable Computing Systems.*, vol. 2, no. 4, pp. 167–177, 2024.
- [104] V. Hiremath, "Quantum Networking: Strategic Imperatives for Enterprises and Service Providers in the Emerging Quantum Era," *Journal of Computational Analysis and Applications (JoCAAA)*, vol. 31, no. 3, pp. 617–631, Dec. 2023.
- [105] V. Hiremath, "AI-Optimized Adaptive Routing for High-Performance Data Centers: A Predictive Framework for Dynamic Network Optimization," 2025 IEEE 4th World Conference on Applied Intelligence and Computing (AIC), GB Nagar, Gwalior, India, 2025, pp. 152-157.
- [106] V. Hiremath, "Optimizing SDN Controller Placement for Enhanced Performance and Scalability in Large-Scale Networks," 2025 International Conference on Intelligent Communication Networks and Computational Techniques (ICICNCT), Bidar, India, 2025, pp. 1-6.
- [107] V. S. A. Anala, A. R. Pothu, and S. Chintapalli, "Enhancing Preventive Healthcare with Wearable Health Technology for Early Intervention," *FMDB Transactions on Sustainable Health Science Letters.*, vol.2, no.4, pp. 211–220, 2024.
- [108] V. S. A. Anala and S. Chintapalli, "Scalable Data Partitioning Strategies for Efficient Query Optimization in Cloud Data Warehouses," *FMDB Transactions on Sustainable Computer Letters.*, vol. 2, no. 4, pp. 195–206, 2024.
- [109] V. Rajavel, "Integrating power-saving techniques into design for testability of semiconductors for power-efficient testing," *The American Journal of Engineering and Technology*, vol. 7, no. 3, pp. 243–251, 2025.
- [110] V. Rajavel, "Novel machine learning approach for defect detection in DFT processes," *ASRJETS-Journal*, vol. 101, no. 1, pp. 325–334, Apr. 2025.
- [111] V. Rajavel, "Optimizing semiconductor testing: Leveraging stuck-at fault models for efficient fault coverage," *Int. J. Latest Eng. Manag. Res. (IJLEMR)*, vol. 10, no. 2, pp. 69–76, Feb. 2025.
- [112] Md S. Miah and Md S. Islam, "Big Data Analytics Architectural Data Cut off Tactics for Cyber Security and Its Implication in Digital forensic," in *Proc. 2022 Int. Conf. Futuristic Technol. (INCOFT)*, Belgaum, India, 2022, pp. 1–6.
- [113] M. A. Obaida, Md S. Miah, and Md. A. Horaira, "Random Early Discard (RED-AQM) Performance Analysis in Terms of TCP Variants and Network Parameters: Instability in High-Bandwidth-Delay Network," *Int. J. Comput. Appl.*, vol. 27, no. 8, pp. 40–44, Aug. 2011.
- [114] R. Boina, "Assessing the Increasing Rate of Parkinson's Disease in the US and its Prevention Techniques," *International Journal of Biotechnology Research and Development*, vol. 3, no. 1, pp. 1–18, 2022.
- [115] H. Pandian, "Quantifying business risk and financial loss from performance failures in enterprise systems," in *Proc. International Conference on Computer Science, Engineering and Applications*, vol. 978, pp. 160–170, Jul. 2021.

- [116] H. Pandian, “Self-healing performance architectures for large-scale banking and payment platforms,” *International Journal of Intelligent Systems and Applications in Engineering*, vol. 11, no. 11s, pp. 1019–1029, Dec. 2023.