

# Cloud Based Travel Planning System With a Learned ITA Algorithm Approach

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## Abstract

*In the current era of globalization, one of the fastest growing industry is travel and tourism, one of the major issue faced by the industry is lack of planning among the clients of the industry, in this paper we are proposing an SAAS based travel planning system that works with a learned algorithm, that helps the tourist to intelligently plan their trips with a productive output. So this approach gives a scope of removal of human intervention that arises in travel and tourism industry.*

**.Keywords:** Travel, Tourism, SAAS, Virtual Reality, ITA algorithm

## 1. INTRODUCTION

Travel & Hospitality is one the industry whose dimension has changed in past decade, before it was an industry based just for just finding a spot to travel or just book rooms to stay with a very small room for scope of improvement ,but the drastic change that has took place to the industry is mainly due to the merging of information technology to automate the travel and tourism ,now the present situation is such that you can experience your favorite destination you want to travel without physical going there with help of virtual reality and intelligent systems [1] which support the user. Traveler's all over the world want a memorable trip without any delay, accurate information and worth of money they spend. Customer who approaches many travel agencies for getting the trip matching their criteria but often ended up with some issues due to the human intervention. So there is a need for a intelligent learned product which helps both the customers and travel agents to seamlessly synchronize right from the Enquiry to end of trip [2]. Such application uses a algorithm which consider parameters like real time information like airlines, railway, local weather info, Mappings etc and which helps to automatically generate a detailed planning based on the classification process which takes budget and location specific detail and produce tour itenary prediction. Cloud computing has major role in providing easier access to information, SAAS (Software as a service) has provided a scope to publish an application which supports the travel industry. SAAS removes the disadvantage involved in many web application which were not able to provide proper interfacing to the customer with help of virtualization of resource involved in the travel tourism with a help of a cloud provider, so there are many distinct data centers which make the task of accessing the

application specific data easier for the user ,Also it also provides an opportunity to have multiple portals for the traveler as well as the agent who helps planning in a single public cloud frame work.

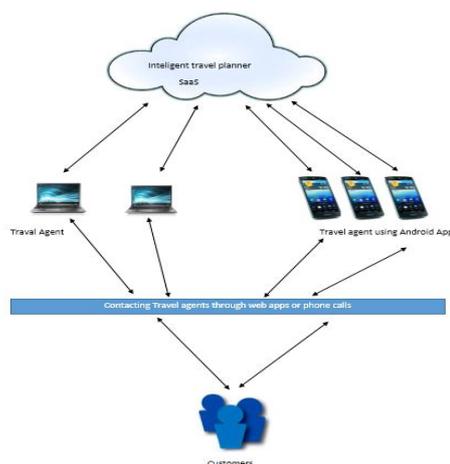
## 2. EXISTING APPROACHES IN THE FIELD

Travel tourism and hospitality is undergoing a rigorous amount of automation day to day .many approach arise which reduce the human effort and increase the easiness in the travel planning. Most of these approach works on statistical data collected entered from travel agent and end user. so it has limitation that the trip plan it generate has many inconsistent information as too much of human intervention takes place, and more over in the field there has been no proper study made on creating an approach which minimizes the large role played by middle man .in all existing approach B2C interaction has not been portrayed well enough to cradle all the arising industry needs .Data collection and prediction of trip plan is vague even to be accurate. Many of these windows or web application has limitation that arises out of the server where the application data is stored, creating delay and discrepancy in the data on which the application has been built on .several of these need an intelligent solution which works on all these issues and makes the system fool proof.

## 3 PROPOSED APPROACH IN THE FIELD

Travel and Hospitality industry highly requires an efficient approach which caters the need of the travelers as well as the agent with an intelligent self learned perspective. here in this paper we are trying to bring out a learned algorithm which supports the planning involved in travel industry considering all the parameters which are delimiters [4] .the major two aspects taken in to account while developing the white paper are to make the system learn all the parameters and suggest the required guidance for traveler and agent automatically,next is to make the system virtualization by launching the system in to SAAS based cloud .learned system helps to minimize the statistical data and to have supervised learning process to take place on dynamic data according to user perspective with ease prediction should take place purely based on the classification that been carried on several parameter such as user preference ,budget ,location specific criteria etc [3]. the task mainly involves splitting the travel industry data

in to classes through learned ITA algorithm .algorithm has been fed with huge amount of dynamic data collected worldwide to have better training done to the system, A mathematical model has been involved to do the classification process which increases the accuracy in considering various parameter involved . Another important feature of the proposed system is the virtualization involved in the system resource ,managing the large and huge data to process for the travel tourism increases the need for system to be carried in to cloud environment .Approach ensures an secure SAAS cloud based system ,which has a high competency compared to the existing web application running from remote servers. Here the cloud provider with virtual infrastructure and system integration gives better opportunity for the traveler as well as agent to access the information as well as process the information which they require to have travel plan ,and prediction and learning process can have better working in virtual environment provided by the cloud, it helps improve the accuracy involved in the stored data which is key for the information retrieval process



**FIGURE 1** PROPOSED SYSTEM ARCHITECTURE

The architecture of the proposed system shown in the figure 1explains different level in which components needed for the integrating the travel planning system distributed. The cloud layer of SAAS helps to do the virtualization middle layer in this n-tier system is constitute of various components such as node computers, PDA's and smart phone in which the user can access information from the cloud provider .then major component is the prediction system backed by the learned algorithm which makes user to plan the travel easily and efficiently. So it has a major role to play as it interacts with dynamic data entered by data and going to give advice based on the existing supervised classification done on basis previous data collected from the user stored in cloud, here we understand that why cloud is significant in system . Last but not the least important part of system is the user who provides the data as well who gets the benefits of the prediction of the Travel planner. [5] Format of the data entered is very much important for the learning process and also there must be proper taken care to avoid

inconsistent and redundant data while entering,so the travel agent and the user also play a vital role in the system ,but enough care has to be taken care tom reduce the human intervention as low as possible ,here lies major effort in making the design of system to be highly scalable to that of the cloud. So much of care has been taken care in the real time implementation of the system proposed in the white paper

#### 4 LEARNED ITA ALGORITHM

ITA (Intelligent travel assistant) is a novel mathematical model proposed to make the prediction or travel planning .ITA is mainly algorithm which involves supervised learning process, as any algorithm major care has been taken care to choose the parameters on which classification can be done. Let us consider a mathematical model of input parameter to the algorithm

$$P = f(L, C, T, W)$$

P-plan indicator

L-indicates the location specific parameter

C-Cost and budget parameter

T –Transport and accommodation

W-Weather and season

This Quadruple is usually a very important feature of travel and tourism industry Based on these parameter we can formulate a supervised classification algorithm

**STEP 1:** Choose a location with specific L

**STEP 2:** L value should be mean of value calculated from the dynamic data

**STEP 3:** match all L value for the location so that there is minimized function originated

**STEP 4:** compare the C value obtained as input with segregated C values for the L value processed

**STEP 5:** choose a C value that matches with a minimized function of  $(\phi L + \phi C)$

**STEP 6:** process the T value of user input match it with the C value and L value of specific location

**STEP 7:** choose a T value that matches with a minimized function of  $(\phi L + \phi C + \phi T)$

**STEP 8:** process the W value of user input match it with the C value value and W value

**STEP 9:** choose a W value that matches with a minimized function of  $(\phi L + \phi C + \phi T + \phi W)$

**STEP 10:** generate the minimized function as P which is  $P = (\phi L + \phi C + \phi T + \phi W) / n$

n-no of users

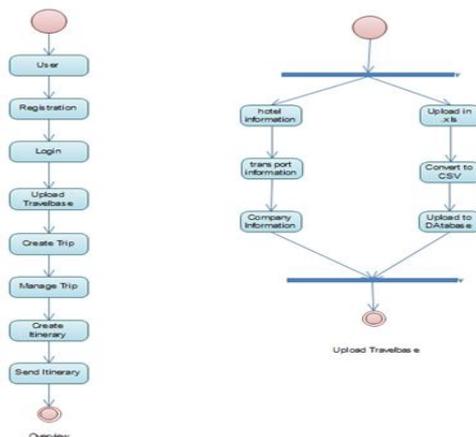
**STEP 11:** plot p against the time constraint of user to generate a classification

**STEP 12:** predict Plan P for the user which best suites him according to which class his P value falls into.

#### 5 WOKING MODEL OF PROPOSED SYSTEM

Implementation is the important part of the proposal which involves serious of steps which has to be done in particular order. Main part of the system involves the development of input module which is application that can be launched in cloud .format of cloud has to be taken in care as it is going to be fed in to travel planner. so user forms should take all

the necessary parameters which makes prediction easy .Application is developed PHP forms to take the input .In a similar way ,the prediction application involves also features which help travel planning like Billing, uploading travel database , preparation of itenary and budget which are essential for the travel agent .Proposed model has some virtual reality application which supports of view of data to increase user perspectives ,so called application is tested and made ready to be launched to cloud server, Next involves process of choosing a cloud portal setting application so that resource goes in to cloud server ,it is always advisable to have a public cloud system ,preparation of an MVC application Is also preferable to make system more efficient for processing, care has to be taken while preparing dynamic plan of trip after accepting learned output .thus altogether system is a mix of cloud application and learning tools. Learning algorithm inbuilt in system takes care of generating some visual analytics which serve user to choose their plan.



**FIGURE 2 FLOW DIAGRAM**

## 6 SUMMARY AND CONCLUSION

This product is ultimately meant for all B2B community of travel agents. This project suggests a better way to manage the travel business with high levels of efficiency at comparatively low cost. The task here is to implement a system that is intelligently mimics the depth and knowledge of an intelligent travel agent and leverages the collective insights of several travel planners to provide the best itinerary and avoid pitfalls which ruin a holiday. The system is modular and can be linked to other platforms like SMS and Email Server

## 7 SCOPE FOR FUTURE DEVELOPMENT

In future the system will be integrated with various travel and hospitality platforms and it will have a customer extension also. As part of the performance tuning the system will also liked to modules written in native language such as c++.

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