

CLOUD BASED E-GOVERNANCE: Passport Appointment System in Ethiopia

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Abstract: *The cloud based e-governance helps governments in providing best possible services to Ethiopian citizens and business. It will not require to purchase and install ICT equipments on their own premises hence it reduces costs and it provides many benefits to Ethiopian government like reduce cost, distributed storage data, availability of resources at lower cost, management of security, and scalability. This paper deals with developing cloud frame work for passport appointment system in Ethiopia, which is governmental service given to citizens. Citizens use the system to schedule their appointment in order to apply for passport.*

Index Terms - E-governance, ICT and Cloud Computing, passport.

I. INTRODUCTION

Ethiopia is a developing country which is found in eastern Africa. Ethiopia practices federalism since this country is with variety of ethnicity. Regions in Ethiopia have their own governance which is accountable to the central governance residing in the capital city. Good governance refers to the process of making and implementing the right decisions that benefit the nation. It's believed that good governance brings a positive effect on various aspects of local government including consultation policies and practices the provision of service quality and working relationships.

Contrary to this, lack of good governance is highly dominating the working system of some government offices in Ethiopia. There are certain areas of bad governance. Besides some officials are based on expecting bribe beyond the salary they get from the government which we call it as corruption. Since Ethiopia has continued demonstrating high economic progress over decades, it initiates the provision of proper and quality services for the entire society. Generally, good governance is very crucial in order to handle the ongoing development of the nation. Hence, government offices should always try to serve the needs of the entire community while balancing competing interests in a timely appropriate and responsive manner also ensure best possible results for their community.

Finally, the community should have the opportunity to participate in the process of making decisions. E-governance helps to mitigate corruption and bad governance. It helps to establish sounder government-citizen relationships in Ethiopia. It is preferable to apply strategic implementation of e-governance which can improve the critical variables in combating corruption and bad governance. Certainly, while e-governance initiatives can make important contributions to improve public services they can best do so by helping improve overall relationships between government and citizens.

• E-governance

E-governance is the application of information and communication technologies (ICT) to exchange information between the government and citizens, government and business and between government organizations, e-governance improves these communications. E-Governance can be communication between the following

✓ Government to government

E-governance supports the exchange of information, decision making, shared services, and law enforcement between the government departments. In the case of Ethiopia, as the country is applying federalism, authority is divided among regions. The government of regions best work while communicating each other or exchanging information.

✓ Government to business

Tax file transactions, payments are supported by e-governance. Business should use functionalities provided by the government.

✓ Government to citizens

Agricultural services, employment, health services, registration/land/ services are supported by e-governance.

✓ Government to enterprises

There are basic enterprises like water board, electricity, telecommunication controlled by the government. Thus policies and decisions are applied on these enterprises. The transmission and enforcement of these policies and decisions are supported by e-governance. Recently e-governance has emerged as a vehicle for SMART (simple, accountable, responsible and transparent) governance. Good governance can be supported by ICT through e-governance which can wipe out corruption and improper practice of governance. E-governance range from the use of information technology to free movement of information to overcome the physical bounds of the traditional system and physical based systems to the use of technology which enhances the access and delivery of government services for the benefit of citizens, business partners, and employees. The Africa union estimates that corruption accounts for 25% of Africa's annual GDP around 148 billion and is satisfying the continent's chances of taking off economically. The station of e-governance is also poor in Africa in comparison to other economies. Sub Saharan Africa is having a poor readiness to recent initiatives focusing on ICT development and ICT for the development program. [17]

• Passport appointment for application

Passport is issued by the government which helps citizens to travel abroad. It is a travel document that certifies the identity and nationality of the citizens. Critical information which clarifies the identity of the holder citizen is included in the passport. Passport is easily recognized document that authorizes for travel. The appointment system is supposed to make passport application and renewal more efficient. The system acts as a supplement for passport application system. On the other hand, the system delivers passport services in a comfortable environment with wider accessibility and reliability.

Countries use the passport in order to practice authorized leave and entry of citizens. Ethiopia also practices this document for legal immigration purpose. The authorized center issues this document. Passport issuance service in Ethiopia is one of the basic governmental services. The center tries to upgrade and automate its services from time to time. The application and registration service is automated but still, there are big defaults that need to be solved. The problems disrupt the passport issuance system. In this thesis, the focus is on one of the basic problems which make citizens unsatisfied with the service.

In Ethiopia at the immigration center citizens make queue each day in order to apply for the passport. Citizens from different states are gathered at the passport issuance center; these citizens face discomforts due to robbery and corruptions. The environment around the immigration center is becoming unsafe for citizens due to the fact that there are some personnel's who made a job out of the process of queue by just saving some body's place and receiving money in return. Another essential discomfort is that the citizens from rural areas are not well informed about the requirements needed for the passport application service. These scenarios make the citizens not to fulfill the requirements and waste their time. This thesis will let the citizens be well informed by passing the requirements and immigration updates along with the appointment system.

- **Cloud based appointment system**

Customer appointment scheduling software corresponds to two categories: office applications, systems on the web (also known as the software as a service) and today the appointment system based on the cloud. Desktop applications are programs that are usually permitted and installed on the hardware managed by the user. Desktop programs are usually very robust in terms of features and reports, and can often be optimized, but a fall is that desktop applications do not often have an online portal for staff or access of the client that is connected to the internet. So, after the installation of the desktop app needs maintenance. Systems on the Web are usually provided by a third-party provider of services that offers tools and programming for the appointment of a hosted software solution functions, generally provided in a web browser. Customers have the possibility to book their own appointments. [15] This facilitates making appointments on the web that clients can access their lists of usual professionals at their convenience and make appointments online via the Internet the online appointment system has the advantage of conveniently making application appointments at anytime and anywhere, outside the times when the passport issuance center is open for service. This paper is dealing with the effect of cloud-based passport appointments depending on some other appointment systems done around the world. The details of the main analysis included the effect of the cloud-based online appointment system on the no-show of consumers, satisfaction of citizens.

An appointment application based on cloud computing requires no downloads or installation. It works well with the cloud as Google calendars. The nature of making appointments is that it must be constantly updated with the availability of people who are on the schedule. For this reason, the calendars are perfect for cloud because they can be consulted in real time. The case of the use of cloud-based software is shrinking day by day and it goes the same for appointments. Today, the vast majority of applications are cloud-based appointment setting. So the question is not about using a fixing of appointments based on the cloud or installable solution. It is about which the cloud app to choose. [16]

II. RELATED WORKS

Considering the high contribution and benefit of cloud computing and it's wide application in different sectors plenty of researches have been conducted .similarly researches have been done on cloud-based e-governance some of the research papers are summarized as follows: Developing and implementing traditional e-governance faces different obstacles regarding scalability, availability, cost and etc.

Cost is one of the main challenges in e-governance system. This and the above-listed challenge can be solved through cloud computing-government requires different entities to survive and function properly .cloud computing treat the entities as a system can be implemented in e-governance.[2]

Data and resources are hosted online in cloud computing hence have high availability and citizens can use them at any time anywhere. One of the main aims of the government in providing the governmental services online is that citizens and businesses can access these services around the clock. Therefore e-government system must be available always. [3]

With cloud computing a platform to use the application in the form of services which is more scalable, reliable, high performance and relatively low cost as compared to other distributed computing infrastructures-governance is the implementation of ICT. "Confidentiality, availability, and integrity of data or information" [5]

The main challenge of cloud-based e-governance is security and protection to both government and citizens. [4]

The important stakeholders in e-governance are citizens hence their trust in the system is important. In cloud computing data is stored and processed by a third party therefore; citizens and business organizations are concerned on the confidentiality and security of their sensitive data. In addition, data leakage can also affect the system. Regardless of all the challenges cloud based e-governance can be efficient because it has many significant advantages [6]

E-governance is all about applying ICT (information communication technology)to facilitate the transparent communication between government and citizens, government and business and between government organizations.[1]

Cloud computing is a new technology which helps for providing and receiving services through the internet. Applying cloud-based governance system gives many advantages to government and citizens by reducing cost, providing distributed storage of data, providing more resource at lower cost, managing security, providing scalability and modifiability [7]

Scheduling problem has been solved by computer science and computer engineering since 1950's. There is three scheduling native, basic and advanced scheduling.[10]

E-appointment is done for scheduling and appointing for students and lecturers it is a system based on logic programming and it solves the appointment and scheduling problems in educational center. [11]

Now a day's ICT (information communication technology) has a great impact on human life the need of different ICT based systems is due to problems. Then ICT started transferring the world to modern life e.g. online appointment system which helps National Health Service waiting times. [9]

The online passport application system with scheduling an appointment is mainly designed for the convenience of citizens. Passport appointments are free and also information of requirements needed for passport application. [12]

The passport appointment system avoids long queue because at the service provider center only applicants who have appointments can be admitted. [13]

The passport SEVA project was developed to deliver passport services to the citizens in a convenient environment. One of the services in this project is online appointment. This system is integrated with the online payment system for passport application. [8]

III. PROPOSED SYSTEM

Now a day's information communication technology (ICT) has an impact on human life. In realistic world, the need for the system occurs as a result of problems encountered by users in the current manual system. ICT began to change the modern lifestyle, e. g., an online appointment system helps reduce the National Health Service (NHS) waiting times.

Bookings, rebooking, cancellations, reminders and follow-ups can be available online efficiently and without all the downfalls of the manual appointment scheduling systems. Different sectors can choose what works best for them from different choices provided online taking into account their practice and type of steps needed. Although the documentation on paper gave way to appointment bookings, constant management by members of the staff is always necessary with the traditional method, in order to follow the new bookings, reservations, cancellations, etc... it is very difficult for the operational effectiveness of the organization. More staff resources must be engaged in other urgent tasks in the facility. Errors are likely to occur and information may be ignored. When the system is not up to date with the evolution of information - cancellations, changes in appointments to the scale of a single day, the choice of different procedures in the same facility - mix-ups are inevitable. This undermines the effectiveness and reliability of the practice. It can hold an Organization to operate at its full potential. An unorganized appointment can mean unhappy customers. [14]

The cloud based passport appointment system is going to be launched by this study for the benefit of the immigration center and citizens. The objective of this study is to deliver passport appointment system which can provide citizens comfortable environment with wider accessibility and reliability. The online appointment system has been emerged to make sure that there is no congestion at the passport issuance center and the environment around it. Also this study can cut down the waiting time for applicants. Date will be allotted by the system as per the availability of appointment. An applicant has the privilege of cancelling and rescheduling the appointment. Because applications and data are hosted outside of the organization in the cloud computing environment, the cloud service provider has to use Authentication and Authorization mechanism. Authentication means that each user has an identity which can be trusted as genuine. This is necessary because some resources may be authorized only to certain users, or certain classes of users. Authentication is the mechanism whereby systems may securely identify their users.

IV. CONCLUSION

As the big impact of ICT in the governance, in this system the passport issuance center is taken into account. Hence one of the problems in this governmental sector is congestion therefore this study focused on building up a system for appointment in the Ethiopian immigration office. Due to the wide spreading and benefit of cloud computing this passport appointment system is built up as a cloud based architecture.

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