

CLLOUD BASED WEB APPLICATION SUPPORTING VEHICLE TOLL PAYMENT SYSTEM USING IOT

ABSTRACT

The requirements for new web applications supporting different types of devices and purposes are continuously growing. The main advantages of web application development as well as popular development features covering integration with different technologies are considered initially in this paper. Integration and possibilities of application of cloud based web applications in real scenarios with different embedded Internet of Things (IoT) devices are considered and described in this paper. The design and implementation of a cloud based web application supporting vehicle toll payment system using IoT device is presented and described. The development framework as well as featured and popular technologies used to realize a vehicle toll payment by IoT device are described. The concept of vehicle toll payment over an online payment system is also described. Processing, monitoring and control in the cloud based web application of such payments using IoT devices are described and presented.

INTRODUCTION

The use of WEB applications in the business environment has become the standard. Main reasons are ease of maintenance as well as version release as it's made only on the central server without the need for access to a user's computer. In addition, WEB oriented applications are available over the Internet for use in any location and on any kind of small or resource constrained device. Such web applications can be integrated with different other applications, control and management services, and other applications as well, to realize management, monitoring reporting, etc. Usage of WEB based applications is operation system independent which means that usage of a cloud system has the advantage of hosting a specific web application. The cloud systems themselves can be divided into private, public or hybrid. Public cloud systems are provided by other organizations in a manner of renting distinct volumes of system resources, services and storage. Public cloud is considered as a pay-as-you-go manner to the general public and the corresponding services for renting represent the utility computing. A private cloud is considered as an internal data center in an enterprise or a company .

From the web application and IoT world perspective, all three types of cloud can be considered for web application development and hosting, depending on the security requirements of the web application and the IoT application domain. In case of a web application, security is on a high level because of the access to a single central server, rather than using large amounts of workstations. Furthermore, the cloud system, either public or private, provides both the applications delivered as services over the Internet as well as the hardware and systems software

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in the data centers which provide those services . Therefore, moving web applications and corresponding services to the cloud gives more reliability and scalability to the whole system, while simultaneously allowing management and administration from one location.

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