MASTER'S PROJECT (Spring 2013)

TOPIC: *Real-Time Map Services for Android Devices Using Mobile Cloud Computing*

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ABSTRACT

With the emerging cloud computing technology and an explosive growth of mobile networks, there is a need to combine them to bring benefits to mobile users. Mobile cloud computing (MCC) is a recent computing paradigm that provides cloud services in the mobile ecosystem. MCC integrates cloud computing into mobile environment, overcomes barriers related to the performance and security issues in mobile computing. As one of the major benefits, MCC supports sharing resources in the cloud among mobile users, which can provide accurate and real-time information to any client anywhere. In this project, we developed a real-time map service system for Android devices using MCC. The proposed system consists of three major components, namely cloud-based real-time map services, a camera client that provides real-time map information to the cloud services, and mobile clients that can retrieve on-the-fly map information from the cloud. To develop the system, we adopt Google App Engine as the cloud platform to deploy the real-time map services, which are implemented as RESTful web services. The camera client simulates real cameras to continuously generate random map information and upload it to the cloud-based map services. Finally, mobile clients developed on Android devices can retrieve the map information from the cloud in real time. To demonstrate the effectiveness of our approach, we developed a prototype map service for Android users to find empty slots in parking lots. The implemented system shows that mobile users can efficiently retrieve parking lot information from the cloud, which is provided by the camera client in real time.