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Mobile Context Management Framework for Resource Constrained Environments

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Abstract

Mobile context-awareness is one of the most important topics in the mobile computing research because of the ubiquitous nature of the smart phones. It's pervasive across all walks of our life by being the constant companion providing contextually relevant information. Just as the mobile computing power has increased exponentially over the decade, the mobile experiences have also evolved. The evolved mobile experiences have increasingly challenged mobile energy consumption. With the limited resources available in the mobile, it's practically impossible to be used in a resource constrained environment where there's no connectivity or power source. There's certainly a lack of research in this space. This research effort is to explore new model for context management framework for mobile in resource constrained environments. Main objective of this research is to identify Architecture, algorithms and subcomponents for the new model. The research yielded positive results as it was able to find new algorithms, subcomponents such as sensors and working model for the context management framework for resource constrained environments with evident energy conservation. This work will be a new model to the area of mobile computing context awareness research and will be a contributor to the research in using mobile in resource constrained environments. Future works can be potential extensions of these research into more classification algorithms, light-weight machine learning based sensor calibrations, merging multiple sensors and exploring for far more energy conserving models.

Keywords: Mobile development, Mobile context-awareness, Context management system, Energy efficient mobile computing, Mobile sensor management