

Prithibi: An Open Platform for Digitizing Real World through Sentient Artefact Model

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Abstract:

One of the primary impediments that limits the ubiquity of pervasive applications is a missing system platform that can host generic applications and can provide uniform “real world contexts” sharable among future and existing applications. This platform should monitor and capture fine grain real world information and represent it in a meaningful way to pervasive applications. We have been working towards building this platform with the vision of forming a parallel and identical digital world model of the real world, so that the applications running in the digital world can exploit all the attributes of the real world. In our approach, the primary source of collecting the real world information is the sentient artefacts. These artefacts are everyday objects augmented with various kinds of sensors that suit their appearances and primary functionalities. Such augmentation allows these artefacts to monitor and capture real world information in an economical and practical way. Sentient artefacts are independent of any underlying sensing infrastructure but can create a federation among themselves leading to the formation of a reusable data centric platform that can be utilized by various existing and future proactive applications. This federation of artefacts is service-oriented, temporal and spontaneous and is only done when necessary to provide ambient services considering user’s spatial location. Such adhoc federation leads to better resource management, less overhead and simpler data management. This talk will cover the various aspects and the current status of this research.