Data collection in sensor-cloud: A systematic literature review

ABSTRACT

The integration of cloud computing and Wireless Sensor Networks (WSNs) to create Sensor-cloud helps in extending the data processing capability and storage capability of WSNs. Knowing how weak WSNs are with regards to communication ability, how to collect and upload sensory data to the cloud in limited time has become an issue in Sensor-cloud. In the last decade, with increasing interest by researchers in the domain, a considerable amount of research works have been conducted and published in the research domain. The main objective of this study is to systematically review the current research on data collection in Sensor-cloud. Hence, the study also aims at identifying, categorizing, and synthesizing important studies in the field of study. Accordingly, an evidence-based methodology is utilized in this study. By doing so, 43 relevant studies were identified and retrieved to answer the formulated research questions. The systematic methodology offers a methodical and rigorous study selection and evaluation process that is repeatable and precise. The result shows that research on data collection in Sensor-cloud is relatively consistent with stable output in the last five years. Ten proposal contributions were identified with System, Framework, and Algorithm being the most used by the selected studies. In conclusion, key research challenges and future research directions were identified and discussed for researchers to propose effective solutions to the existing challenges. Although research on data collection in Sensor-cloud is gaining some traction in recent years, the works in the domain are not sufficient and concrete proposals are needed to improve data collection.