M2M Distance Estimation in Indoor Wireless Network

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Abstract—Distance estimation identifies the distance between two machines (M2M: Machine to Machine) in wireless network. Such estimates are an important component of localization systems, because they are used by the position computation and localization algorithm components. Different methods, such as received signal strength indication (RSSI), time of arrival (ToA), and time difference of arrival (TDoA), can be used to estimate a M2M distance. Nowadays, a lot of systems have tried to estimate M2M distance using different models in wireless networks. For example, the Active Badge System used an infrared signal. Cricket, developed at MIT, uses TDoA method. Global Positioning System (GPS) uses ToA. RADAR, developed at Microsoft, uses RSSI to estimate M2M distance. It is primarily based on an 802.11 Wireless LAN. SpotON is a RSSI based ad-hoc localization system. We describe and analyze some of the major approaches and systems for M2M distance estimation in indoor wireless network.

Keyword—Machine to Machine, Distance estimation, received signal strength indication, time of arrival, time difference of arrival, wireless network.



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