

NEIGHBOUR CHANGE RATIO AND ROUTE STABILITY BASED STABLE PATH SELECTION PROTOCOL IN UWB MANET

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Abstract

Ultra Wide Band (UWB) is a new area of Mobile Adhoc NETWORK (MANET) where the mobile nodes play important role in a network. UWB application requires effective route discovery mechanism. Typically, unstable link is the major problem in UWB MANET. To reduce packet loss ratio, first identification of unstable area is done. Afterwards, search route to be failed in near future and then starts alternate route discovery. So that before actual path fails another path can be found to the destination. Once path found source node can send data to the destination even in case of route failure also. To control congestion packet loss must be reduced. In this project, a new protocol Neighbour Change Ratio and Route Stability based Stable path Selection protocol (NCR_RSSSP) is developed that can find a stable path without message overhead. The protocol is based on cross layer and Route Stability based Stable path Selection protocol (RSSSP) approach which guarantees the successful control on packet loss. However, unlike the original RSSSP approach where the PLR is low, the proposed scheme NCR_RSSSP can achieve reduced PLR, yet providing less control overhead due to many enhancements added in the design such as neighbor change ratio based hello messages, grayzone detection based on received signal strength of a node. A computation model is built to compute NCR, link stability factor (LSF), route stability factor (RSF), stable neighbour frequency (SNF). Along with proper location of mobile node stable route can be found with stable path selection algorithm. As we could observe from the simulation result that the NCR_RSSSP protocol performed better in terms of packet loss ratio, packet delivery ratio, normalized routing load, end to end delay and average throughput in bytes when compared with RSSSP, AODV and AOMDV.

Keywords : UWB, Cross layer, RSSSP, NCR_RSSSP, LSF, RSF, SNF