Enhanced Positioning Techniques for Hybrid Wireless Networks

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Abstract: This paper presents a reliable and accurate positioning method, which provides location estimates for the mobile user in a wireless network where IEEE802.11/WiFi, IEEE802.16/WiMAX, 3GPP LTE and Bluetooth wireless technologies are deployed. The developed data fusion algorithm utilises measurements and features such as Time of Arrival (TOA) and multiple input, multiple output (MIMO) antennas and wireless links between mobile users in order to enhance the positioning accuracy. Therefore, in the proposed concept of mobile user positioning is proposed and it is applied to hybrid wireless network environment. Results satisfy the FCC requirements for the network and mobile-centric positioning solution.