

Fusion of LTE and UWB ranges for trilateration

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RESUMEN

High precise indoor positioning is the spotlight for the new mobile generation 5G. Ultra-Wide Band (UWB) technology stands out as the creditable preference for locating the user in indoor scenarios. The principal limitation of this technology appears in the coverage area that reaches a few tens of meters. In our case of study, we have simulated a conceivable real environment with UWB and Long Term Evolution (LTE) base stations for positioning users. In this scenario, users have been tracked by an Extended Kalman Filter (EKF), a memory state filter to predict the movement of the user that improves the performance of the system. In regions that receivers only track isolated UWB stations we make use of this information in order to improve the location provided by mobile networks. Essentially, when performing trilateration using the data offered by LTE, we also include the data of UWB in case that this information do not serve to position by itself. In this manner, the coverage area by at least one UWB station augments and accuracy of the system improves in those regions where only LTE previously provided location..

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