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RSSI based indoor localization using RSSI-with-angle-based localization estimation algorithm

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For the scenarios of indoors localization and tracking, the solutions generally need complex infrastructure because they would require either a grid of antennas, each having a well-known position (proximity based approach), or a sophisticated algorithm that uses scene fingerprint to estimate the location of an object by matching the online measurement with the closest offline measurement. Those techniques may not be available in unknown zones, which will make it difficult to locate a lost node. In this paper, with no additional hardware costs, we propose a new RSSI-based approach in order to find a lost node using a known node. By rotating the known node at the same spot, we can collect different RSSI for different polar angles. Two pairs of angles with the strongest RSSI will indicate the main lobes of the radiation pattern, namely, location of the unknown node. Experimental results illustrate a very close estimation of the unknown node location, reducing up to 84% of the zone uncertainty.

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Chroma-keying: Usages, challenges, and future directions

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Chroma-keying is a technique for separating objects from the original scene to be integrated in another scene. Usually, it is performed using a uniform colored background. By detecting the color of the background, the matte is generated. This matte is used as a mask that specifies which pixels are related to the interesting object and which pixels are related to the background. Chroma-keying is used in film industry for integrating actors with other background that may be real or virtual one. Actors are prohibited from wearing clothes that have colors that are close to the uniform color of the background. Depth sensors, such as Microsoft Kinect, are used for determining the depth of objects in the scene. Many techniques were presented that use depth sensors for separating interesting objects from the original scene using their depth information. However, depth sensor's accuracy is still limited. Depth sensors can be used in addition to the image processing for removing Chroma-keying's limitations and getting a better accuracy more than using a standalone depth sensor for separating objects from the scene.

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