

DETECTION AND LOCALIZATION OF A MOVING PERSON BEHIND THE WALL BASED ON BILATERATION TECHNIQUE

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ABSTRACT

In this paper, we present an effective technique to detect and localize a moving target behind the wall. The method based on one transmitter and two receiver antenna system configuration. The precision of the method is first surveyed by simulating a hypothetical target. Then, the algorithm is tested with a real data gathered from a measurement that was accomplished behind a brick wall with an ultra-wide-band (UWB) transceiver system. Thru-the-wall radar imaging results show that algorithm successfully detects and indicates the correct locations of a moving person behind the wall. Our numerical and experimental studies in this work clearly demonstrate that the proposed method can be appropriately used in similar TWR applications or localization problems.

KEYWORDS: Remote Sensing, Through-The-Wall Radar, Moving Target Detection, Radar Signal Processing, Localization Algorithm