



## **HARDWARE IMPLEMENTATION OF UWB RADAR FOR DETECTION OF TRAPPED VICTIMS IN COMPLEX ENVIRONMENT**

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*Abstract- Ultra-wideband (UWB) radar plays an important role in search and rescue at disaster relief sites. Identifying vital signs and locating buried survivors are two important research contents in this field. In general, it is hard to identify a human's vital signs (breathing, body temperature, brain waves and heartbeat) in complex environments due to the low signal-to-noise ratio of the vital sign in radar signals. In this paper, advanced signal-processing approaches are used to identify and to extract human vital signs in complex environments. First, we apply Curvelet transform to remove the source-receiver direct coupling wave and background clutters. Next, singular value decomposition is used to de-noise in the life signals. Finally, the results are presented based on FFT and Hilbert-Huang transform to separate and to extract human vital sign frequencies, as well as the micro-Doppler shift characteristics. The proposed processing approach is first tested by a set of synthetic data generated by FDTD simulation for UWB radar detection of two trapped victims under debris at an earthquake site of collapsed buildings.*

**Index terms:** Ultra-wideband (UWB)Receiver Signal Strength Indicator(RSSI),Control and Status Register