ABOUT DATA

Radar data were collected in an indoor environment. A 3-cm thick homogeneous wooden table was placed between the human and the radar sensor. The data collection process is illustrated in Figure 1. In all the data recordings, the human was lying steadily. Each scenario was repeated eight times and each data record time is 58.57 seconds. Salsa Ancho radar module which operates on the 4.5-9.5GHz and ST life.augmented VL53L0X lidar sensor are used during data acquisition. The sensor parameters are listed in Table 1 and Table 2. Three distinct bandwidth selections and different human posture orientations were obtained during data acquisition. The UWB radar antenna look angle is set at two different angles. The setup parameters are given in Table 3.

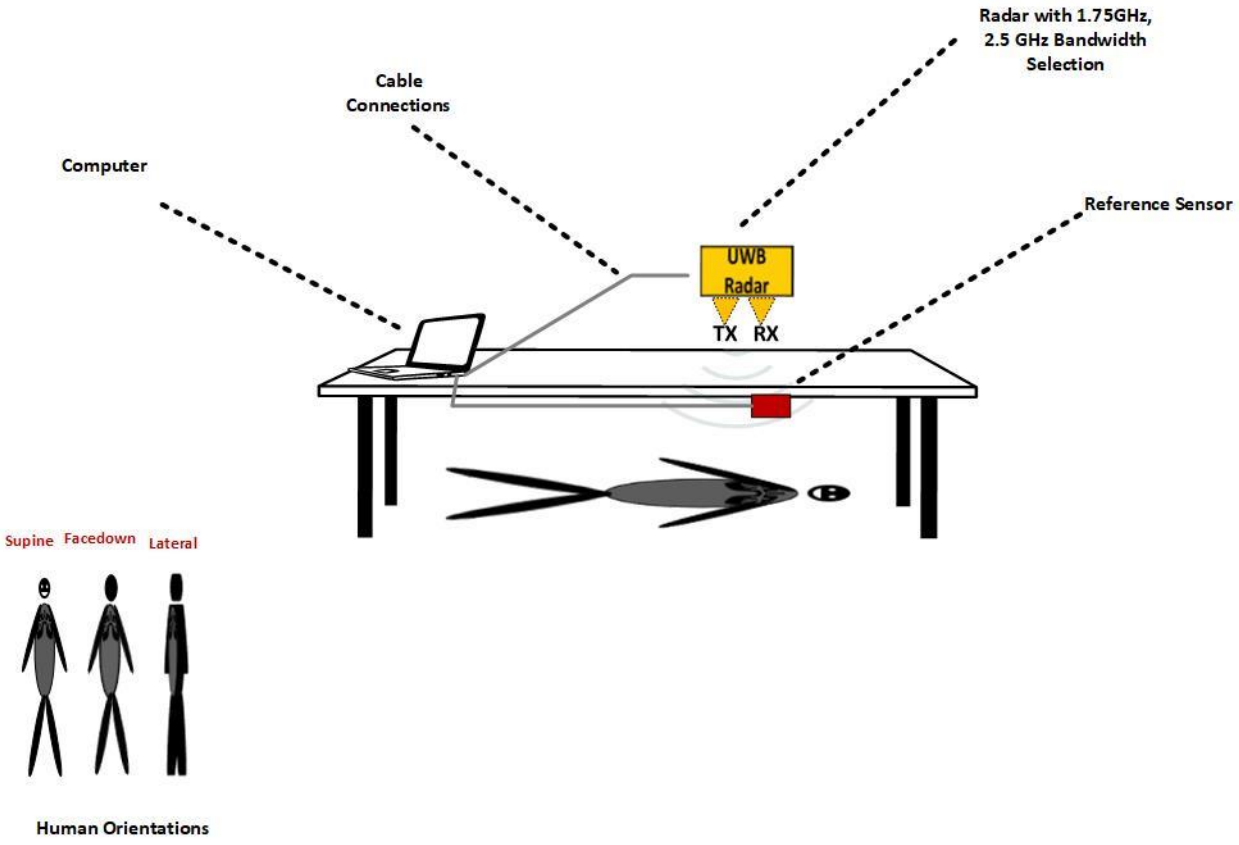

Figure 1. Data collection scene.

Table 1. Salsa Ancho Radar parameters *[1]*.

Operating Bandwidth	4.5-9.5GHz @ -10 dB
Radar Frame Size	1 m
Range Accuracy	4mm
Average Transmitted Power	-13 dBm @ 7GHz

Dimensions	58.42 x 54.61 mm

Table 2. Lidar parameters *[2]*.

Range Profile Mode	High Accuracy
Range Accuracy	1.2m, accuracy < +/-3 %
Laser Safety Consideration	Class 1 Laser Safety Limits compliance with IEC 60825-1:2014 (third edition)
Dimensions	4.4x2.4x1.0 mm
Range	Up to 2m
Laser Wavelength	940nm

Table 3. Scene setup parameters *[3]*.

Human Body Position	The Radar Center Frequency	The Radar Mean Power	Distance-Between Target-Radar	Angle Variations of Radar	Distance Between Target-Lidar	Number of Trials
Face-Down, Supine, Lateral	5.3GHz, 7.7GHz 8.8GHz	-10.7dBm, -14dBm -16.4dBm	56cm-75cm	0^0, 30^0	48cm	8

REFERENCES

[1] FlatEarth, UWB, Radar and Solutions, "ANCHO Radar Module," FlatEarth UWB Radar Solutions, Bozeman,MT 59718.

[2] STlife.augmented, "World's smallest Time-of-Flight ranging and gesture detection sensor," ST life.augmented, October 2021.

[3] XETHRU, BY and NOVELDA, "X2 Impulse Radar Transceiver," Novelda AS, 15 August 2014.