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(54) Title of the invention : REAL-TIME FALL DETECTION SYSTEM USING WI-FI CHANNEL SENSING

(51) International classification	:G08B 21/04, H04W 4/80, H04B 17/318, G08B 25/10, H04W 84/12	(71)Name of Applicant : <b>1)Chitkara University</b> Address of Applicant :Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India. Rajpura Punjab India
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(57) Abstract :

A real-time fall detection system using Wi-Fi channel sensing, comprises of a WiFi transceiver unit 101 to emit and receive signals containing CSI and RSSI information, received signals are refined through a hardware-based preprocessing module 102 for noise reduction, phase calibration, and multipath mitigation, an embedded processing unit 106 executes a fall detection protocol 107 locally using quantized inference for efficient, real-time analysis, a hybrid CSI-RSSI adaptive switching module 103 merges and cross-correlates micro-motion and macro-stability features to enhance detection reliability, an alert-generation module 104 transmits immediate fall notifications via BLE, Wi-Fi Direct, or equivalent low-latency protocols, ensuring accurate, timely, and reliable detection in indoor environments.

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