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An Automated Inertial Indoor Positioning and Fall Detection System for Elder

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Statistic data suggest that in 2040 a third of Europeans will be more than 70 years old and that falling is responsible of 75% of accidental deaths in people over 75 years old. This problem leads to a continuous concern for developing an advanced fall detection systems. We are proposing a module for human fall detection based on a miniaturized inertial measurement unit, developed to be integrated in a complex tele-monitoring system for elder. For a better indoor estimation of position, we used a wavelet filtering mechanism, in order to calibrate our signal processing algorithm. By using this method we have succeeded to process and analyze signals received from the navigation unit and to provide a better estimation of the patients' indoor activities.