

Gait Analysis to Predict Falls in Elderly Using a Smartphone Camera

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Categories:

- Mechanical Engineering
- Medical/Health

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- Gait
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- Smartphones

Falling is a major health issue among older adults (aged 65 and over). According to the CDC, one out of three older adults fall each year, and in 2010, 2.3 million nonfatal fall injuries among older adults were treated in emergency departments. Early identification and prediction of fall risk is likely to help minimize actual falls and the development of secondary problems such as reduced confidence and activity levels. Current methods include accelerometers, gyroscopes, and pressure sensors embedded in shoes; however, these methods are hard to use, not portable, and expensive.

In response to the need for a more efficient and effective gait analysis and fall detection system, researchers at Purdue University have developed a novel gait analyzer and fall predictor that can measure stride length, stride time, velocity, and cadence using a camera feature in a smartphone-type device attached to a user. The gait analysis initiates when the user stands and the foot identifiers are recognized by the camera and software. The low cost and high accessibility of the gait analyzer and fall predictor device means that the fall risk can be assessed with an easy to use, unobtrusive solution when compared to existing expensive methods.

To view a video related to this technology, click on this link: <http://www.youtube.com/watch?v=oLXnTx6Rb6A>

Advantages:

- Multiple measurements - stride length, stride time, velocity, and cadence
- Low cost, easy to use, and unobtrusive

Potential Applications:

- Medical/Health
- Senior healthcare

-Fall prediction/prevention

People:

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Intellectual Property:

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