Fall-Detection for Mobility Walkers

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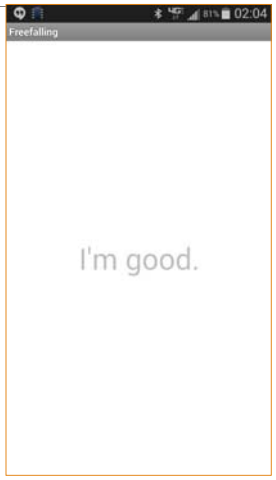
Motivation

- 1/3rd of the population over 65 and over half the population over 80[1]
- Large percentage of elderly who fall cannot get up without assistance[1]
- Period of time spent immobile exacerbates situation[3]

Prototype Demo



Basic Workflow

Parts Used

ADXL345 Accelerometer (Sensor to detect fall)

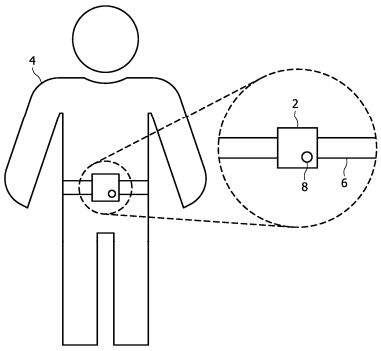
Arduino UNO LB4 (Computer)

BlueSMIRF Gold (Bluetooth Module)

Android Device (Cellphone)

Text Message to Caregiver

Similar Work[4]



- Wearable fall-detection system
- No notification functionality

Slide 5

LB4 slide should indicate the function of each of these parts, e.g.,
accelerometer: detect fall
arduino: computer brains
BlueSMIRF: bluetooth module
Lewis Baumstark, 3/25/2015

Possible Future Work

- Android Wearable
- Adhere system to person instead of walker

Sources

1. Tromp AM, Plujim SMF, Smit JH, et al. Fall-risk screening test: a prospective study on predictors for falls in community-dwelling elderly. J Clin Epidemiol 2001
2. Stevens JA, Ballesteros MF, Mack KA, Rudd RA, DeCaro E, Adler G. Gender differences in seeking care for falls in the aged Medicare Population. American Journal of Preventative Medicine 2012
3. Bell AJ, Talbot-Stern JK, Hennessy A. Characteristics and outcomes of older patients presenting to the emergency department after a fall: a retrospective analysis. Medical Journal of Australia 2000
4. Peng Y, Jin S. Fall detection system. Google Patents 2013 https://www.google.com/patents/US8381603
5. Bonifaz Kaufmann. Amarino – “Android meets Arduino”

Questions?