

WEARDA: Human Activity Monitoring with Smart Watches

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WEARDA is a software package for commercial Smart Watches.

Custom-made for Researchers in the field of Human Activity Monitoring.

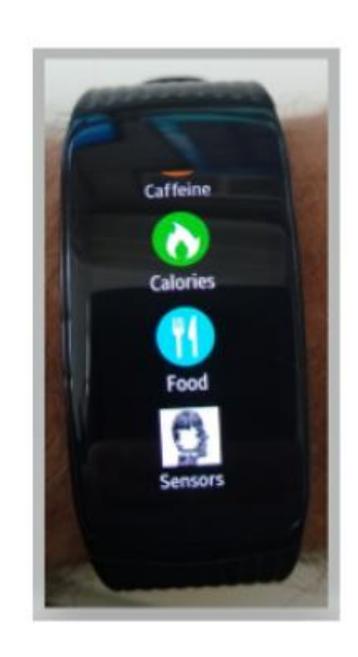




Table 1: Practical challenges and the functions how they are solved.



Sensors:

A – Accelerometer

G – Gyroscope

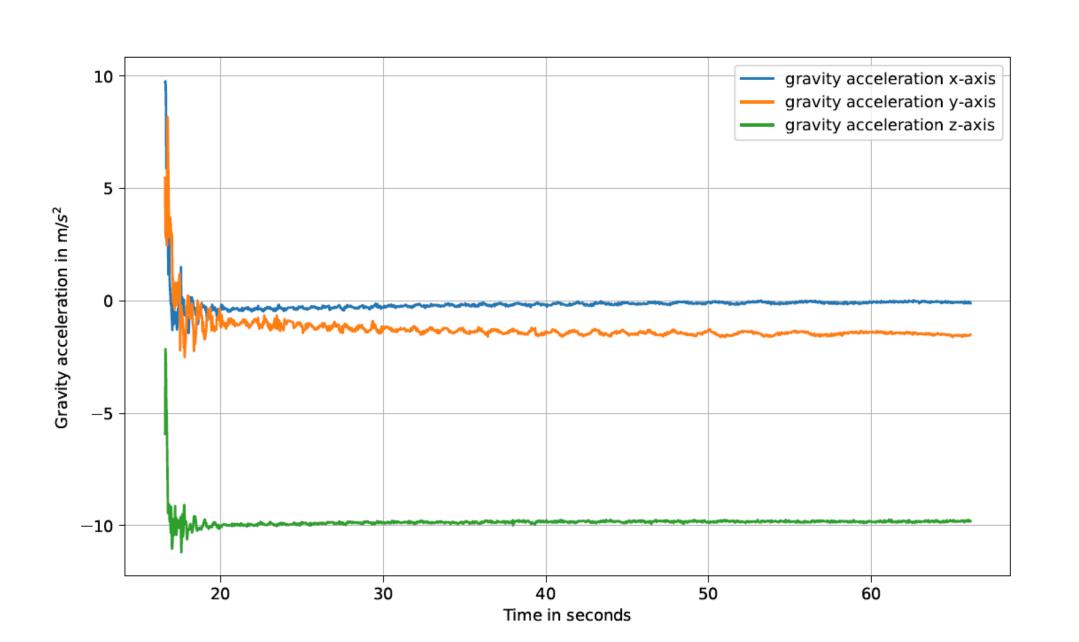
M – Magnetometer

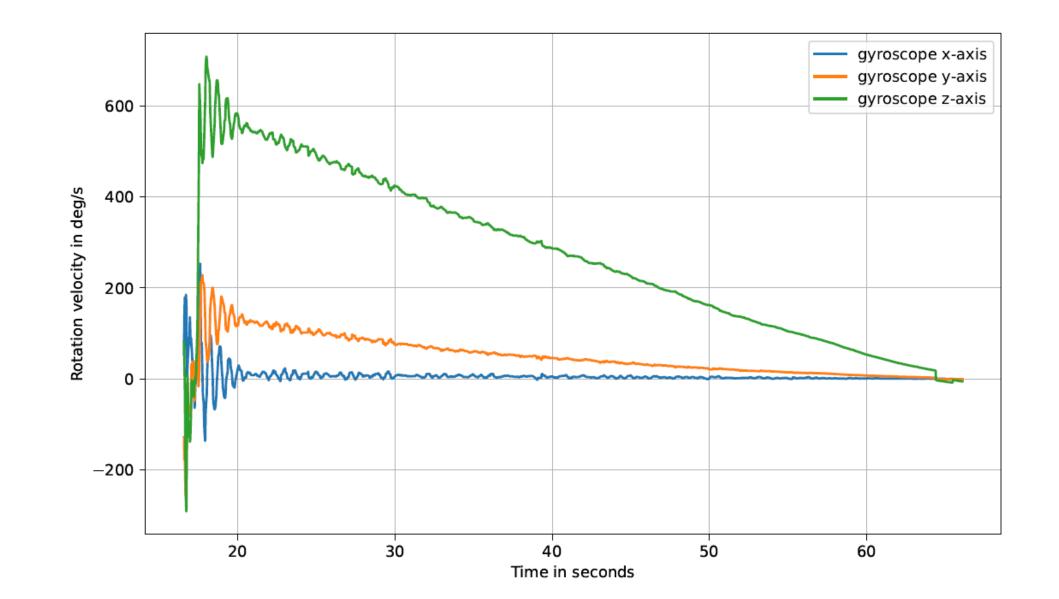
B – Barometer

HR - Heart Rate

GL – Global Localization

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Challenges:

Preparation
Measurement
Logistics
Privacy
Reproducibility

Challenges: Pre
Configuration file
Watch identifier
Automatic correction of configuration file
Removal files by UI watch
Not easy to remove file by UI watch
Person identifier
Storage of all data also outside public area
Easy entering person identifier
Storages for days of measurements
Not easy stopping the data collection
Use of standalone laptop
Quick upload of files to laptop
Wireless upload to laptop
Person id date time and watch id in data filename

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	V			v
v	v		v	
v	V			
	V	V	V	
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	V	v	v	
	V	v		
		v	v	
		v		v

Architecture:

Front-end
Backend service
Configuration

Table 3: Configuration settings.

Field name Field type Possible values, () = default Example "D8F8" Unique identifier watch string Accelerometer interval 0 indicates switched off, 10-1000 (25) ms 0 indicates switched off, 10-1000 (25) ms Linear accelerometer interval integer 0 indicates switched off, 10-1000 (25) ms Gyroscope interval integer 0 indicates switched off, 10-1000 (100) ms Barometer interval integer GPS interval 1-10 (1) seconds integer GPS middle point privacy circle, latitude -90.0-90.0 (52.169311) degrees -180.0-180.0 (4.456711) degrees GPS middle point privacy circle, longitude 0 indicates switched off, 10-1000 (100) meter GPS radius privacy circle Write recordings interval $0.01-10.0 \ (0.05) \ \text{seconds}$

Screen off After 15 secone press small button on side watch Show applications icons select application menu Screen on show latest application opened press small button on side watch select sensors press large button on side watch watch of Show UI page start background service press restart button send restart msg with person id Waiting for message press restart button send restart msg with press clean button 3x person id send clean msg clean msg received restart msg received start sensors based on configuration file clean msg received -close sensors and files Measuring - remove all files - start sensors based on battery charging configuration file battery 5% discharged restart msg received close sensors and files start sensors based on Back ground service stopped configuration file

Persistent identifier: https://github.com/LiacsProjects/Wearda
Licence: MIT license
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