Geo-Magnetic field and WLAN dataset for indoor localisation from wristband and smartphone Data Set

Download: Data Folder, Data Set Description

Abstract: A multisource and multivariate dataset for indoor localisation methods based on WLAN and Geo-Magnetic ï¬eld ï¬ngerprinting

Data Set Characteristics:	Multivariate, Sequential, Time-Series	**Number of Instances:**	153540	**Area:**	Computer
Attribute Characteristics:	Integer, Real	**Number of Attributes:**	25	**Date Donated**	2017-01-10
Associated Tasks:	Classification, Regression, Clustering	**Missing Values?**	N/A	**Number of Web Hits:**	13973

Source:

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Data Set Information:

Indoor localisation is a key topic for the Ambient Intelligence (AmI) research community.

In this scenarios, recent advancements in wearable technologies, particularly smartwatches with built-in sensors, and personal devices, such as smartphones, are being seen as the breakthrough for making concrete the envisioned Smart Environment (SE) paradigm.

In particular, scenarios devoted to indoor localization represent a key challenge to be addressed. Many works try to solve the indoor localization issue, but the lack of a common dataset or frameworks to compare and evaluate solutions represent a big barrier to be overcome in the ï¬eld. The unavailability and uncertainty of public datasets hinders the possibility to compare different indoor localization algorithms. This constitutes the main motivation of the proposed dataset described herein.

We collected Wi-Fi and geo-magnetic ï¬eld ï¬ngerprints, together with inertial sensor data during two campaigns performed in the same environment. Retrieving syncronized data from a smartwatch and a smartphone worn by users at the purpose of create and present a public available dataset is the goal of this work.

Attribute Information:

Pointsmapping.ods:
A three column spreadsheet (ID,X,Y) which points mapping in local coordinates.
Each ID represents an unique place on the map. The X-Y coordinates represents the local coordinates.

For each measure:

measure1(2)_timestamp_id.csv:

Timestamp (Unixtime) of arrival on placeID, timestamp (Unixtime) of departure by placeID, Place ID identifier (0-324)

measure1(2)_smartphone_sens.csv:

According to measure1(2)_timestamp_id.csv, this csv contains the data sensors retrieved by the smartphone.
Timestamp, AccelerationX, AccelerationY, AccelerationZ, MagneticFieldX, MagneticFieldY, MagneticFieldZ, Z-AxisAgle(Azimuth), X-AxisAngle(Pitch), Y-AxisAngle(Roll), GyroX, GyroY, GyroZ

measure1(2)_smartwatch_sens.csv:

According to measure1(2)_timestamp_id.csv, this csv contains the data sensors retrieved by the smartwatch.
Timestamp, AccelerationX, AccelerationY, AccelerationZ, MagneticFieldX, MagneticFieldY, MagneticFieldZ, Z-AxisAgle(Azimuth), X-AxisAngle(Pitch), Y-AxisAngle(Roll), GyroX, GyroY, GyroZ

measure1(2)_smartphone_wifi.csv:

Each rows contains PlaceId (ascending order) and 127 column, with RSSI level for each different
WAPs retrieved during the campaign. Not all the WAPs are detected in each scan.
For these WAPs, the articial RSSI value is -100 (dbm).

Relevant Papers:

Barsocchi, P., Crivello, A., La Rosa, D., & Palumbo, F. (2016, October). A multisource and multivariate dataset for indoor localization methods based on WLAN and geo-magnetic field fingerprinting. In Indoor Positioning and Indoor Navigation (IPIN), 2016 International Conference on (pp. 1-8). IEEE.

Citation Request:

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