

IPIN competition 2017

Chairs: Francesco Potorti
Sangjoon Park
Nobuo Kawaguchi



International Conference
on Indoor Positioning
and Indoor Navigation



EvAAL framework

KICS
The Korean Institute of
Communications and
Information Sciences

ETRI
한국 전자통신연구원
Electronics and Telecommunications Research Institute

 **TOPCON**

 **PDR Benchmark**
한국전자통신연구원

EvAAL competitions: a history

- ▶ Born from the universAAL FP7 project
 - ▶ 2011 Indoor Localization & Tracking for AAL
 - ▶ 2012-2013 + Activity Recognition for AAL
- ▶ 2014 IPIN 2014 competition
 - ▶ Smartphone and Inertial tracks (1 and 2)
- ▶ 2015 EvAAL-ETRI competition at IPIN
 - ▶ additional Fingerprinting off-site track (3)
- ▶ 2016 and 2017 IPIN 2016 competition
 - ▶ additional local tracks (4)

IPIN competition 2017

Location

- ▶ Conference Hall of Hokkaido University, Sapporo, Japan



IPIN 2017 competition

Organisers



Competition chairs

Francesco Potortì (IT)

Sangjoon Park (KR)

Nobuo Kawaguchi (JP)

Track chairs

 Track 1

 Track 2

 Track 3

 Track 4

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Tracks

- ▶ Track 1: Smartphone based
 - 4 competitors + 5 withdrawn
- ▶ Track 2: Pedestrian dead reckoning
 - 6 competitors + 3 withdrawn
- ▶ Track 3: Smartphone based (off-site)
 - 5 competitors + 1 withdrawn
- ▶ Track 4: PDR for warehouse picking (off-site)
 - 5 competitors

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Evolution of attendance

- ▶ Number of teams completing the competition
- ▶ (+ withdrawn, no-show, off-track)

	Phone	DR	Off-site	Local
2014	7 (+3)	0 (+1)	-	-
2015	4 (+1)	2 (+1)	4 (+0)	-
2016	6 (+1)	6 (+1)	5 (+1)	2 (+4)
2017	4 (+5)	6 (+3)	5 (+1)	5

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Competitors



I PIN 2017

Topics

accelerometer accuracy **algorithm**
attitude based calculate data dead
detection direction drift ec ekf **error**
estimation field filter fingerprint gyroscope hdr
heading iez indoor inertial information
kalman length magnetic map **method**
navigation paper **pdr** **pedestrian**
position proposed qmd reckoning result
sensor smartphone **step** technique updating **used**
velocity walking wifi ZER0 zupt

I PIN competiton 2017

The EvAAL evaluation framework

- ▶ Accuracy based on point correspondence
 - ▶ Best suited for real-time applications
 - ▶ **Localisation error** is Euclidean distance between competitor's estimate and real position of **corresponding keypoint**
 - ▶ **Final score** is third quartile of the localisation errors
 - ▶ 15 m penalty for each floor error

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Financing

- ▶ Organisation members are volunteers
- ▶ Sponsors provide 150.000 ¥ prize per track



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