

An Indoor Location-Aware System for an IoT-Based Smart Museum

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Smart Museum - Advantage

- Interesting
- Informative
- Personalized
- User Analysis

Smart Museum - Challenges

- Heterogeneous
- Seamless interaction
- Robust and Accurate

Related Work

Kuusik *et al*, 2009

- Used PDAs and RFIDs based smart museum

Wang *et al*, 2007

- Mobiles and RFIDs based museum guide

Caveglione *et al*, 2011

- Frame work for RFIDs driven smart enviornment

Related Work

University of Haifa, 2007

- Questionnaire based preference

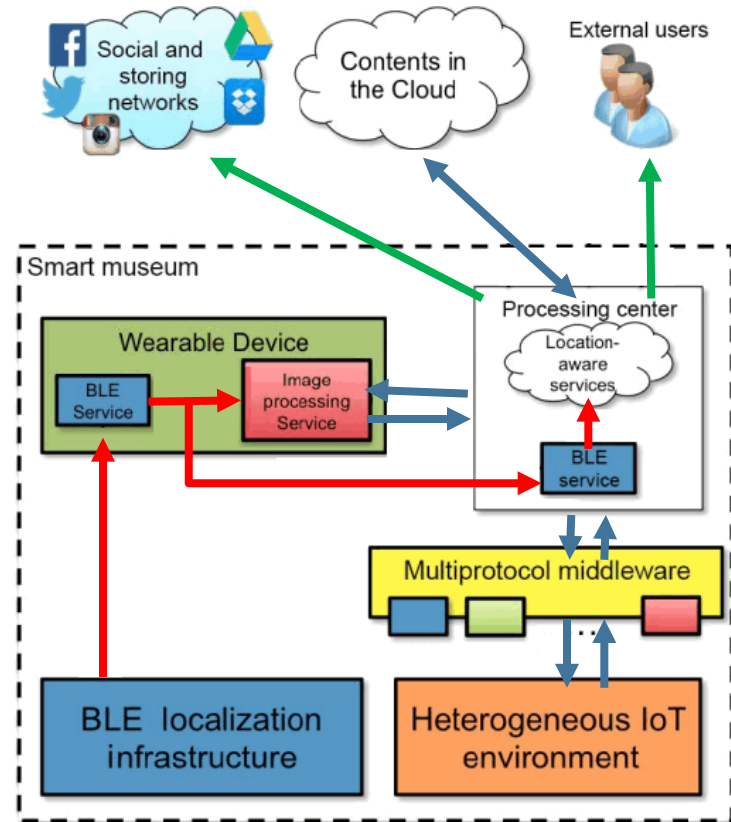
Sparachino, 2002

- Realtime user preference evaluation

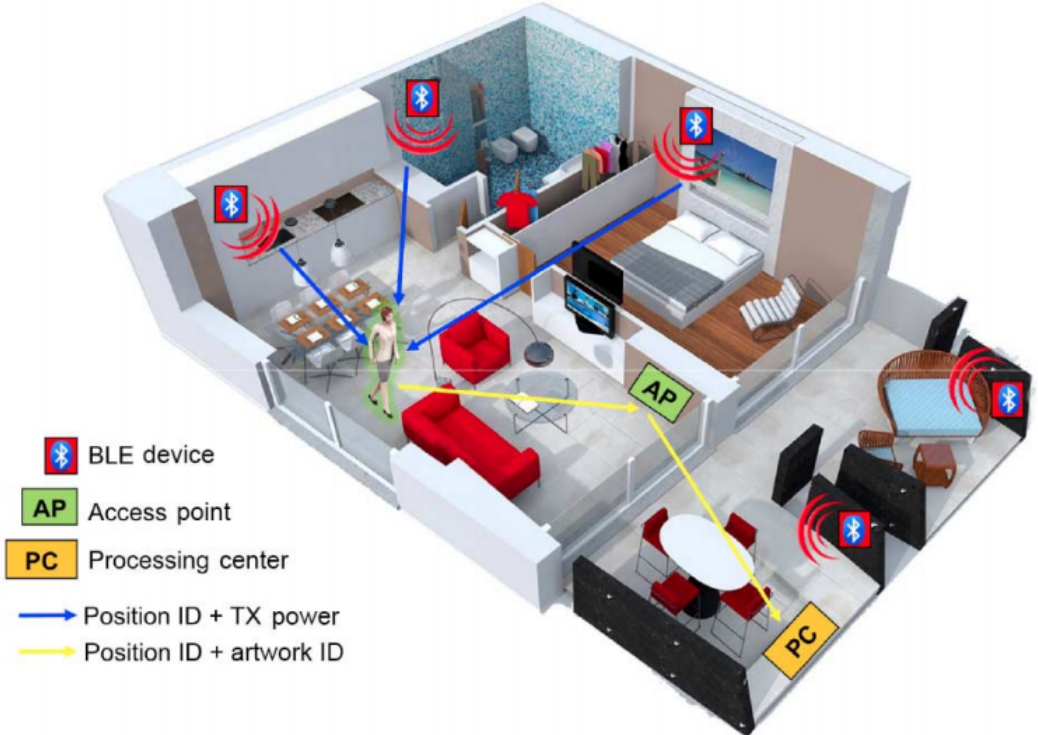
Kuflik et al 2013

- Smart mobile video guide

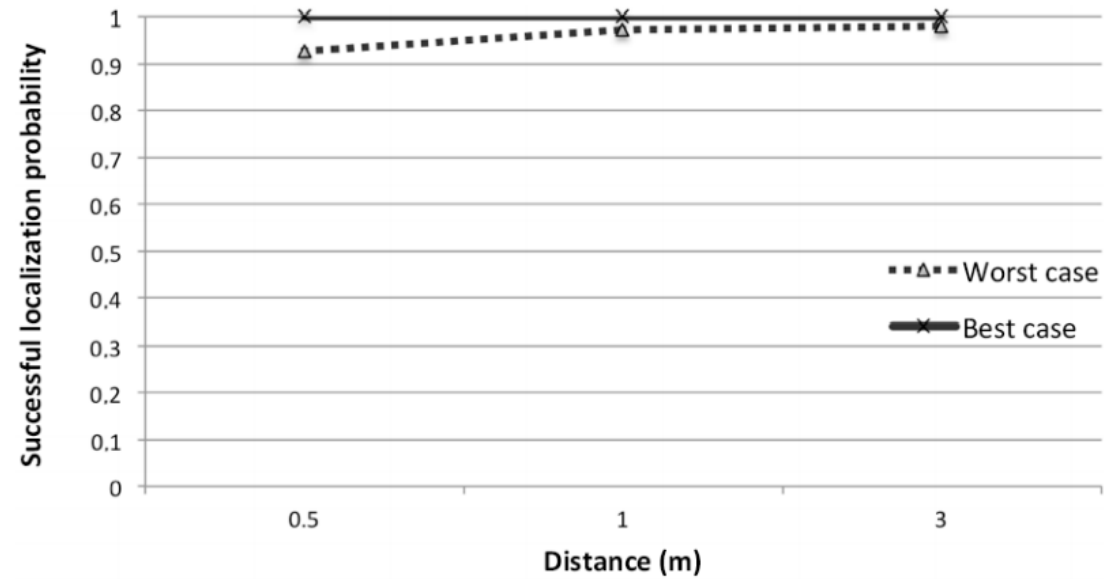
Architecture



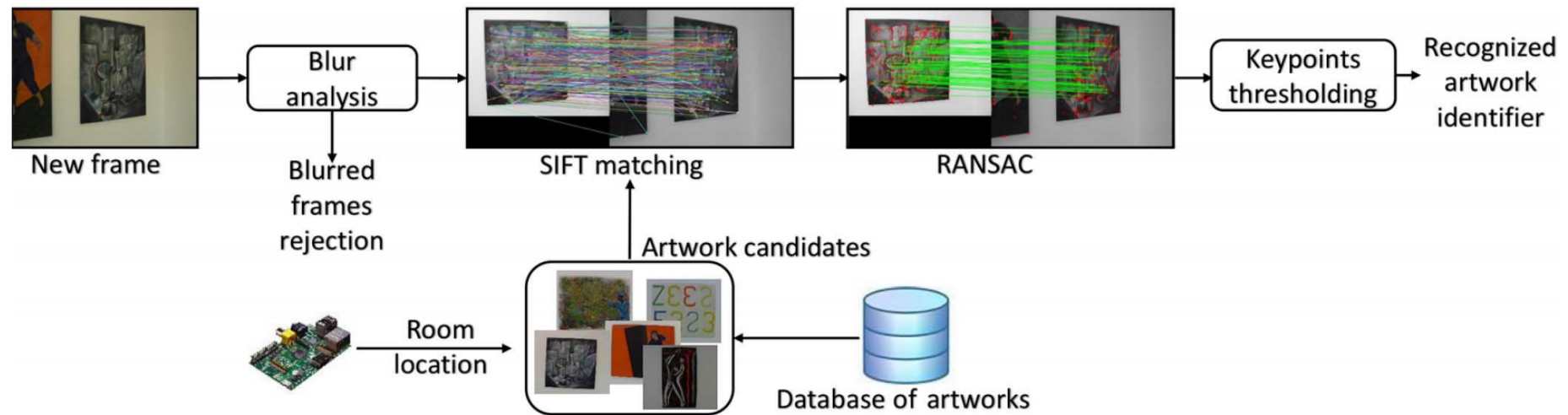
Localization



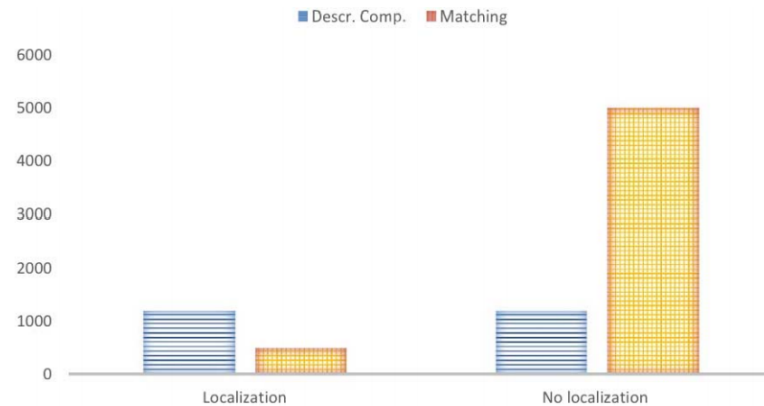
Localization – Accuracy



Artwork Recognition



Artwork Recognition - Accuracy



PERFORMANCE OF THE PROPOSED PAINTING RECOGNITION ALGORITHM

Solution	Precision	Recall	Accuracy
Our system	0.783	0.946	0.436
Our system w/o localization	0.769	0.979	0.429
SIFT baseline	0.760	1	0.201

Features Comparison

COMPARISON BETWEEN THE PROPOSED ARCHITECTURE AND SIMILAR SYSTEMS PRESENTED IN THE LITERATURE

Reference work	Technologies			Services provided					Communication
	CV	RFID	Mobile	Audio information	Personalized information	Interaction-less requests	Location awareness	Video information	
Kuusik et al, 2009		✓	✓	✓	✓		✓		None
Sparachino, 2002			✓		✓	✓	✓	✓	Infrared
Kuflik et al 2013			✓	✓	✓		✓	✓	Not specified
Proposed System	✓		✓	✓	✓	✓	✓		BTLE

Thank you

