

Augmented Reality and Tourism

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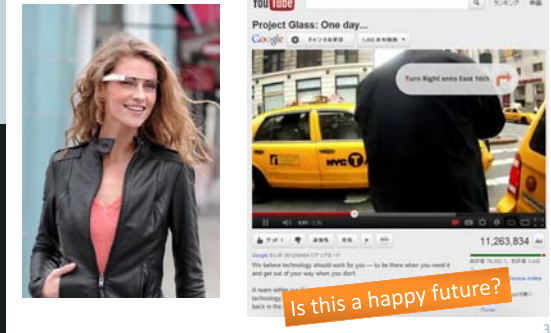


Augmented Reality

- Information technology to present contents virtually over the real world in the real time
- Becoming popular thanks to smartphones and wearable devices
- Usually visual contents, but not limited
- Cf. Virtual Reality



Google Project Glass



Is this a happy future?

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Today's Goal

We look at both nice and bad examples of AR applications, learn its key technologies, and consider how we can use AR in the tourism domain.



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Three Types of AR

- Sensor-based AR
- Image-recognition-based AR
 - Marker-based AR
 - Marker-less AR



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peak.ar



<http://peakar.salzburgresearch.at/>

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Sekai Camera

(Tonchi dot 2008)



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Sensor-based ARs in Tourism



AR Hekinan Kanko Annnai (Hekinan, Aichi)

Tukimi Koro (Kanazawa)

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Lawson Evangelion AR Appli

(Kayac 2010)



<http://www.lawson.co.jp/eva/ar/>

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AR Nagaoka-Kyo

(Muko, Kyoto)



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Pioneer Cyber Navi



<https://www.youtube.com/watch?v=NJQobrQr6Jt#t=97>

Problems of sensor-based AR

- Because it usually uses GPS and digital compass in smartphones,
 - Outdoor only
 - Low accuracy
 - Rotation delay



Why did Sekai-Camera use "balloons"?



Why did Evangelion character fit sensor-based AR?

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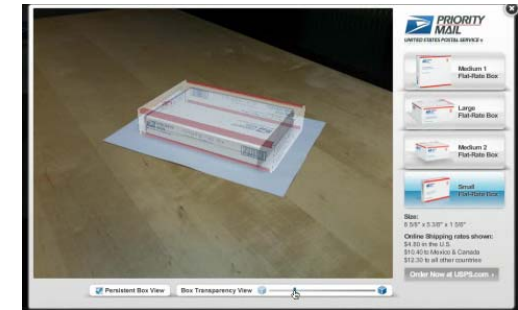
IKEA home planner



<http://www.youtube.com/watch?v=n4nnLti-72A>

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USPS Virtual Box Simulator



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Nintendo 3DS AR Games

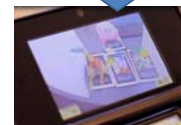


<http://www.nintendo.co.jp/3ds/software/built-in/ar/index.html>

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How to apply AR to Tourism

- Virtual exhibitions in museums
 - Viewable from 360 degree
- Photo with local characters
 - Motivating SNS sharing
- Interactive Stamp Rally
- Virtual travel companion



Kuma Photo

(Major tourism facilities in Kumamoto Pref.)



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AR Naniwa-no-miya

(Osaka History Museum)



<http://www.mus-his.city.osaka.jp/news/2012/arnaniwanomiya.html>

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Atami Love-Plus Festival

(Atami City, 2010)



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Marker-based AR: Merit & Demerit

- Precise Positioning
- Almost no delay
- × Marker management in the real world
- × Digital Theft



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SmartAR (Sony)



An experimental example of AR tour guide



<http://www.youtube.com/watch?v=fi6EP0SmaTY>

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Yokkaichi AR Stamp Rally



(Yokkaichi, Mie)

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In Sum

	Sensor-based AR	Marker-based AR	Marker-less AR
Positioning Technique	GPS & digital compass	Image recognition	
Field	Outdoor only	Indoor > Outdoor	
Accuracy	Low	High	High
Response	Slow	Instant	?
Technology Level	Easy implementable, but still improvable	Almost Completed	Under progress

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AR: Merit & Demerit

- Looks more advanced than map-based tools
- Can present historical/future views and allow users to compare them with current view
- Can present characters for fun
- × Difficult to see on a sunny day
- × Difficult to find where we can meet the contents
- △ Currently, only visual contents



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Converse Idea: Projection Mapping



<https://www.youtube.com/watch?v=MQ1djdXuo7g>

Tokyo Station Vision (2012年9月)

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Projection Mapping Everywhere!



EXPO Memorial Tower



ori, Aichi



Tsuruga-jo Castle, Fukushima



Tokyo Disneyland "Once Upon a Time"

Why do many tourist facilities conduct projection mapping events?

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Today's Keywords

- AR (Augmented Reality)
- Sensor-based AR
- Marker-based AR
- Marker-less AR
- Image recognition
- Google Project Glass
- Projection Mapping



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