

Augmented Reality



Augmented Reality

- ▶ Define Augmented Reality
- ▶ Augmented Reality vs. Reality
- ▶ History of AR and its Applications
- ▶ Augmented Tracking
- ▶ Future of AR
 - Google's Project Glass
- ▶ Conclusion



Augmented Reality

- ▶ Augmented Reality
 - Def: An artificial environment created through the combination of real-world and computer generated data.
- ▶ Augmented Reality was initially designed for medicine, military and maintenance purposes.
- ▶ So companies interested in mobile development such as Nokia, Qualcomm, Google are willing to fund research on AR.



Virtual Reality vs. Augmented Reality

- ▶ Virtual Reality (VR)

a computer generated, interactive, 3D environment in which a person is immersed : virtual, interactive and immersive

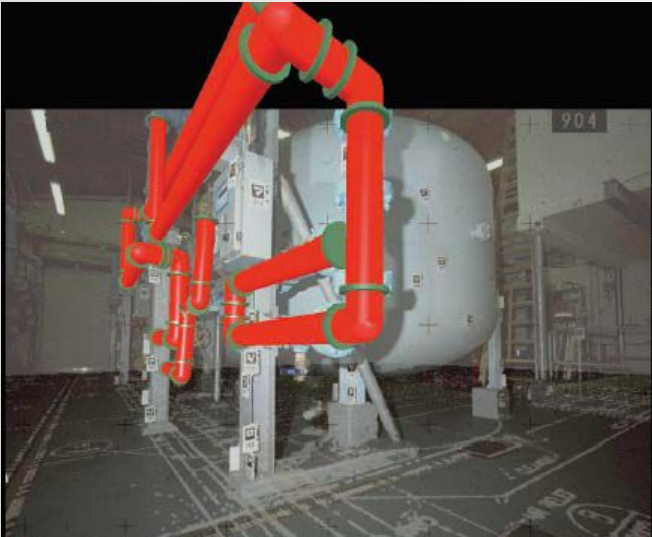
- ▶ Augmented Reality (AR)

Supplements the real world with the virtual(computer generated) objects that appear to coexist in the same space as the real world.

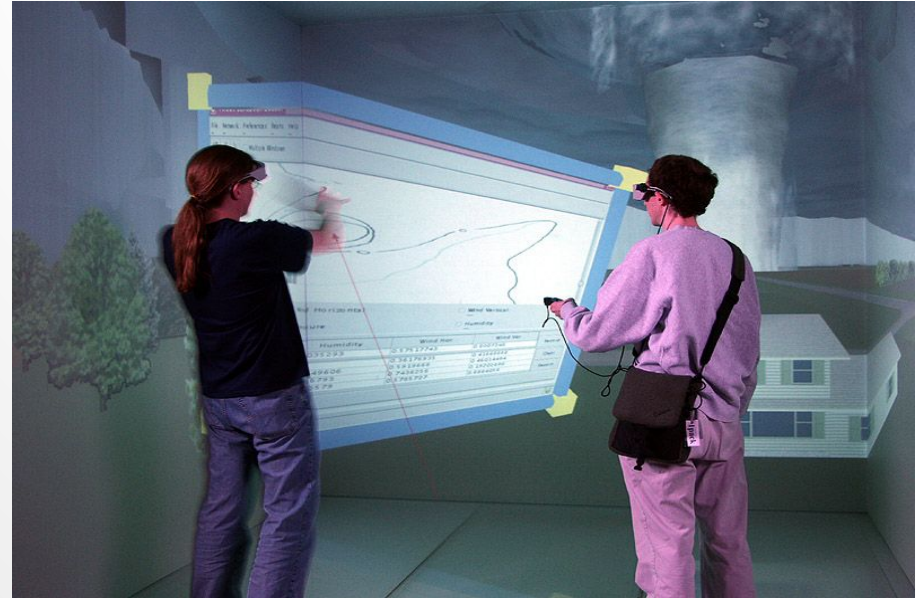


Augmented Reality vs. Virtual Reality

Engineering



Education – Virtual Storm



Augmented Tracking

- ▶ “Tracking is the name given to an AR application’s attempts to recognize and follow the physical objects of a scene”(Georg Klein).
- ▶ Three kinds of tracking for Augmented Reality
 - Marker-based
 - Known texture or pattern recognition
 - Parallel Tracking and Mapping (PTAM)



Future of AR:

Google's Project Glass

- ▶ Blue-sky project by Google's mysterious research and development arm, Google X.
- ▶ Project Aim
 - To augment your everyday experiences by superimposing a layer of visual indicators directly onto your field of vision.
 - Natural language voice commands
 - Google's Android Operating System
- ▶ If your smartphone could be a visor



Future of AR: Project Glass

[Project Glass Video](#)



Future of AR: Project Glass

- ▶ Provide 3G or 4G wireless connection
- ▶ More of a concept than an actual product
- ▶ Mounting the device onto prescription glasses
- ▶ UI Problem
 - Interaction through a wristbands with haptic feedback



Conclusion

- ▶ Augmented Reality – to overlay computer-presented material on top of the real world
- ▶ History of AR ~ the Head Mounted Display (HMD)
- ▶ Augmented Tracking
- ▶ Future of AR
 - Google's Project Glass



References

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Questions

