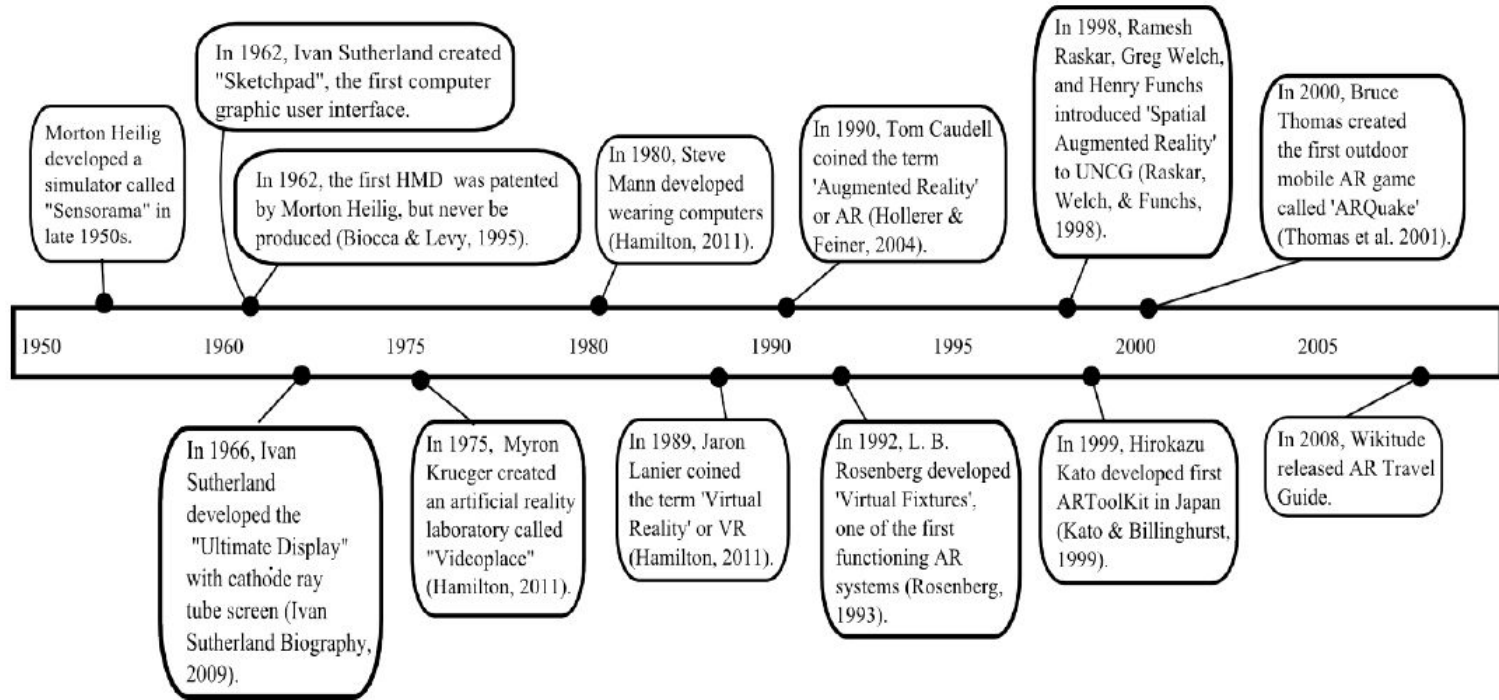# What is Augmented Reality?

"Augmented reality (AR) refers to a wide spectrum of technologies that project computer generated materials, such as text, images, and video, onto users' perceptions of the real world."

History and Recent Developments

Morton Heilig developed a simulator called "Sensorama" in late 1950s.

In 1962, Ivan Sutherland created "Sketchpad", the first computer graphic user interface.

In 1962, the first HMD was patented by Morton Heilig, but never be produced (Biocca & Levy, 1995).

In 1980, Steve Mann developed wearing computers (Hamilton, 2011).

In 1990, Tom Caudell coined the term 'Augmented Reality' or AR (Hollerer & Feiner, 2004).

In 1998, Ramesh Raskar, Greg Welch, and Henry Funchs introduced 'Spatial Augmented Reality' to UNCG (Raskar, Welch, & Funchs, 1998).

In 2000, Bruce Thomas created the first outdoor mobile AR game called 'ARQuake' (Thomas et al. 2001).

1950 1960 1975 1980 1990 1995 2000 2005

In 1966, Ivan Sutherland developed the "Ultimate Display" with cathode ray tube screen (Ivan Sutherland Biography, 2009).

In 1975, Myron Krueger created an artificial reality laboratory called "Videoplace" (Hamilton, 2011).

In 1989, Jaron Lanier coined the term 'Virtual Reality' or VR (Hamilton, 2011).

In 1992, L. B. Rosenberg developed 'Virtual Fixtures', one of the first functioning AR systems (Rosenberg, 1993).

In 1999, Hirokazu Kato developed first ARToolKit in Japan (Kato & Billinghurst, 1999).

In 2008, Wikitude released AR Travel Guide.

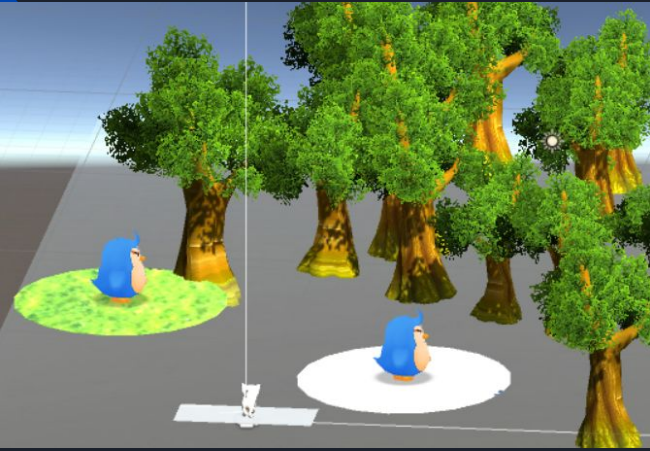# Applications of Augmented Reality- AR is widely used

- Advertising and Marketing
- Architecture and Construction
- Entertainment
- Medical
- Military
- Travel

Augmented Reality in Education

- AR Books
- Discovery-based Learning
- Objects Modeling
- Skills Training

ForestQuest-An AR Educational app

The app will allow you learn more about forest landscapes and wild animal using your phone. It will create an alternative virtual world right on your doorstep.

Reference

Azuma, R. T. (1997, August). A survey of augmented reality. In Presence: Teleperators and Virtual Environments, 6(4), 355-385.

Yuen, S., Yaoyuneyong, G., & Johnson, E. (2011). Augmented reality: an overview and five directions for AR in education. Journal of Educational Technology Development and Exchange, 4(1), 119e140

Billinghurst, M. (2002). Augmented Reality in Education. New Horizons for Learning, December 2002. Retrieved July 20, 2010 from http://www.newhorizons.org/ strategies/technology/billinghurst.htm