Your notes

Cambridge National IT: revision notes

Using augmented reality to present information

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What augmented reality is

- **Augmented reality** (AR) adds digital content, such as images, 3D models, text or sound, on top of the real world. It is usually seen through the camera of a phone or tablet, or through a headset.
- **Virtual reality** (VR) is different: it replaces the real world with a completely computer-generated one, usually through a headset.

How AR works

- The device's camera sees the real world, and its sensors (such as GPS, a gyroscope and an accelerometer) track where it is and how it moves. Software places the digital content in the right place.
- **Marker-based AR** shows content when the camera recognises a marker, such as an image or a QR code. **Markerless AR** places content on surfaces the device detects, or uses GPS to place it at a location (**location-based AR**).

Uses of AR

- Shops: trying on clothes, or seeing how furniture would look in your room. Education: exploring 3D models of the heart or the planets. Entertainment: games such as Pokémon GO, and filters on social media.
- Navigation: arrows over a live camera view. Industry: repair instructions shown over machinery. Museums and tourism: extra information about exhibits and places.

Designing an AR prototype

- Start with the client's requirements, the purpose and the target audience.

- Plan with design tools, such as storyboards or visualisation diagrams, and list the **assets** you need: images, 3D models, sound, video and text.
- Check the law: **assets** may be protected by copyright, so use your own, or ones you have permission or a suitable licence to use. Record where each **asset** came from in an **asset log**.
- Build the **prototype**, test it against the requirements, and use feedback from users to improve it.

Your notes

Key terms

Augmented reality	Digital content shown on top of a view of the real world.
Virtual reality	A completely computer-generated world that replaces the real one.
Marker-based AR	AR that shows content when the camera recognises a marker, such as an image.
Markerless AR	AR that places content using detected surfaces or GPS, without a marker.
Location-based AR	AR that uses GPS to show content at particular places.
Asset	A resource used in a product, such as an image, 3D model or sound.
Prototype	An early working version of a product, used to test ideas.
Asset log	A record of each asset used and where it came from.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. What is augmented reality?
2. What is the main difference between AR and VR?
3. What is marker-based AR?
4. Which game is a well-known example of location-based AR?
5. How can AR help shoppers?
6. Which sensor helps AR work out where a phone is in the world?
7. Why must you check the copyright of assets used in an AR product?
8. What is an asset in an AR project?

Answers

1. Digital content added on top of a view of the real world
2. AR adds to the real world; VR replaces it
3. Content appears when the camera recognises an image or code
4. Pokémon GO
5. They can see how furniture would look in their room
6. GPS
7. Using them without permission could break the law

8. A resource such as an image, 3D model or sound

What to do next

Practise 12 questions on this topic

Try 4 exam questions, with mark schemes

Read the lesson, one step at a time

Free revision for GCSE and KS3 at lycolearn.co.uk. Some notes are for one exam board only, and say so in brackets.

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