

Augmented Reality

Challenge Problem and Resources



Developed by:

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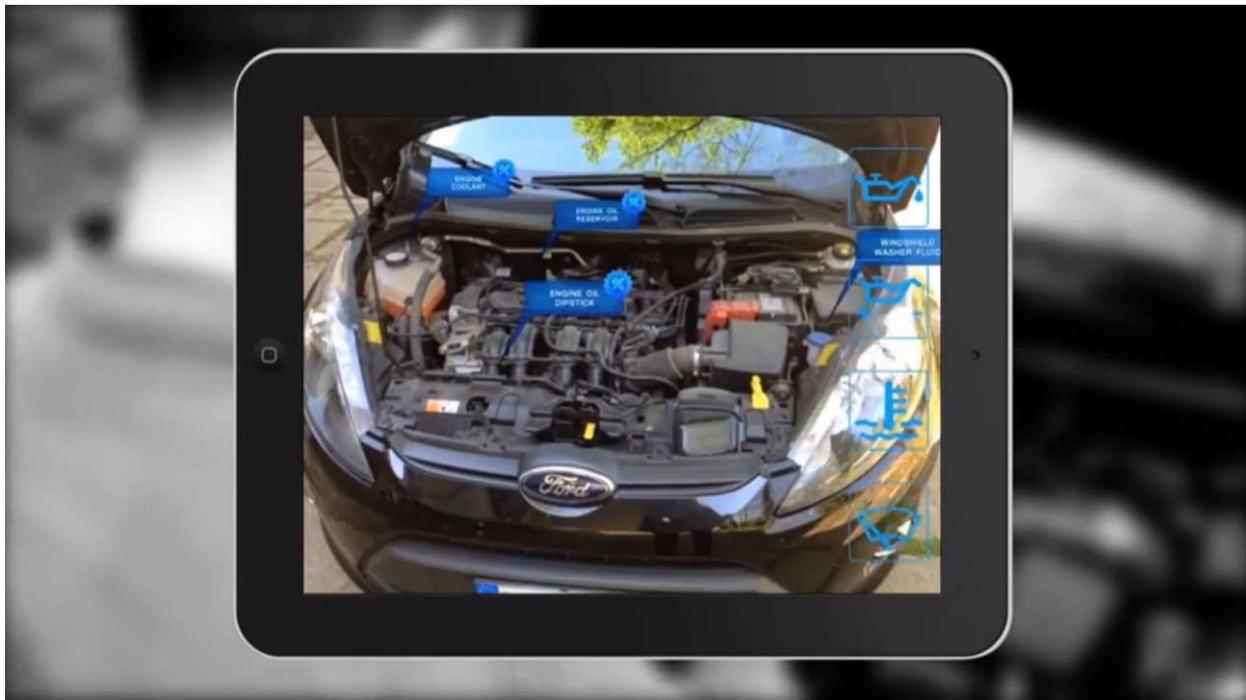
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1. CHALLENGE PROBLEM: AUGMENTED REALITY

Augmented reality is an enhanced image or environment as viewed on a screen or other display, produced by overlaying computer-generated images, sounds, or other data on a real-world environment. Augmented reality opens a door to a virtual universe where your mind is the only boundary. It allows for an effective fusion between the real world and virtual representations of relevant data. It can be used for multiple tasks such as navigation, education, publishing, advertising, tourism, real estate, packaging, and retail.

An example of this technology in action would be the use of a tablet or cell phone to overlay information on and status of parts on a view of a vehicle's engine compartment (see example below).



The goal of this challenge problem is to develop a virtual training system on a specific object or task using some form of augmented reality. This training system should incorporate aspects of the real world and virtual world (e.g., part names or instructions overlaid on real view of an object) into a single view.

Training systems can be helpful towards employers needing to know how a machine works, students needing homework help, or even customers wanting to know whether or not an object is worth buying based on its functions.

1.1. THE TOOLS

You will need to do some research to find out what augmented reality is and find low-cost software to create your virtual world. Additional possible tools could include free modeling software such as Google SketchUp and SolidWorks or gaming engines such as Unity.

1.2. THE CHALLENGE

Create an application for mobile devices that utilizes an external camera to recognize objects and overlay that view with relevant information for the end user. The information in the overlay can be instructional or status-related to the object. The overlay could also show links on the internet of tutorials instead of showing the actual text or video.

2. EXTENSION #1

You may also create your own 3D object or tutorial within free modeling software such as Google SketchUp and SolidWorks or gaming engines such as Unity.

3. EXTENSION #2

An advanced solution will display 3D renders of moving parts, or other objects interacting with the real world.