Project Plan Presentation
Help Me See!
The Capstone Experience
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Overview

- Founded in 1916 in Mount Pleasant, MI
- Headquartered in Lansing since 1917
- Hire many MSU students, especially MSU Engineers
- Provides Home, Car, Business, and Life insurance to the Mid West
- $10 billion yearly revenue with $32.5 billion total assets
Project Functional Specifications

• Use Augmented Reality to simulate insurance experience
  ▪ Hololens 2

• Detect or Overlay Household Objects
  ▪ appliances, objects and common issues and show the user the loss exposure and loss prevention information

• Provide customers with insurance knowledge
  ▪ This will hopefully reduce the number of insurance claims because the user is more knowledgeable about risks and how to avoid them

• Wide Target Demographic
  ▪ Renters
  ▪ Owner
Project Design Specifications

• Start Menu Screen
  ▪ AR HoloLens

• Overlay Mode
  ▪ Object menu to spawn 3D appliances
  ▪ Overlay onto real-world mapping
  ▪ Select 3D appliance to display insurance loss exposure and loss prevention information

• Object Detection Mode
  ▪ Use machine-learning to detect and identify real-world objects
  ▪ Display object's insurance loss exposure and loss prevention information
Screen Mockup: Overlay Mode Menu

- Kitchen
- Living Room
- Garage
Screen Mockup: Detection Mode

Startup
Screen Mockup: Detection Mode Hover
Screen Mockup: Loss Information

Refrigerator
A refrigerator can be accidentally turned off for a variety of reasons. When it does turn off, this can lead to food contamination and/or spoilage. In certain homeowners policies, this would be covered under the policy, with any deductible applied.

A refrigerator can be visually inspected to determine if it is working properly by finding out if the light inside the appliance is functioning properly. In addition, the refrigerator should be inspected underneath to determine if any leaks are visible.

Oven
Modern ovens present a loss exposure scenario when it malfunctions or overheats, potentially causing fire hazards or damage to the surrounding kitchen area. In such cases, homeowners insurance may cover the resulting damage after deductibles are applied.

To mitigate loss exposure related to a home oven, regular maintenance should include checking for loose or damaged electrical connections and ensuring proper ventilation to prevent overheating. Additionally, homeowners can install smoke detectors in the kitchen area to provide early warning in case of oven-related issues.
Screen Mockup: No Hovering
Project Technical Specifications

• Using Unity for the 3D editor and game engine
• Project is deployed onto HoloLens 2 from Visual Studio
• Scripting done for Unity in C#
• Azure Custom Vision for Object Detection mode
• Windows 10 SDK used for HoloLens 2 features
Project System Architecture

3D Editor
- Unity
- MRTK

Build Environment
- Visual Studio

Target Platform
- HoloLens 2

Tools/Languages
- Windows 10 SDK
- C#
- Azure Custom Vision
Project System Components

• Hardware Platforms
  ▪ HoloLens 2 (only target platform)

• Software Platforms / Technologies
  ▪ Unity, Microsoft Mixed Reality Toolkit for Unity
  ▪ Visual Studio
  ▪ Windows 10 SDK
  ▪ C# Programming Language
  ▪ Azure Custom Vision
Project Risks

• Working with Augmented Reality (AR)
  ▪ Augmented Reality is a relatively new medium for applications, thus we are unfamiliar with common practices in AR
  ▪ Playtest existing AR applications to learn common techniques and methods of presenting information to the user

• Utilizing the HoloLens
  ▪ Test the capabilities of the HoloLens
  ▪ Create Object detection demos and see how far we can push it

• Building our application in Unity
  ▪ For the most part we lack real Unity experience, and our application is going to be built in it
  ▪ Begin doing simple demos to better grasp Unity's workflow and capabilities
Questions?