

Team Members: Kennedy Becker, Yazeed Alzugaibi, Uchekukwu Onyeukwu, Eli Priesman & Ashley Goecker

Mentors: Fred Berry

Customer Background

Small Parts Inc. is located in Logansport, Indiana and sells metal parts and components to be used in automotive and electrical industries. Small Parts is headquartered in Indiana but also has two sites in Mexico. They focus on high quality products, excellent service, and on-time delivery.

Problem Statement

Small Parts Inc. has identified that in the next five years, they will be losing over 165 years of expert die technician experience, and there is no solidified training for new employees to gain this knowledge. It takes roughly 2 years for a technician to learn just the machine set-up process, and this is not time they have to waste. The goal is to provide Small Parts Inc. with a suggestion and framework for a knowledge retention and training system, while taking advantage of state-of-the-art technology.

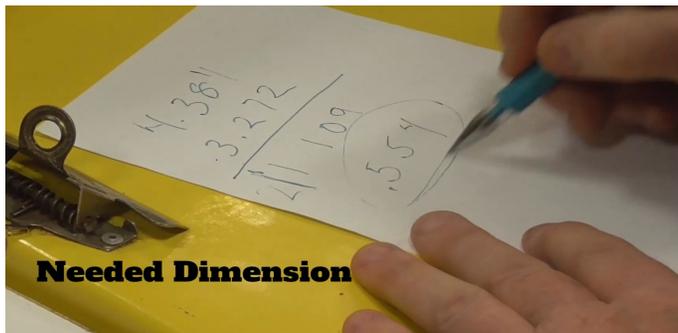
Requirements

The requirements for our project are multi-faceted and aim to capture and relay the knowledge of the expert technicians. We will be conducting interviews with experienced employees and develop a comprehensive knowledge repository. Along with this, we will develop an interactive AR/VR tutorial to simulate how this would work for their company. Another requirement of this project is to gather feedback from existing technicians on this format. Lastly, we need to conduct a comparative evaluation of various AR/VR technologies and recommend the most suitable solution for long-term deployment.

Experimentation and Concepts



We experimented with different video capturing techniques such as experimenting with different perspectives and using different technologies to determine which technique enhances the learning experience.



Final Design



Offering training with the HoloLens not only enhances the learning experience but also allows trainees to observe the process firsthand from the operator's perspective.

Testing



At first, we created a demo of how the training video would look from a video recording from a third person perspective. We used a handheld drill as an example, but the process can be replicated for their Multi-slide machines. This worked, but we wanted to implement a more comprehensive, immersive training platform. We knew that AR would be a way for someone to get a full understanding and visual of things happening in the surrounding area. While testing with the actual AR technology, one is immersed in a brand-new world, while also learning new information. As seen below you get a chance to live and react in a first-person environment.

