Boiler Models for Online Modules

Overview
Penn State Facilities Engineering Institute (PSU FEI) was tasked by the federal government to develop a training module to educate property managers on gas and oil boilers. The team needed to create 3-D models and 2-D graphics and animations to accompany the existing storyboard provided by PSU FEI. The models included a boiler, burner, and several other boiler system components. The animations included both a water tube and fire tube boiler as well as a pressure cooker and several other boiler system components.

Objectives
The team was to select appropriate software to create the models and the animations in a way that they could be customized at a later time and provide enough detail to provide a good visual aid for the property managers.

Approach
- First we met with PSU FEI and defined the problem statement.
- After identifying the underlying problem we began to determine all customer needs.
- Pugh charts were used to weight the needs and determine which had the highest priority.
- Several concepts were generated, scored and compared to determine which was best.
- Patent searches and other bench marking were performed to determine existing boiler systems.
- Several classes were given by PSU FEI to educate the team on boiler components.
- The team presented their current progress to PSU FEI weekly to receive feedback.
- Many models were created using SolidWorks, and graphics were created in the Adobe Creative Suite.
- Interference tests were performed on the models to ensure all components were correct and models were tested on the PSU FEI module template.

Outcomes
- More property managers will have access to a higher quality training module for boilers.
- PSU FEI will reduce cost and increase performance of the training sessions.