Tyco Speaker Baffle Redesign

Overview
Tyco International is the leading supplier of fire notification devices globally. Current customers recognize the Tyco brand for their safety, reliability and quality. Now, Tyco International would like to improve the physical aesthetics of their product notification products and unify the product line.

Objectives
The goals were to combine the company’s unvarying standard for safety, quality, and functionality with visible aesthetical components. Specifically, the customer needs that needed to be balanced throughout this project were:

- Visible attractiveness
- Hidden fasteners
- Product line cohesion
- Ease of installation
- Ease of manufacturing
- Cost effectiveness

Approach
- The team first conducted an initial survey to identify “attractive characteristics” where different geometries, textures and finishes were investigated.
- The team collaborated with students in Shanghai Jiao Tong University and developed several concepts based upon the likes and dislikes found from the initial survey.
- After evaluating the top five concepts with a Pugh matrix and discussing them with the Tyco industry sponsors, the team narrowed down the concepts to the three designs with the most potential.
- A large international survey was then conducted (N=208), which determined which of the three top designs was viewed as the most attractive.
- The most popular design was then selected, and a series of prototype refinements were performed which focused specifically upon the ease of installation and cost effectiveness.
- Lastly, to validate the selected design, the team once again conducted a large international survey comparing the proposed design with the current Tyco model being produced and sold. From this survey it was found that over 90% of the respondents preferred the new design to the old model.

Outcomes
- The new design has been proven to be more attractive than the current Tyco models.
- The quarter turn mechanism was the most cost effective solution to hide the fastener holes and make the installation process easier.
- The repeating pho-grating pattern appearing on both the speaker-strobe unit and the speaker only unit unifies the Tyco brand product line.
- Cost estimates of the proposed design are within 10% of current production costs.