Self-detaching/Self-checkout - GLOBAL PROJECT WITH SJTU

Overview
The purpose of this project is to design a new security tag and mobile application that enables retail customers to self-checkout and self-detach security tags from without employee assistance. The tag should empower a better shopping experience by providing convenience to both, the customers and the employees. The new security tag will allow for item-level visibility and inventory management and includes an Electronic Article Surveillance element for asset protection. The design should be smaller than the current SuperTag’s and weigh less than 30 grams.

Objectives
- Allow customers to self-checkout through their mobile phone
- The tag will self-detach after the mobile application receives payment
- The design will be of appropriate size, noticeable, light, easy to use, and maintain security against theft

Approach
- Attended teleconference with Tyco’s contact and other team members to develop initial specifications and customer needs.
- Gathered customer needs using Tyco’s given requirements, by asking retail stores what they preferred
- Generated target specifications according to list of customer needs
- Performed external research including existing products and patent research
- Refined concept generation individually and again after initial feedback from team and sponsor
- Verified concept selection through Pugh matrix using top designs.
- Modeled original design using SolidWorks.
- Developed initial prototypes to begin further analysis and determine strengths and weaknesses of design
- Continued iterative process of making more prototypes between testing of each design
- Tested final design to determine security.

Outcomes
- Final prototypes were functional and were secure on merchandise
- Further investigation into pull out force of tag might be necessary