



Team 22: Taekwondo Kicking Target

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- **Problem Statement/Objective/Purpose**
- Creation of a taekwondo kicking target with automatically adjusting contact pad locations, with force feedback.
- **Use Case**
- The use case offers a customizable and versatile kicking target for various taekwondo needs
- **Business Case**
- The business case for this potential product would be providing a target that is not currently offered on the market. Many of the targets offering force feedback are inaccurate, and there is no target with app-controlled movements.
- **Notable Challenges**
- The most notable challenge was the app design portion of the project.

- **Key Specifications**
- Each arm pad will have pad rotation about the vertical axis as well as vertical translation up and down the vertical axis.
- Force or acceleration data will be fed back to the user to view on a phone app interface.
- Accuracy of force or acceleration data must be interpreted within 5% of the actual value.
- Positioning of pads must be able to be stored into at least 30 different overall positions.
- Sustain forces from a skilled taekwondo practitioner, up to 6,400N (1439 lbf) of impact force per kick

- **App Design**
- The app will serve as the main control interface for the entirety of this project's functionality.
- The app will control all movements of the target, including vertical translation, rotational movement and locking.
- Additionally, the app will retrieve and display the force feedback.

