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Professor Khandani
Intro to Engineering

Assignment 8: Design Project Progress Report

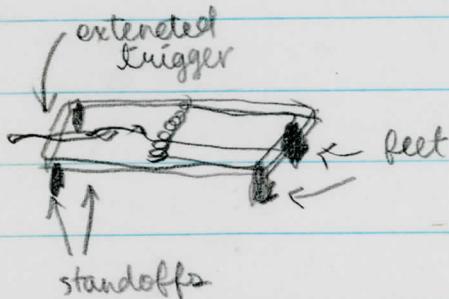
Design 1: Helicopter Flyer



Design 1 resembles a helicopter. It is a vertical shaft with a support structure to hold it up. A rubber band is wrapped around the axis of the shaft to spin the shaft when released. At the top of the shaft is a propeller that will generate lift for the lander. To counteract the support structure's rotation during flight, it is fitted with fins on the legs. The shaft has a locking mechanism that can be released with finger movements. The support structure, a shaft, and propeller blades would be 3D printed or made with paper and skewers. Design seems reliable, and travel trajectory unpredictable. Parts are cheap and found at home.

Design 2 consists of four sticks all hinged together, with two main hinges. Sets of rubberbands are stretched across two pairs of sticks to create a straight and unfolded resting position. One of the main hinges contains a latch that will keep two sticks spread apart until pressed. The opposite main hinge contains a mass that will provide the momentum for the leaper to jump. In the folded (ready) position, it can lean on a tall or short leg. Depending on which leg it leans on during launch indicates the type of trajectory it will take. One will be geared for distance and the other for height. Rubber band tension can be adjusted per jump too. Parts will be 3D printed and sourced from home. Predictability: high.

Design 3: Mousetrap Jumper



The mousetrap jumper may not be a legal device in this assignment, but could become an integral component in a future design. An extended trigger will be made so the mousetrap can be activated upside down. The moving jaw will be fitted with 3D printed feet that will grip the surface and propel the mousetrap in the air. The predictability of this is low.

