To create a universal paper shredder attachment to feed paper with no user input.

Market Size:
- Personal shredder sales account for about a third of the industry sales; $100 million
- Benchmarking data shows there are few shredders that have similar device

Customer Requirements
- Doesn’t Jam
- Holds large amount of paper
- Keeps up with shredder speed
- Compact size
- Accepts variable paper sizes
- Ease of setup
- Ease of loading paper
- Handles multiple sheets

Engineering Chars
- Probability of Jam
- Good interface system
- Weight
- Paper loading force into shredder
- Capacity of paper cartridge
- Power Draw
- Constraints
- Speed
- Paper Size
- Sheets per feed

Physics of System
- FBD of spring force on paper
- FBD of paper on rollers

Concept 1
- Our final criteria (and weights) were
  - Probability of jamming (.23)
  - Cost (.29)
  - Stability (.11)
  - Sheets/min (.12)
  - Ease of setup (.05)
  - Interface (.18)

Highlights of Design 1
- Able to manually feed
- Anti-Jam sensor
- Adjustable legs
- Setup
- Bulkiness

Concept 2
- No external power needed
- Vertical layout
- Must be set up each time
- Unstable
- Poor interface

Results and Future Work
- For our final design, we recommend the following changes to reduce cost and weight:
  - Plastic Tray
  - Telescoping Legs
  - Possible additions based on necessity
    - Electronic Eye Sensor
    - Pressure Jam Sensor
- The most beneficial part of our was the initial concept selection process. It allowed us to illustrate our ideas through sketches and analyze their benefits to create the final design.

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