Hozhoni Foundation Button Maker

01/09/2016

Presentation 3, ME 476C

Team 26

Abdullah Alajmi – (project manager.)

Majid Alenezi – (secretary/ document manager.)

Mutlaq Alajmi - (website developer.)

Faleh Alajmi –(budget liaison)

Client's information:

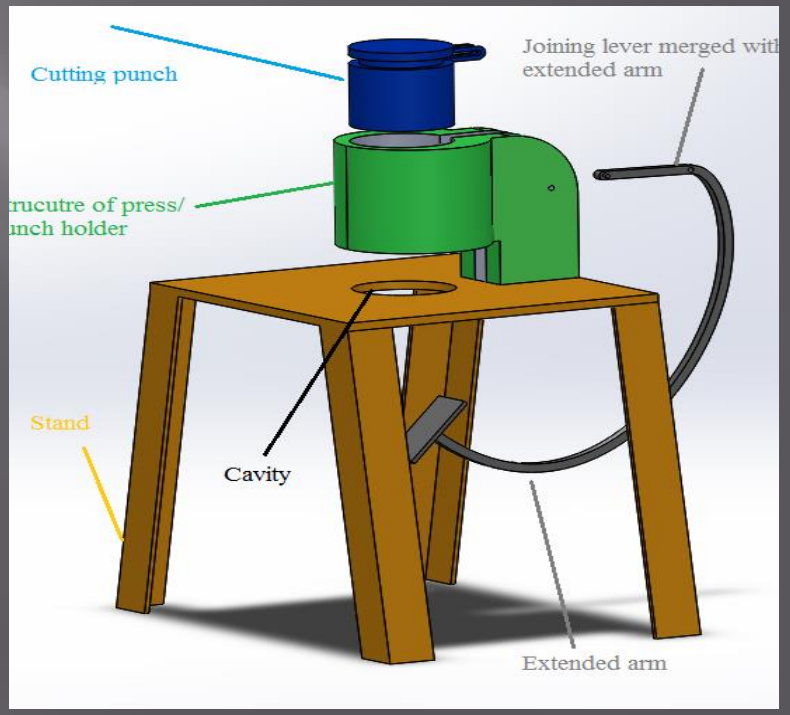
Hozhoni foundation company

It's a leading provider of services for people with disabilities

Our client is Dr. Sarah Oman

PROJECT DESCRIPTION

- The project is about designing a paper cutting press, with an "Extend Arm" as lever.
- The design will help in cutting of paper with less force as compared to the regular Arm Presses.
- This modified press would work by pushing it using legs, so it could prove helpful for the peoples who are not capable to use their hands or arms.



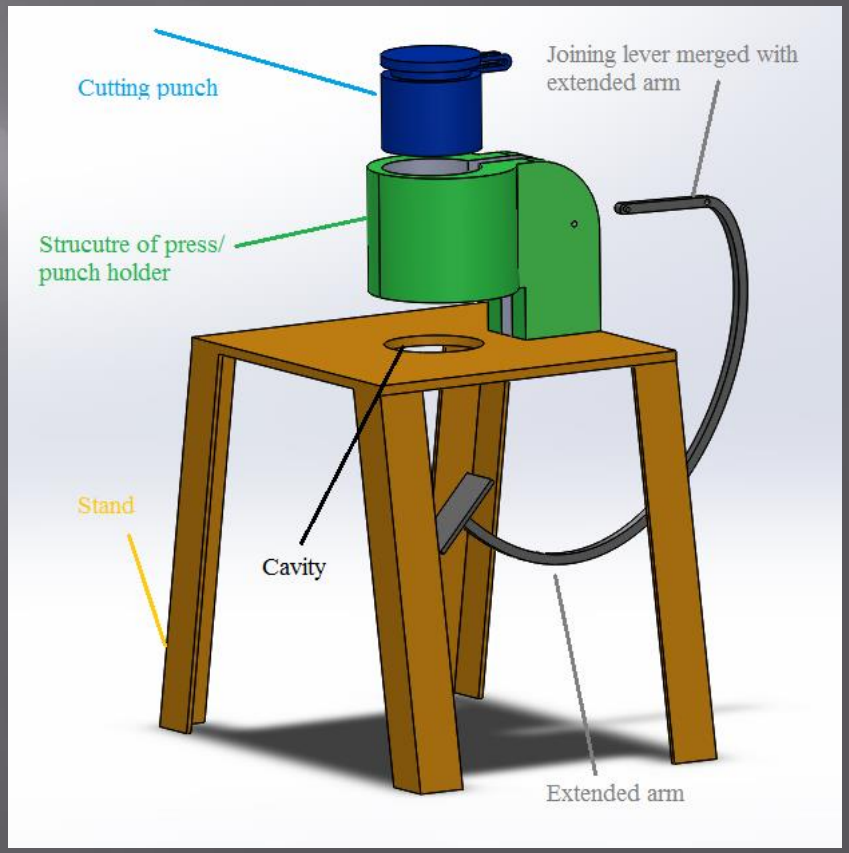
Majid Alenezi

PHYSICAL VARIABLES

- The problem needs several physical variables to define it. Some of them include:
  - the minimum force is 35N which worker have to apply to cut the paper
  - size of cut
  - number of cuts in one press
  - the shear stress of the paper
  - suitable material for different assembly parts

DESIGN DESCRIPTION
DETAIL OF DESIGN

- The design is based on the simple punch/cavity technique.
- There is a punch (blue color) which will slide in the bore of the main structure (green color).
- This main structure is fixed on a stand (golden color).
- The top surface of the stand has a circular cut in it, which will work as cavity or paper cutting.
- The shape of cavity and the punch will define the profile of paper cuts.

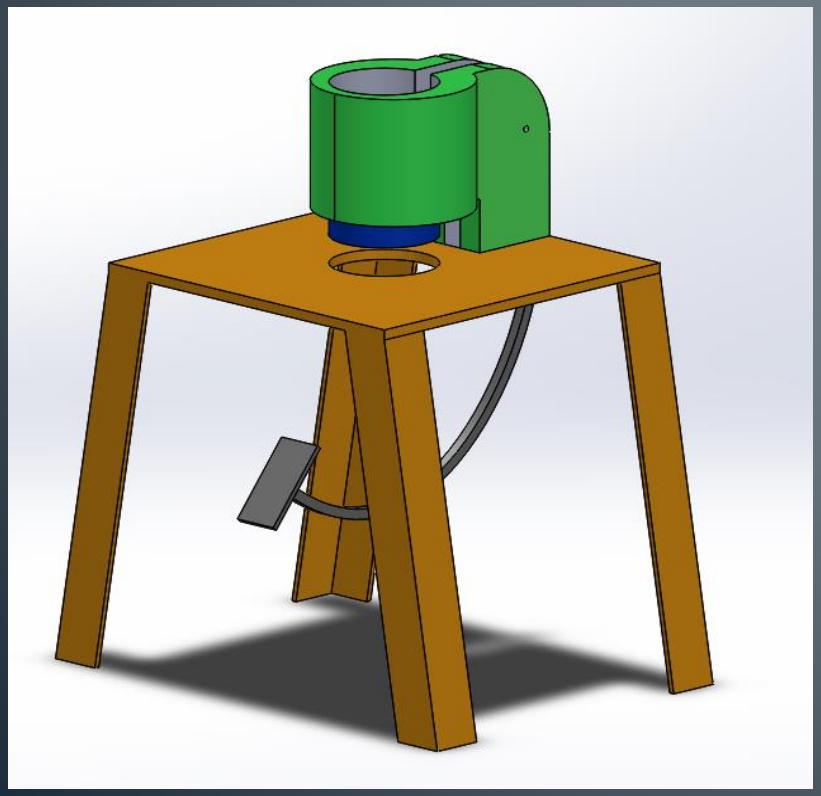


Abdullah Alajmi

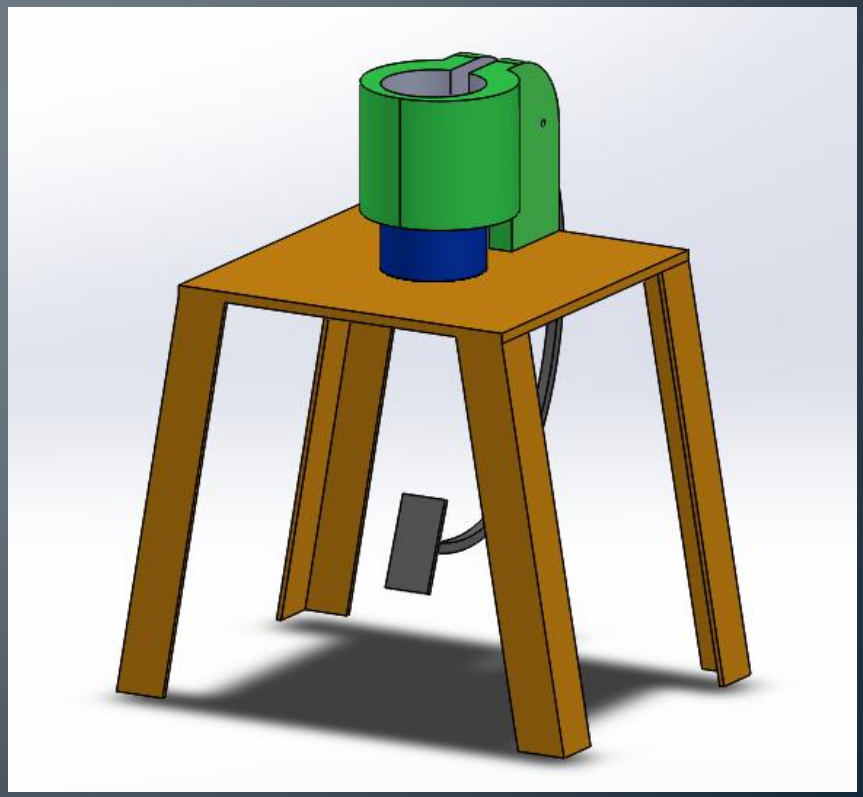
WORKING OF PRESS

As the extended arm is pushed downward, it rotates and pushes the small lever (joining lever merged in the extended arm) downward. This intern pushes the punch into the cavity to cut the paper.

Extended Arm Un-pushed



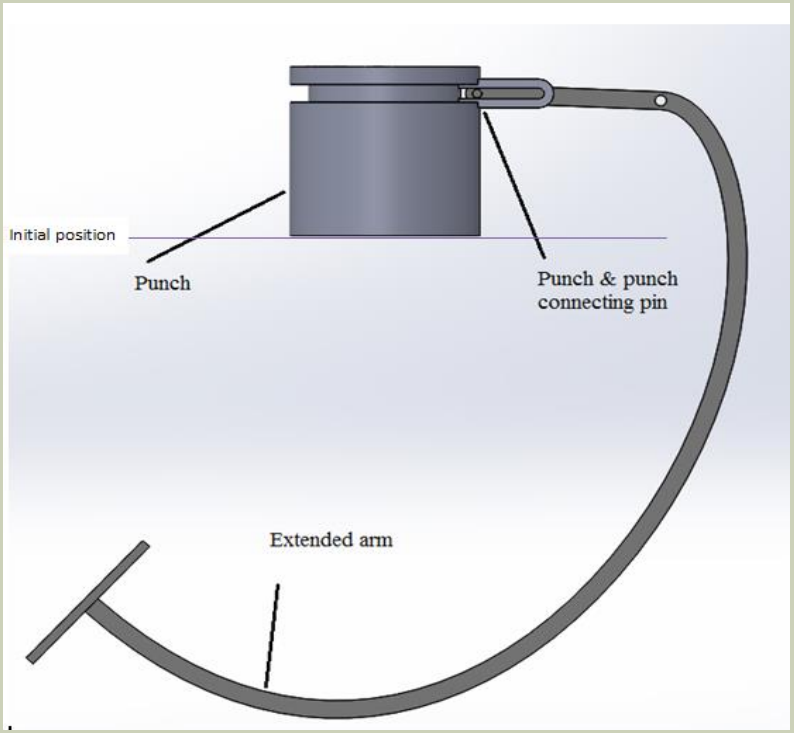
Extended arm pushed



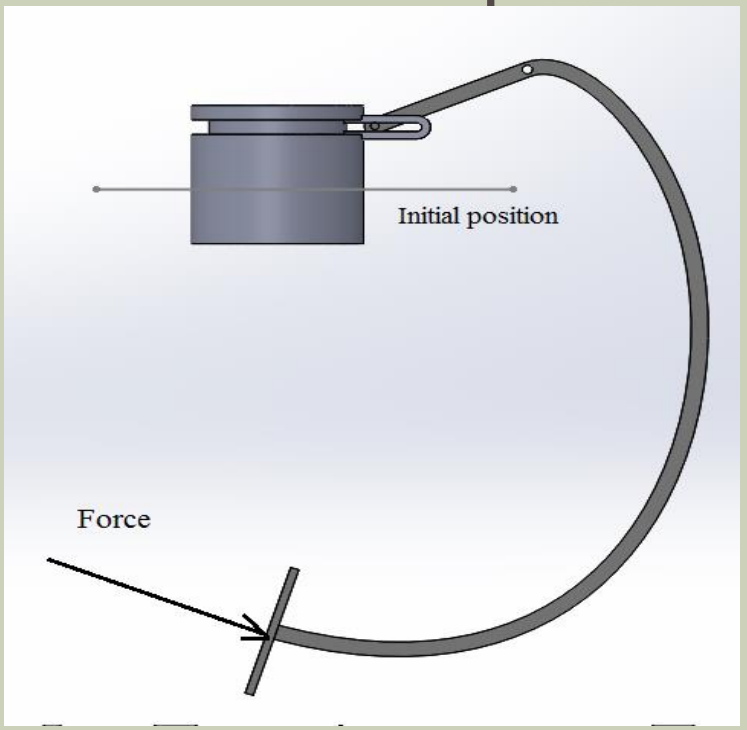
HOW EXTENDED ARM PUSHES THE PUNCH DOWNWARD

As the worker will push the extend arm downward, will rotate about its pivot. This rotation will cause the adjacent small lever to move down. The downward motion of the small lever will push the punch into the cavity, cutting down the paper.

Extended Arm Un-pushed



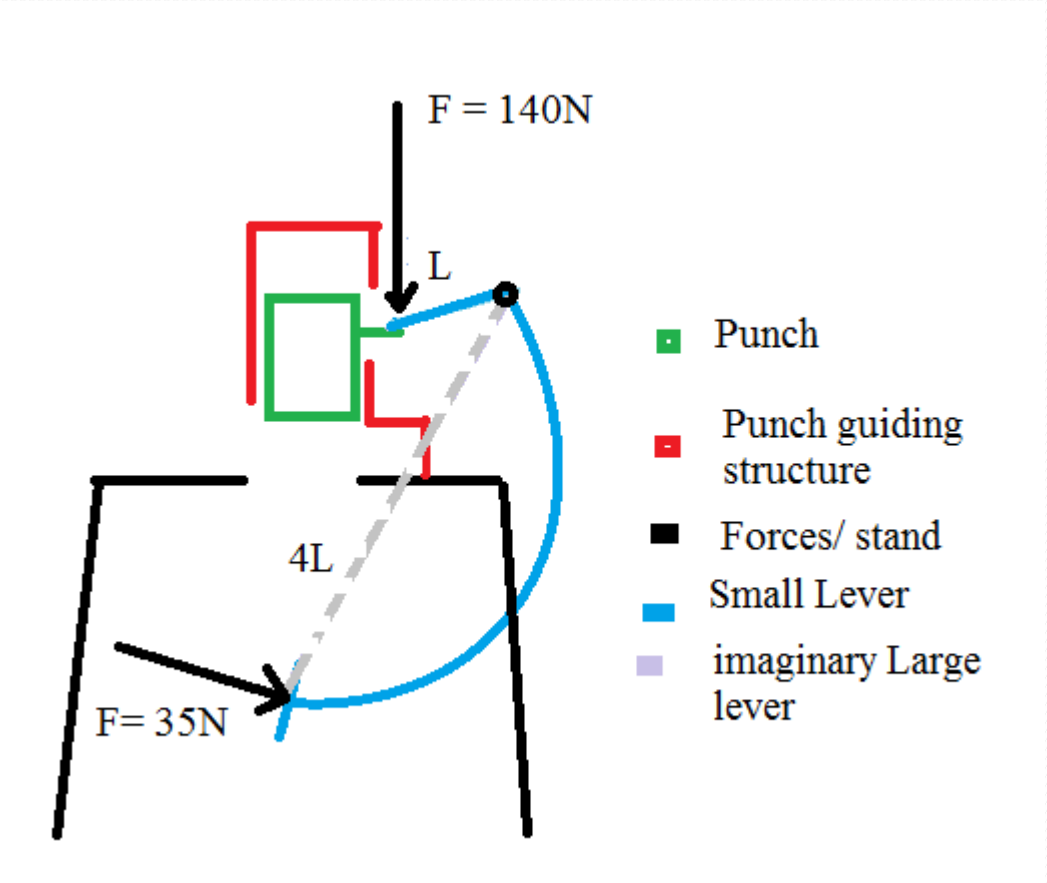
Extended arm pushed



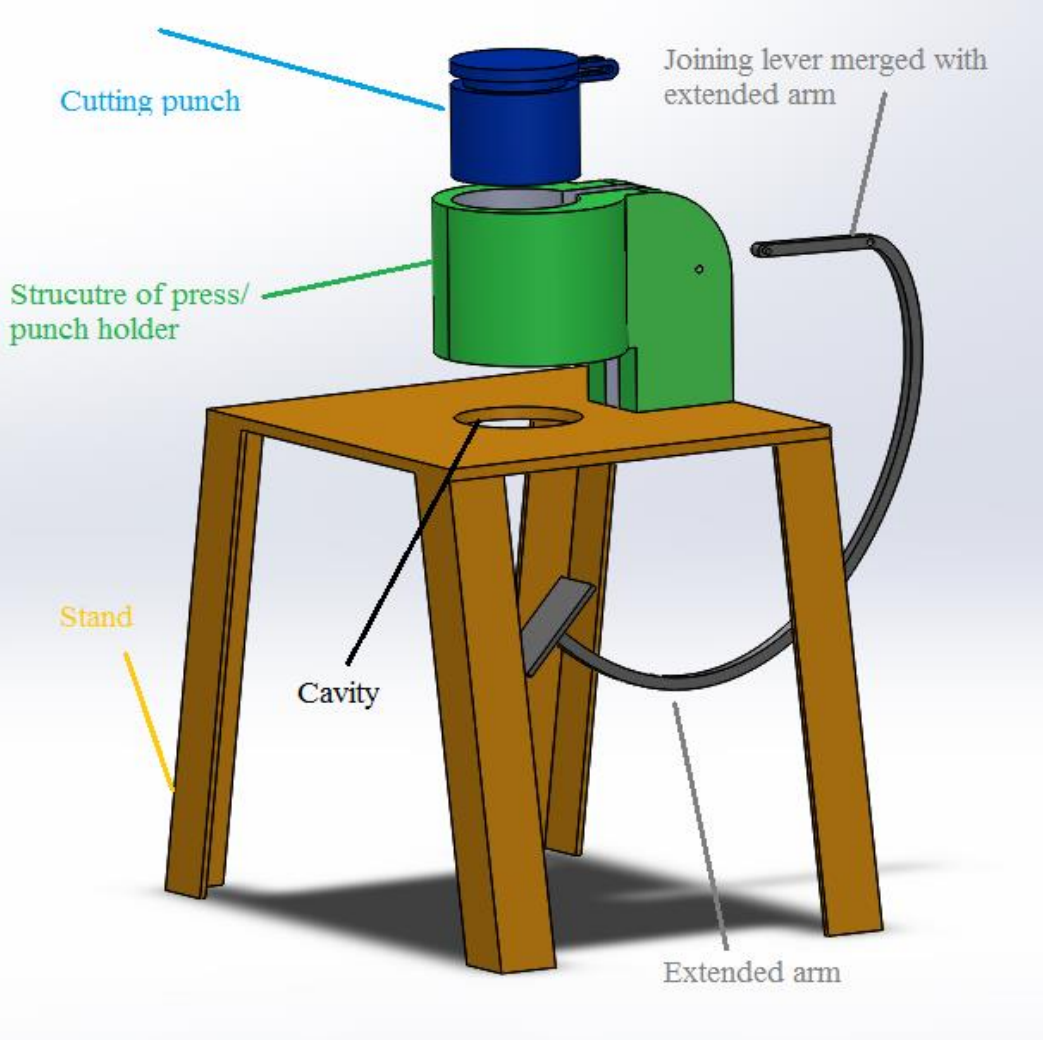
Abdullah Alajmi

DESIGN OF EXTENDED ARM

- The force required to cut the paper is six time the available force.
- So the lever which at which force would be applied should be 6 time longer than the lever which will push the punch downward

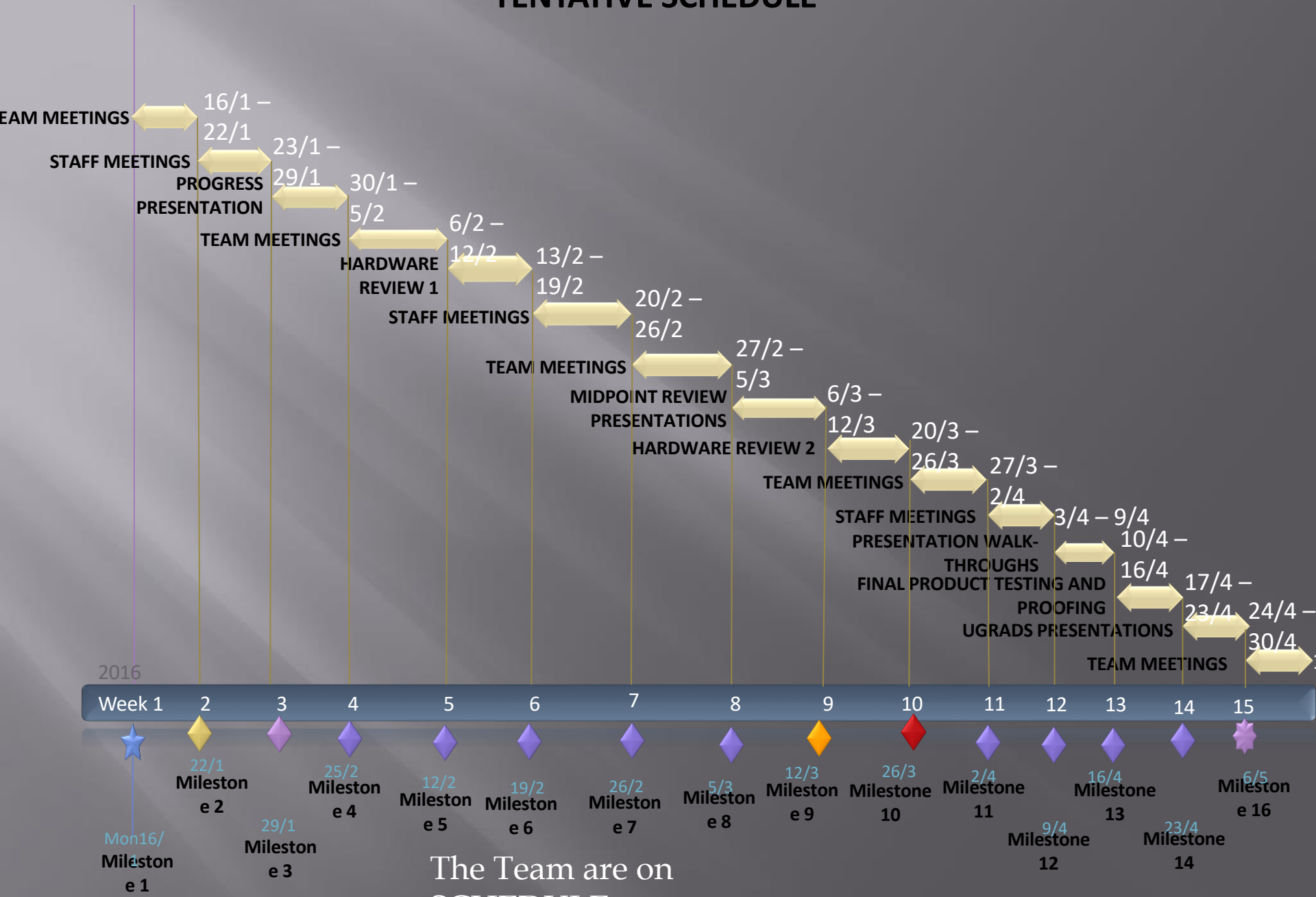


Customer requirments
smaller
lighter
Cut out sex at once
Cut out with no rips
Guide to position paper not moving



Mutlaq Alajmi

TENTATIVE SCHEDULE



The Team are on SCHEDULE

Faleh Alajmi

Budget

Item Number	Item	Description	Manufacturer	Quantity	Total Cost
1	Iron metal rods	The metal rods should be of two different sizes: 2 cm and 5 cm diameters. The rods should be 50 cm long each	Nippon Steel & Sumitomo Metals	4 pieces total 2 pieces of 2cm diameter rods 2 pieces of 5cm diameter rods	$200
2	Aluminum sheets	The aluminum sheet will be used in making the cutting and die plates	Nippon Steel & Sumitomo Metals	1 sheet of aluminum measuring 50cm by 50cm	$125
3	Rubber	The rubber will be used for the presses handles	Vip Rubber and Plastic Manufacturer	50cm long stretch of flexible rubber	$50
4	Plastic sheet	The plastic sheets will be used for making the buttons as part of the die plate	Vip Rubber and Plastic Manufacturer	Sheet of plastic: 30cm by 30cm	$64 Total= 439$ Remaining= 1061$

Faleh Alajmi

REFERENCE

[1] Shear modulus of office paper, institute of paper chemistry; [access-online]

http://www.eng-tips.com/viewthread.cfm?qid=63171

[2] Mechanical Advantage of Lever system, Machine design, 8th edition, [Author- Norton]

[3] Mechanics of material, 7th edition, [Author- Beer and Johnston].

ANY QUESTIONS