

# Mechanical Design

## Design Brainstorming

1. The mechanical Design of the Project was made with the following in mind.

*The servo actuation should be as efficient as possible.*

2. The servo to beam power transmission is made with minimal number of components.

*It should incur as less backlash as possible.*

3. The couplers should be made with sturdy material that doesn't wear out.

*The Energy and power requirements are optimized.*

4. The shaft is connected through the center of mass of the beam.

*The frame should however be sturdy enough to not get affected by vibrations of the ball.*

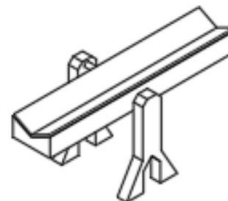
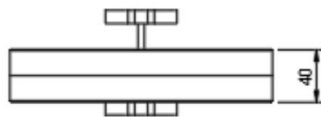
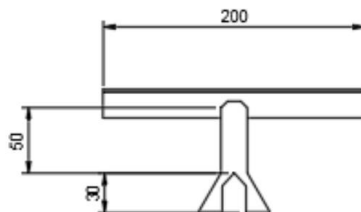
5. The motor doesn't allow for unprepared movements and has sufficient stall torque.

*Length was chosen to be 200 mm and shall be increased iteratively.*

The materials used will be

Wood for the Main structures

Steel for the supporting rod(axle).



The actuation will be done by a servo motor. And hence the beam connection to the servo motor will be done on the support structure.