Mechanism Feasibility Design

Tutorial Session Notes

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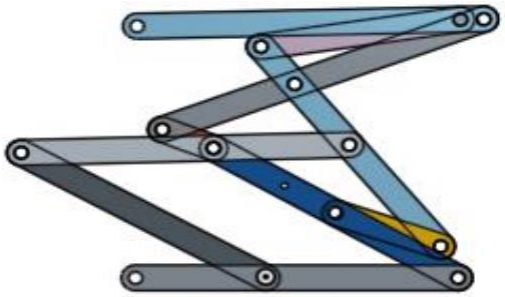
Well done on your stage-gate submission

- Looking through them now
- Will get a couple of comments each
- **Remember:** This should all be included in your report and discussed in greater detail

Last Week

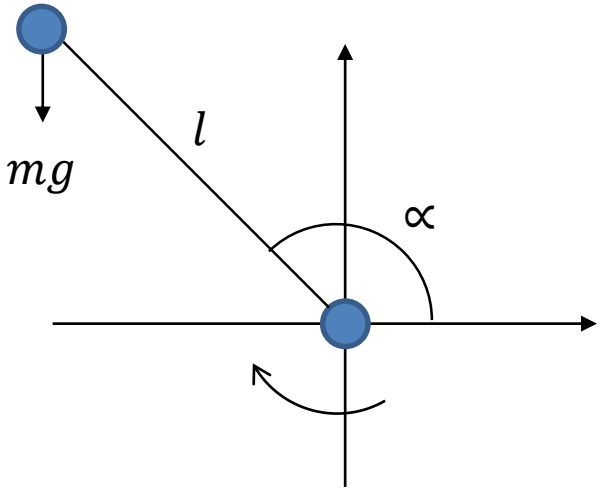
Systems Modelling

Boundary Calculation



What torque do you require to get the mechanism moving?

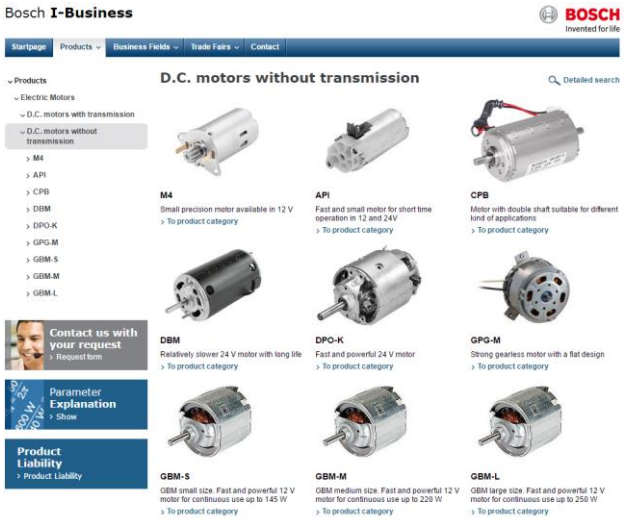
1. Assume a single mass
2. Calculate the centre of mass
3. Torque required by the pivot to get this mass moving

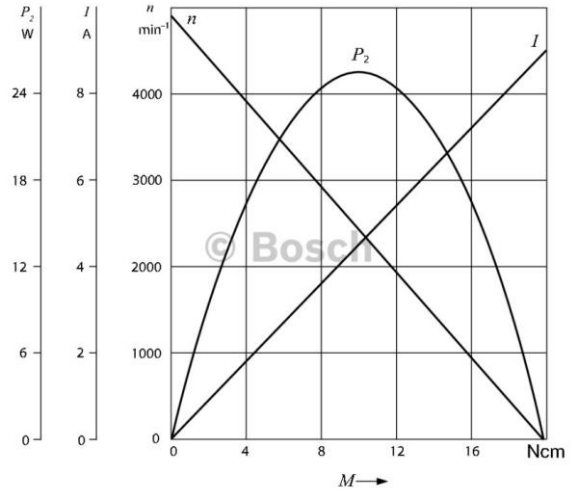


Boundary Calculation

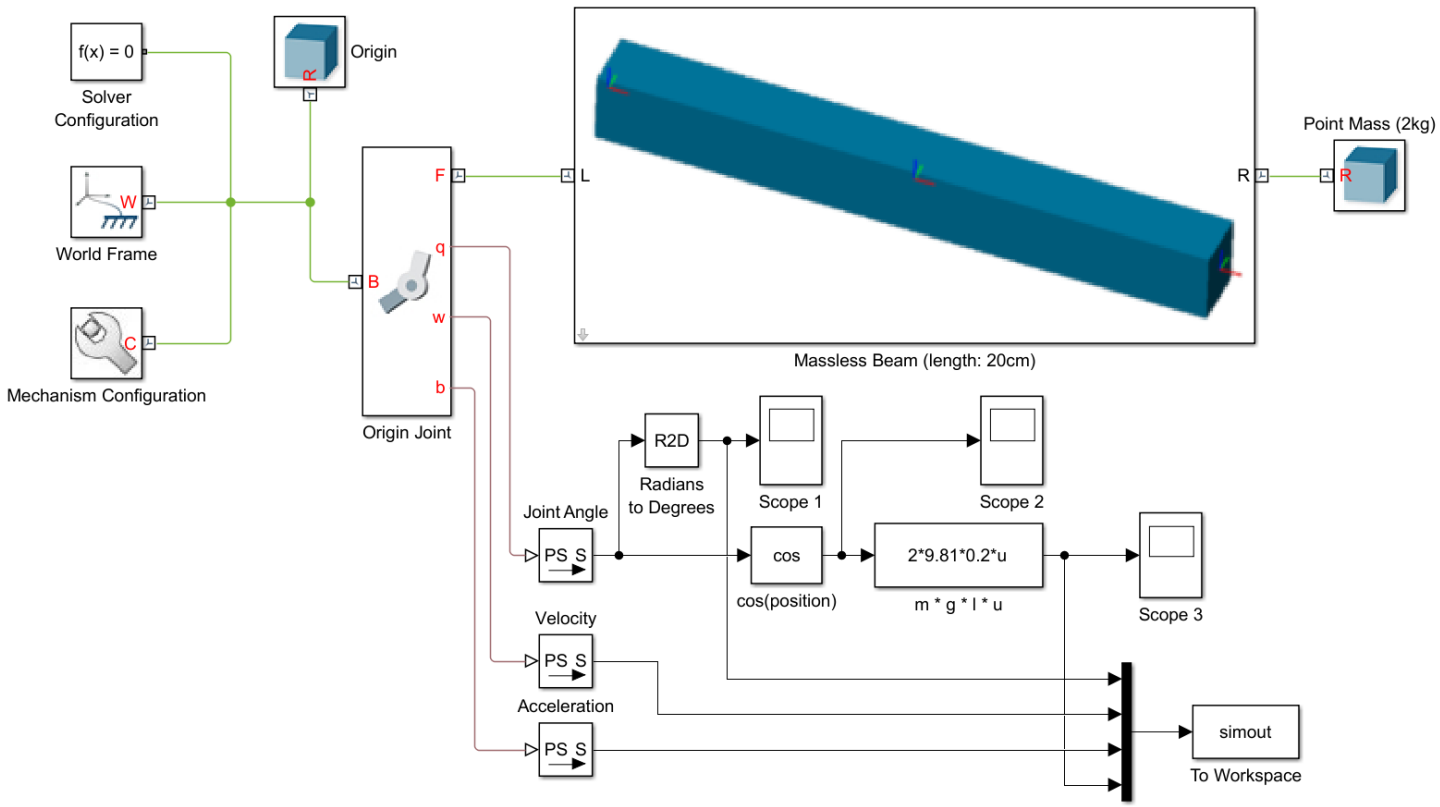
What motor and gear ratio is required to achieve this?

- Select a motor from Bosch
- Refer to your PDS when selecting the motor
- Determine the gear ratio required
- Note: you will need a gear ratio!
- Record your rationale for your choice

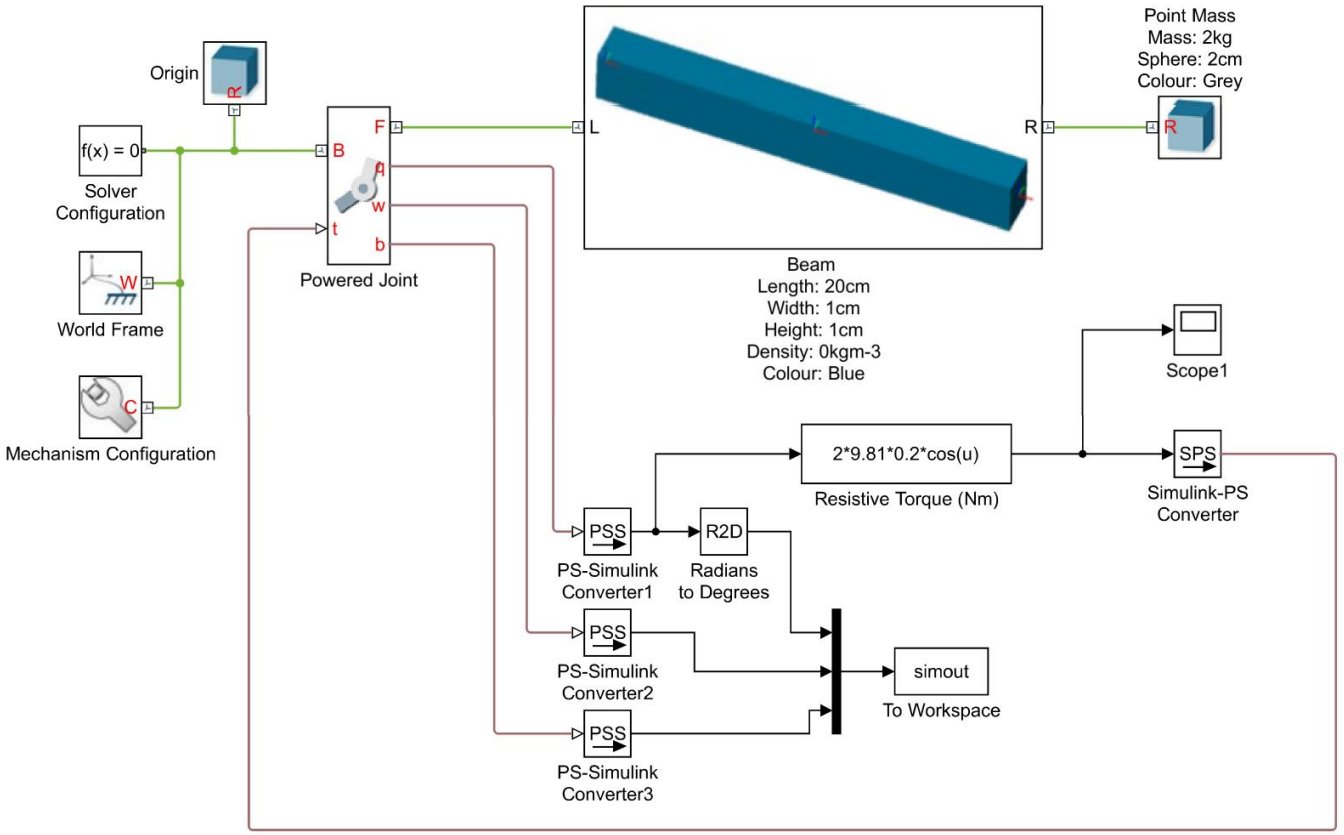




Simulink Modelling - Pendulum



Simulink Modelling – Fixed Pendulm



This Week

- Chosen your final concept
- Estimate the torque you need to get your mechanism moving
- Select a motor from Bosch and calculate the gear ratio required to give you the torque
  - Hint: The gear ratio will be in the region of 800-1200:1
- Start creating the pendulum model in Simulink
- Use your values in the boundary calculation to make a simplified model of your mechanism

This afternoons lecture

1. Shaft Design Feedback
2. Deployment Modelling
   - Demo: Stopping the simulation at a specific point
   - Demo: Adding damping to a system
   - Demo: Four-bar mechanism
3. Building Your Deployment Model
4. Evaluating Motor & Gear Ratios