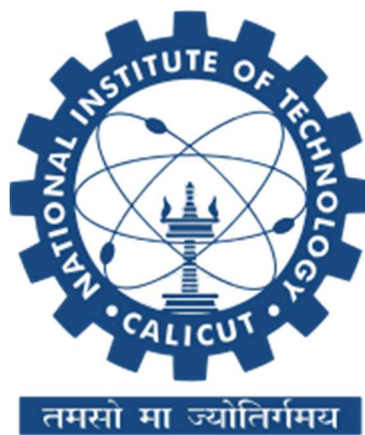


PROJECT REPORT
ON
Part modeling and Assembly of
“BEAM ENGINE” using SolidWorks

As a part of
Course: ME4191: CAD CAM LAB (2023-24)



Submitted by

KARTIK SHRIPATI SHASTRI [B2012101ME]
VENNA VENKATA DINESH [B201217ME]
SAIREDDY SHREYAS [B201211ME]
MOHD FAISAL AFTAB [B2012105ME]

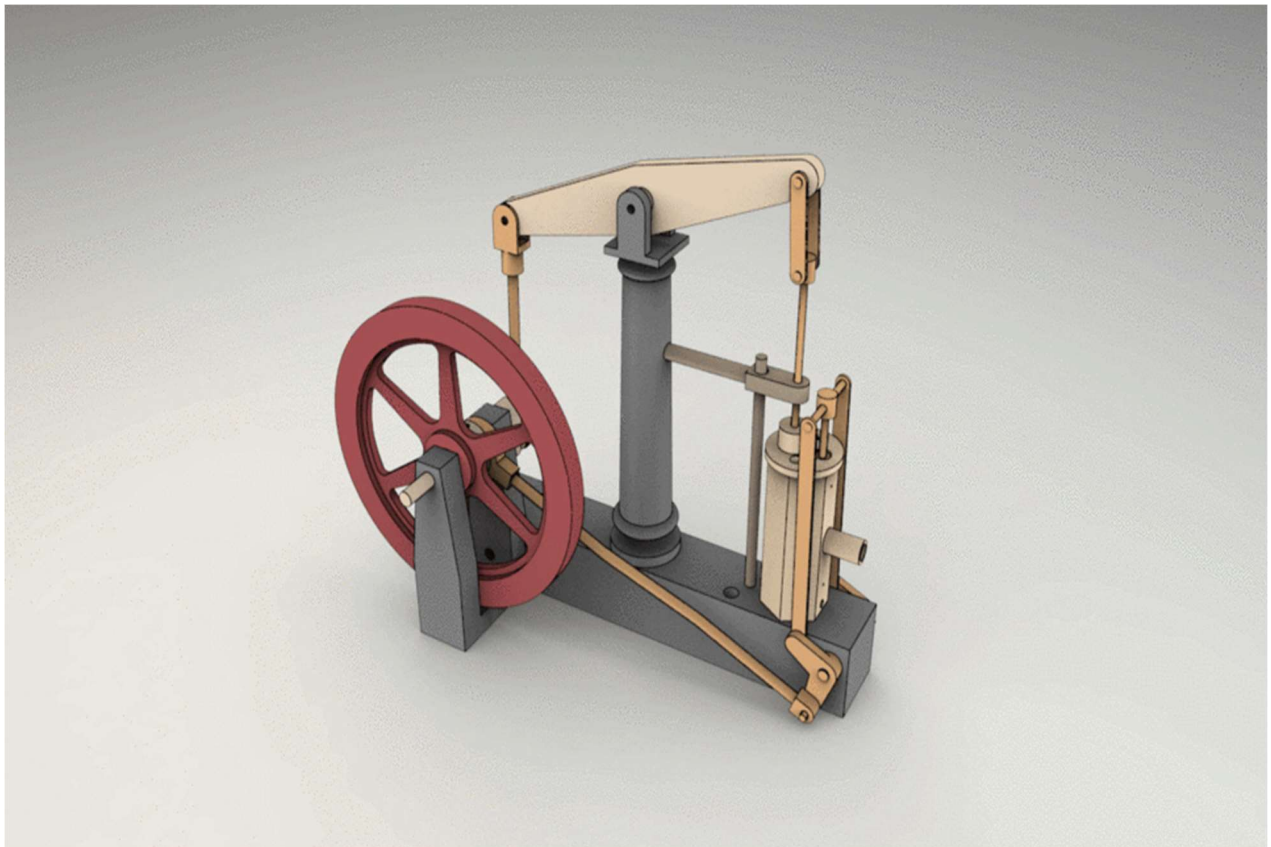
Department of Mechanical Engineering
NATIONAL INSTITUTE OF TECHNOLOGY, CALICUT
NIT CAMPUS PO, CALICUT
KERALA, INDIA 673601

Introduction

Description of the [Beam Engine] mechanism:

The “*Beam engine*” is a reciprocating steam engine that utilizes a pivoted beam to convert linear motion into rotational motion. Invented by *Thomas Newcomen* in the early 18th century, it played a crucial role in the Industrial Revolution. The engine features a vertical steam cylinder connected to one end of a rocking beam, with a piston inside the cylinder. As steam enters the cylinder, it pushes the piston upward, causing the beam to rock. This rocking motion is then transformed into rotary motion, typically powering machinery or pumps. The beam engine was a pioneering technology in harnessing steam power for industrial applications.

Example: Beam Engine

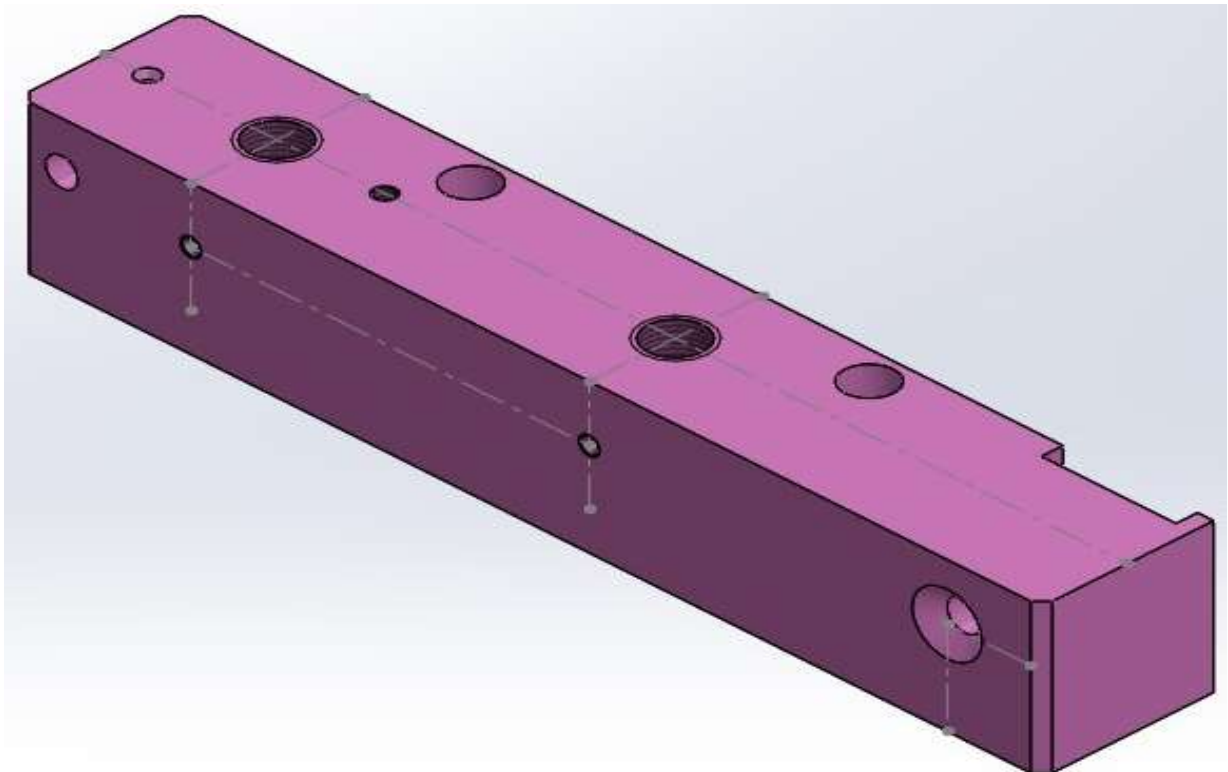


Modeled Parts

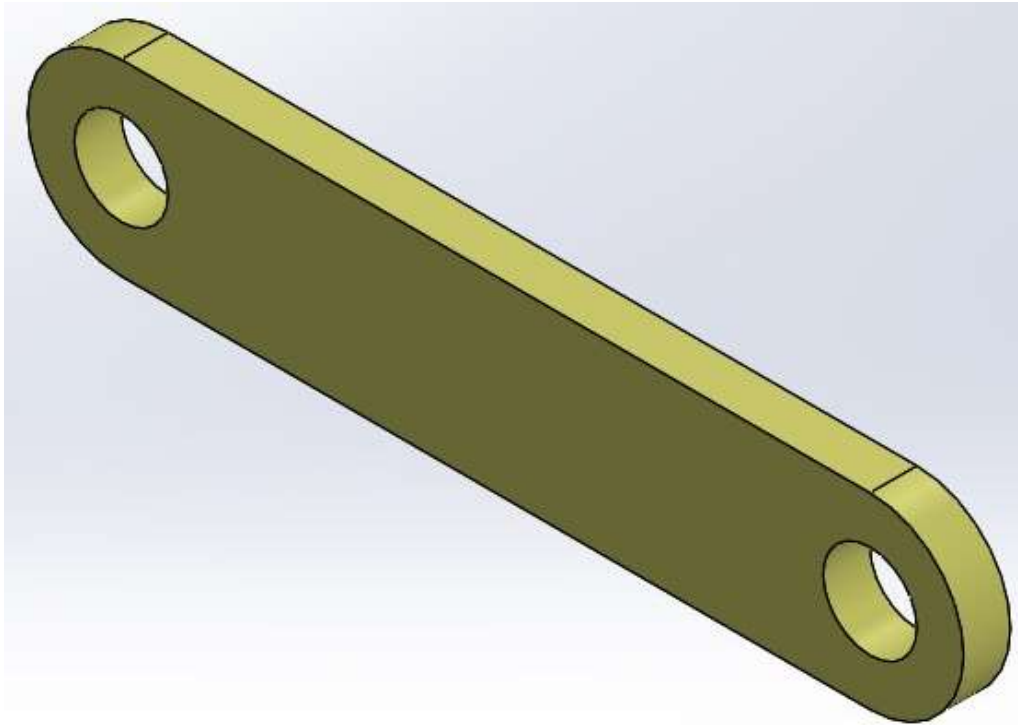
1) Engine Base



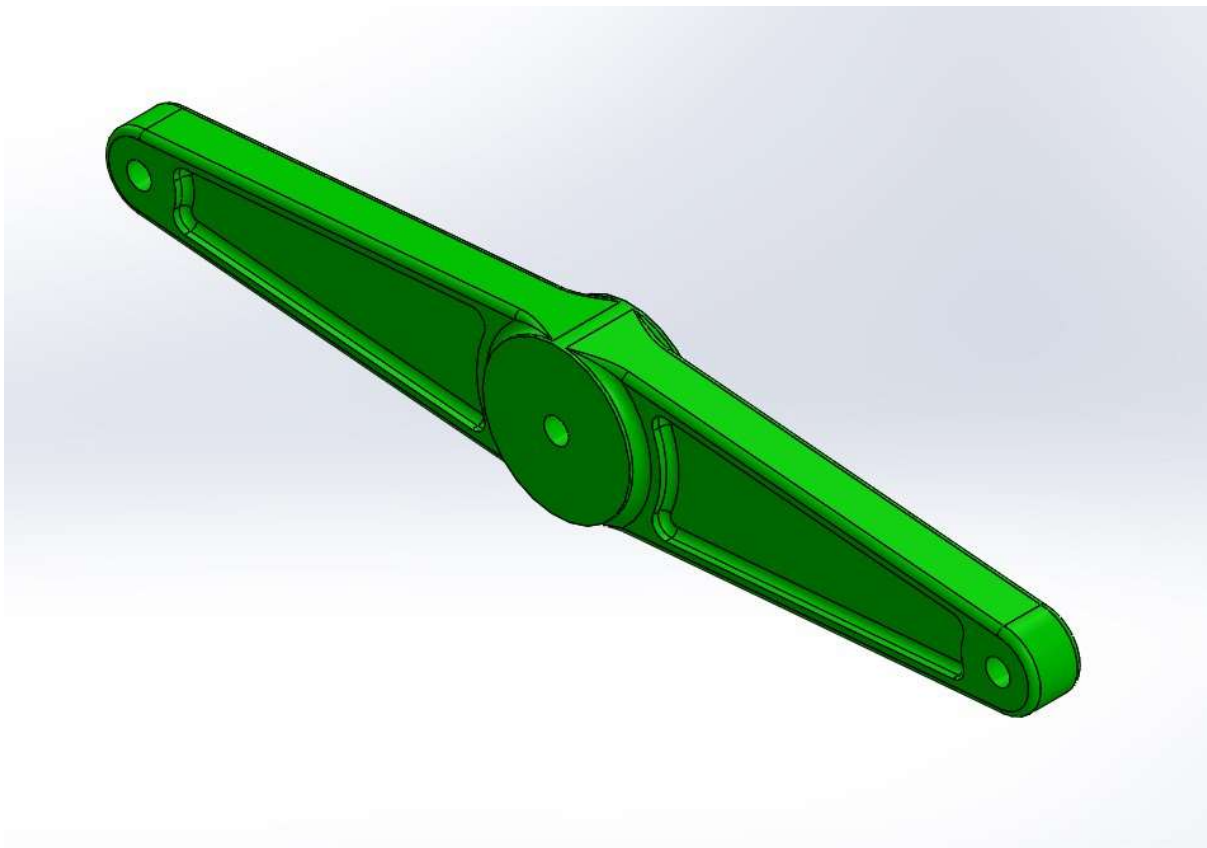
2) Engine Block



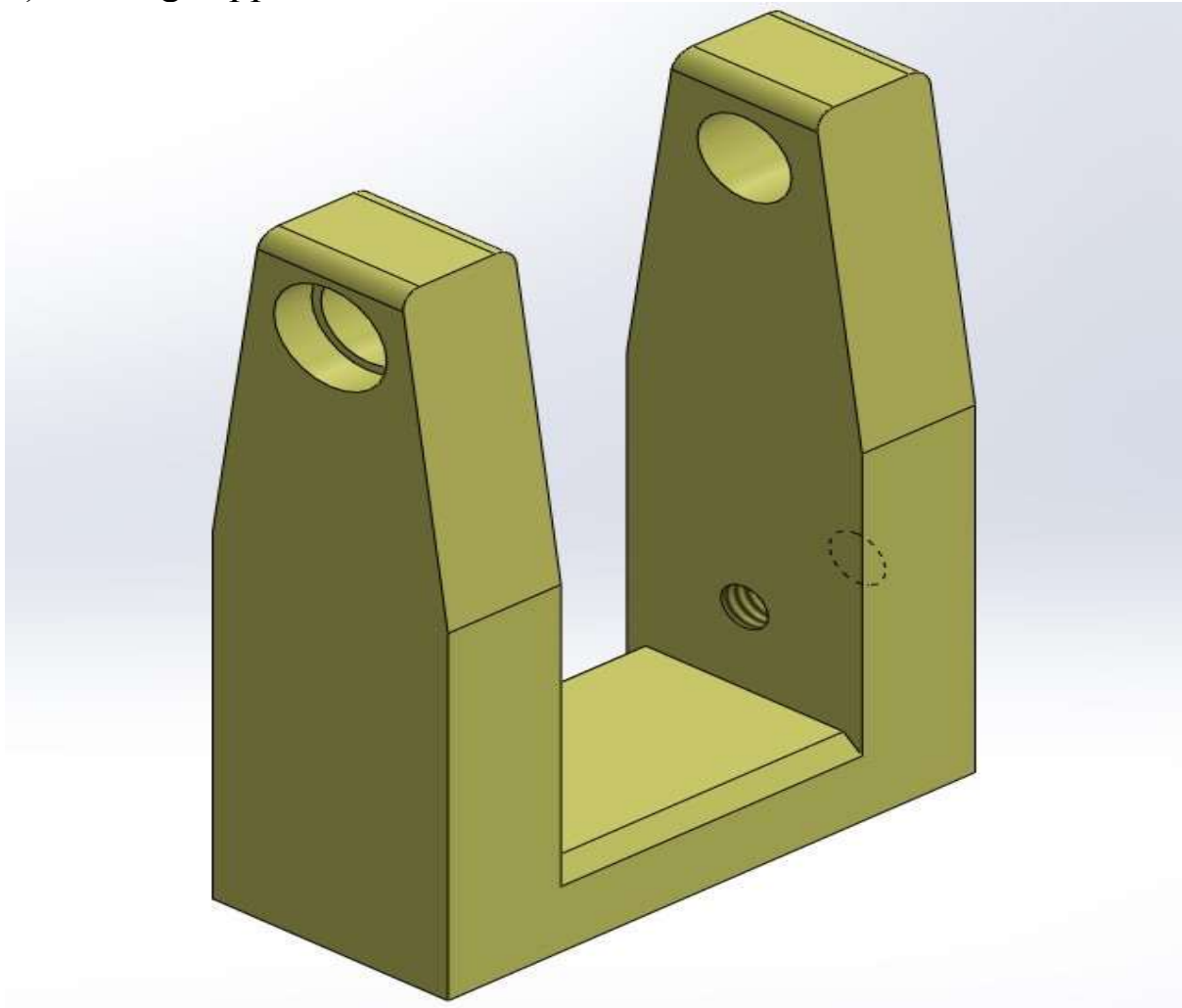
3) Beam Linkage



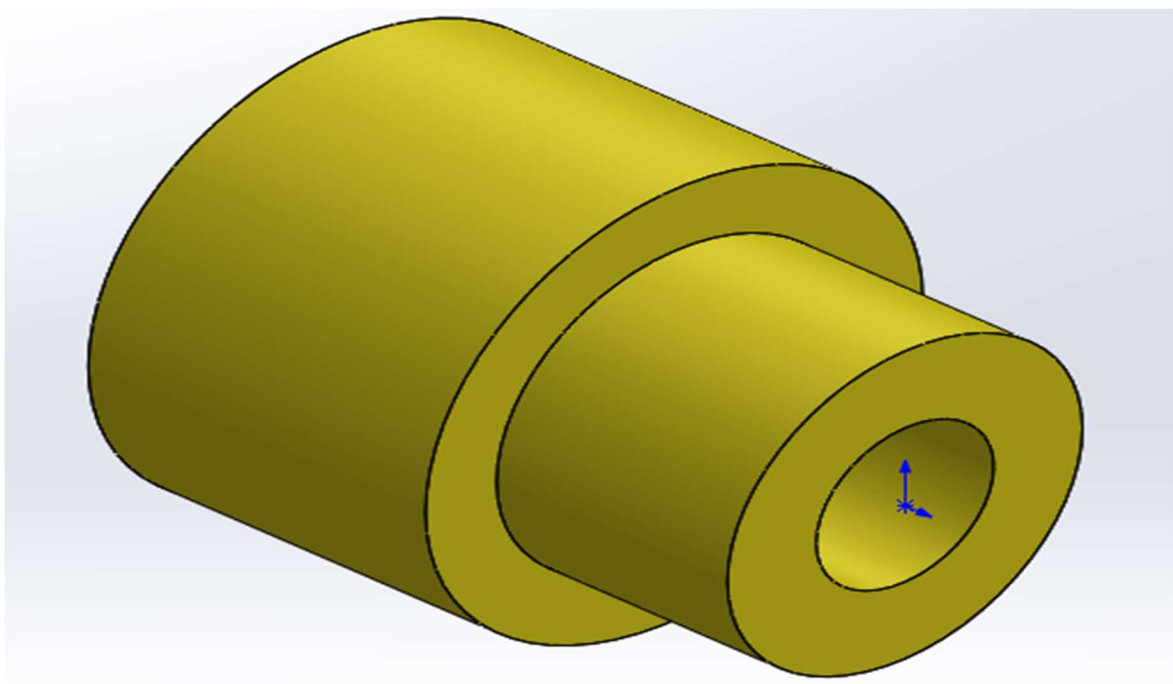
4) Beam



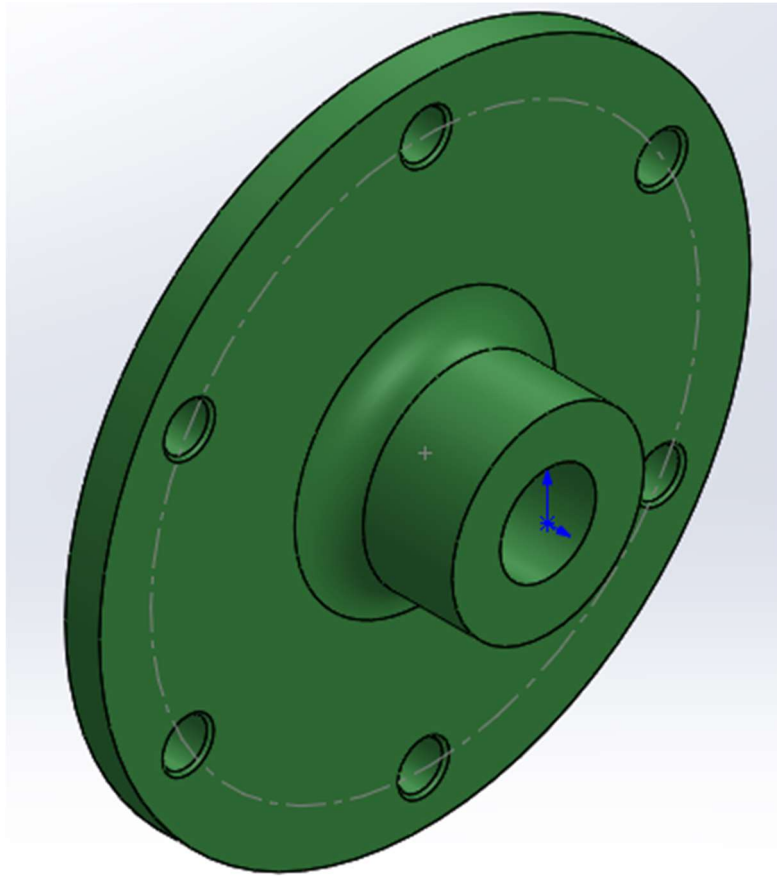
5) Bearing support



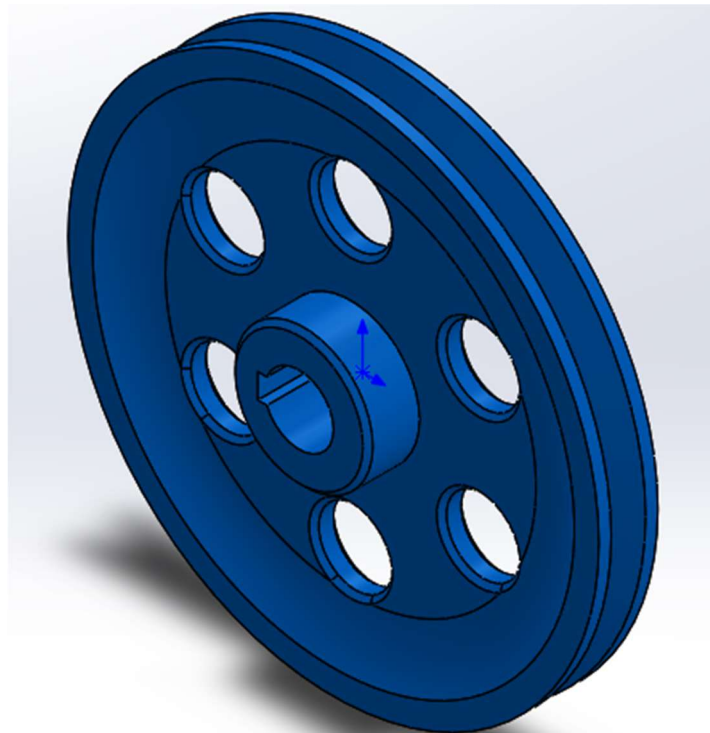
6) Centrifugal Pump Bearing



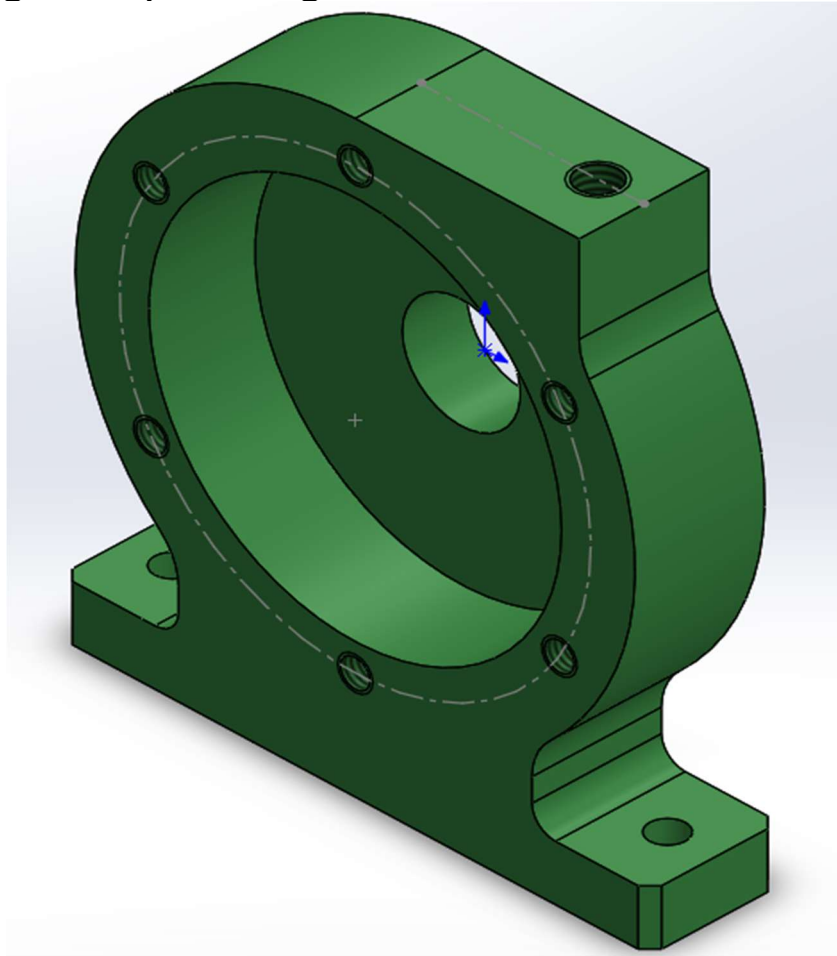
7) Centrifugal Pump Cover



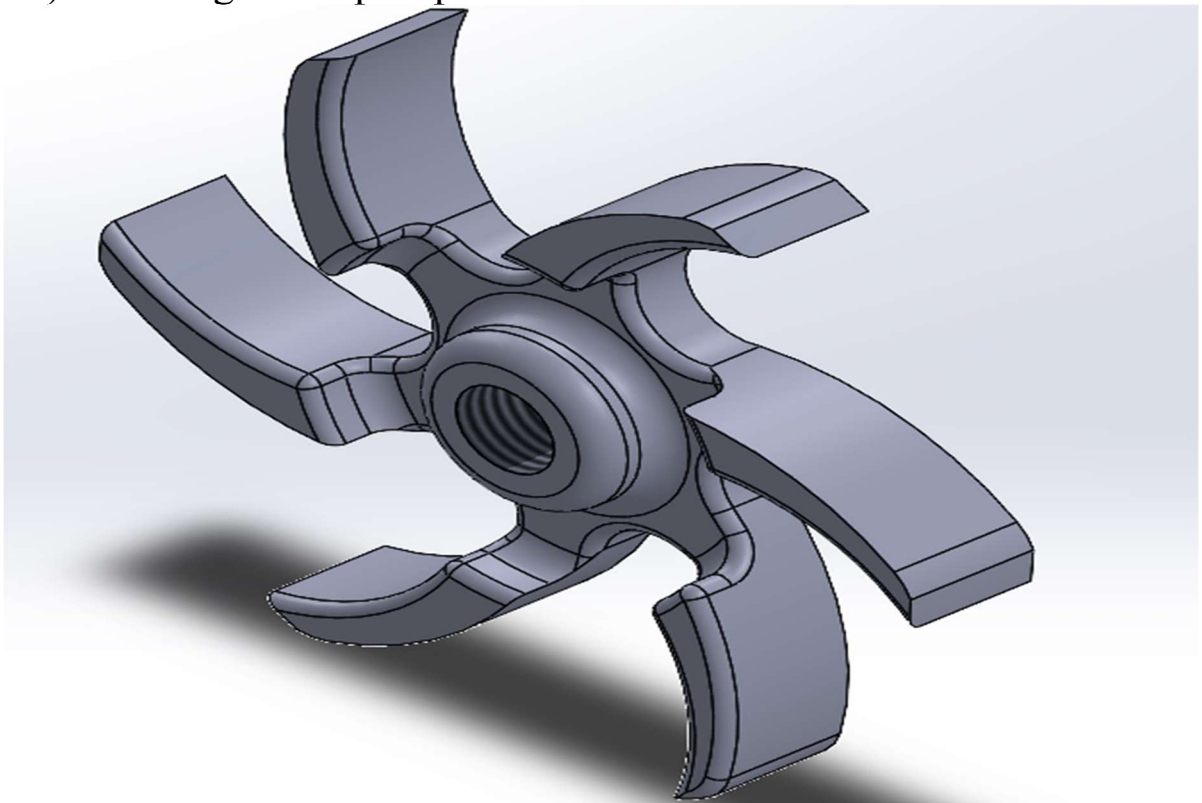
8) Centrifugal Pump Pulley



9) Centrifugal Pump Housing



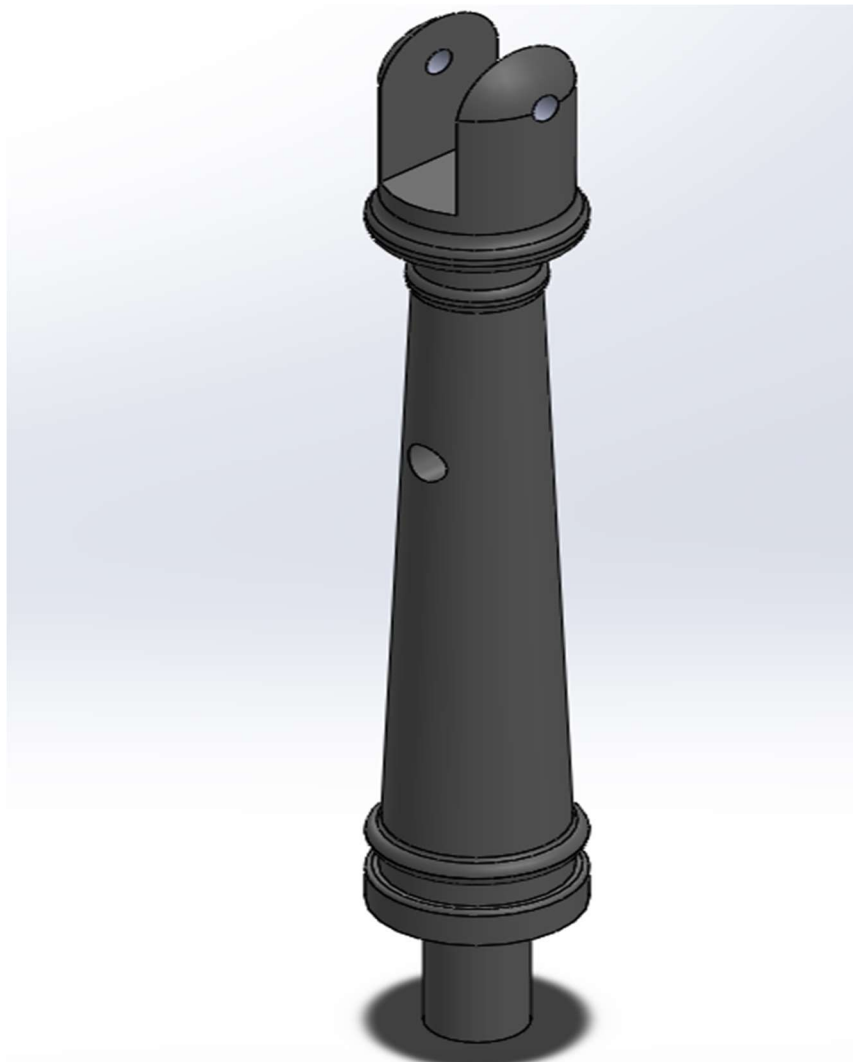
10) Centrifugal Pump Impeller



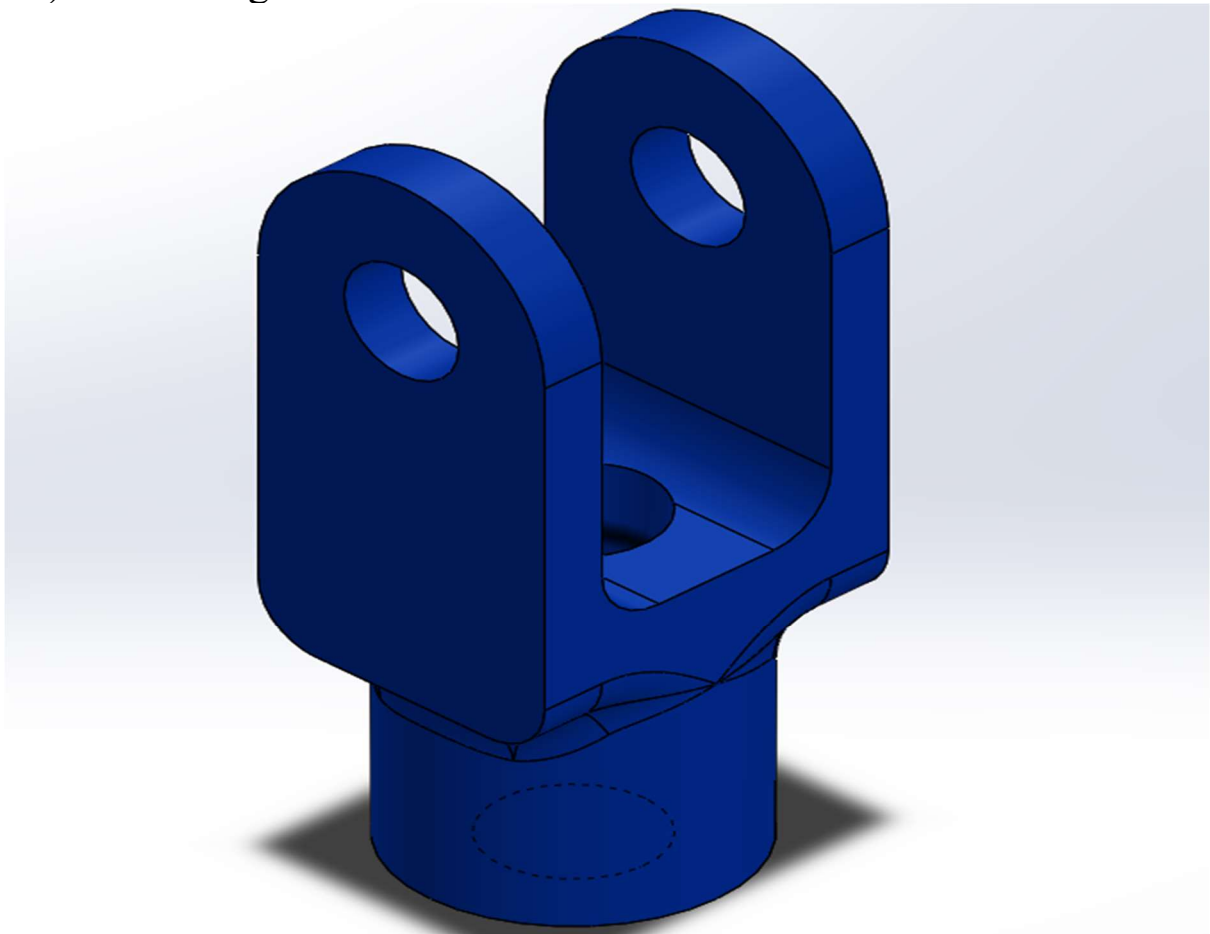
11) Centrifugal Pump Shaft



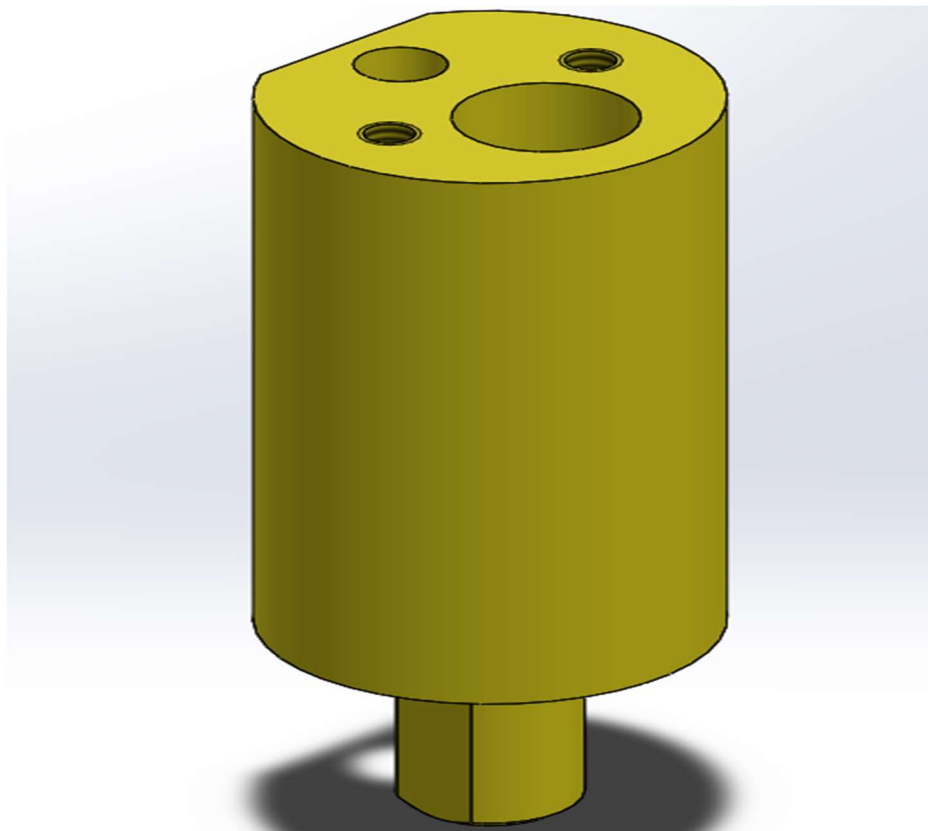
12) Column



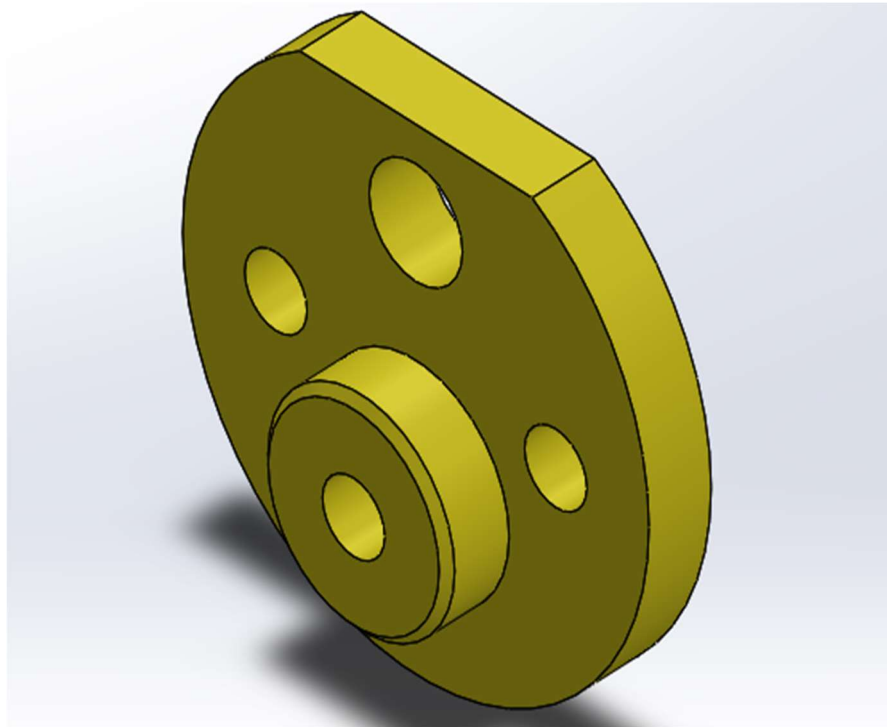
13) Connecting Road Head



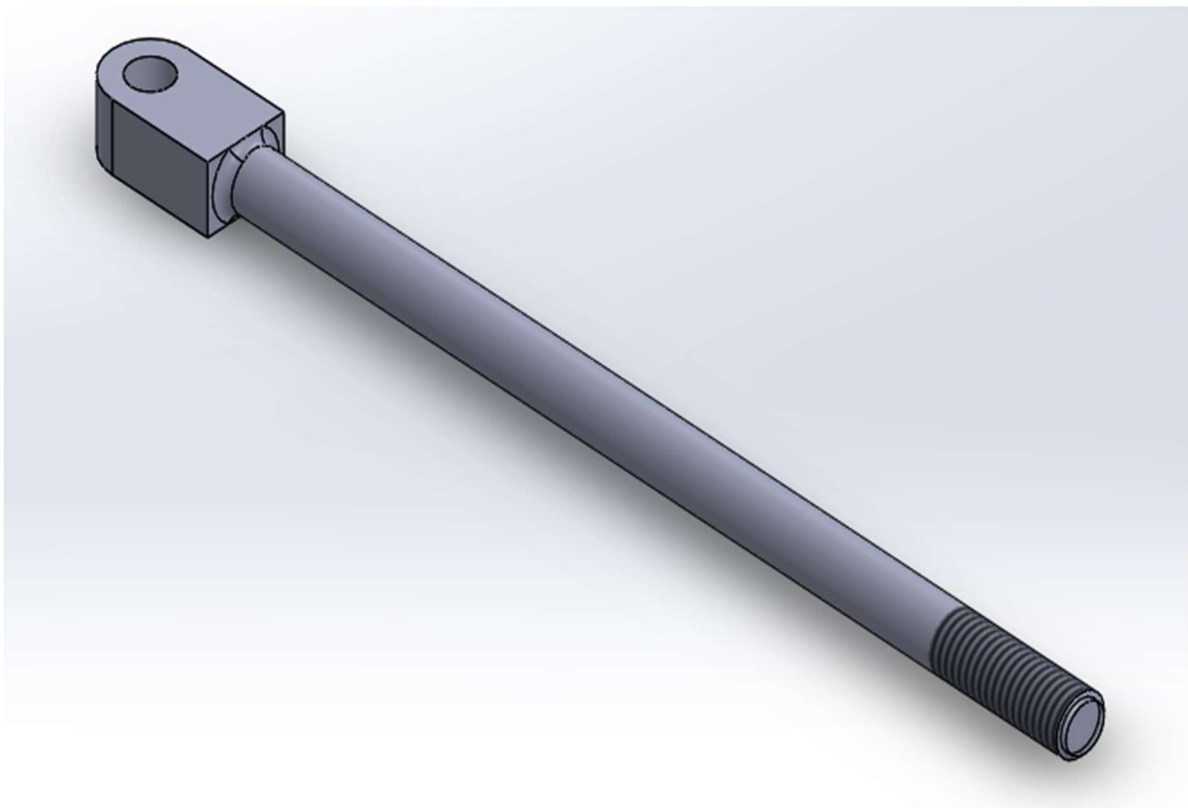
14) Cylinder



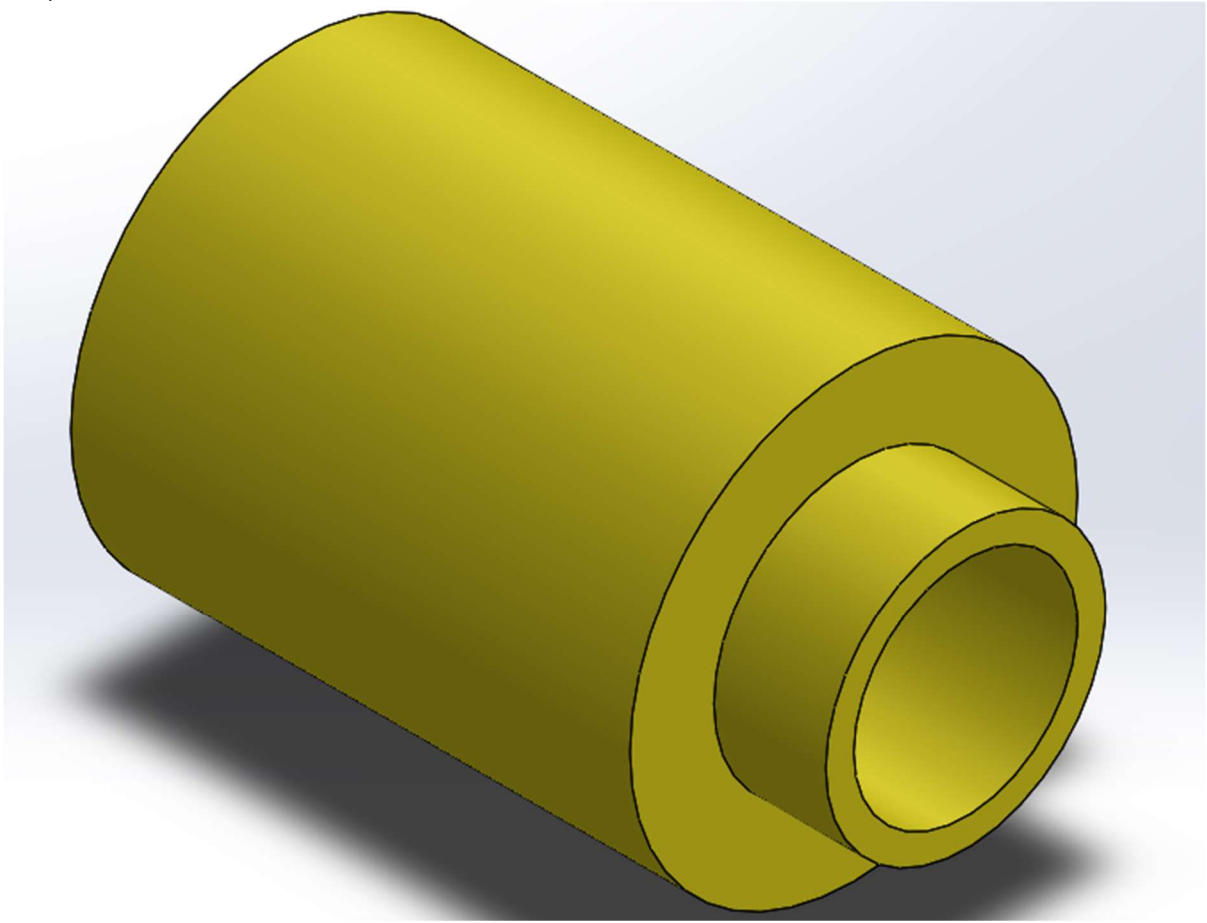
15) Cylinder Head



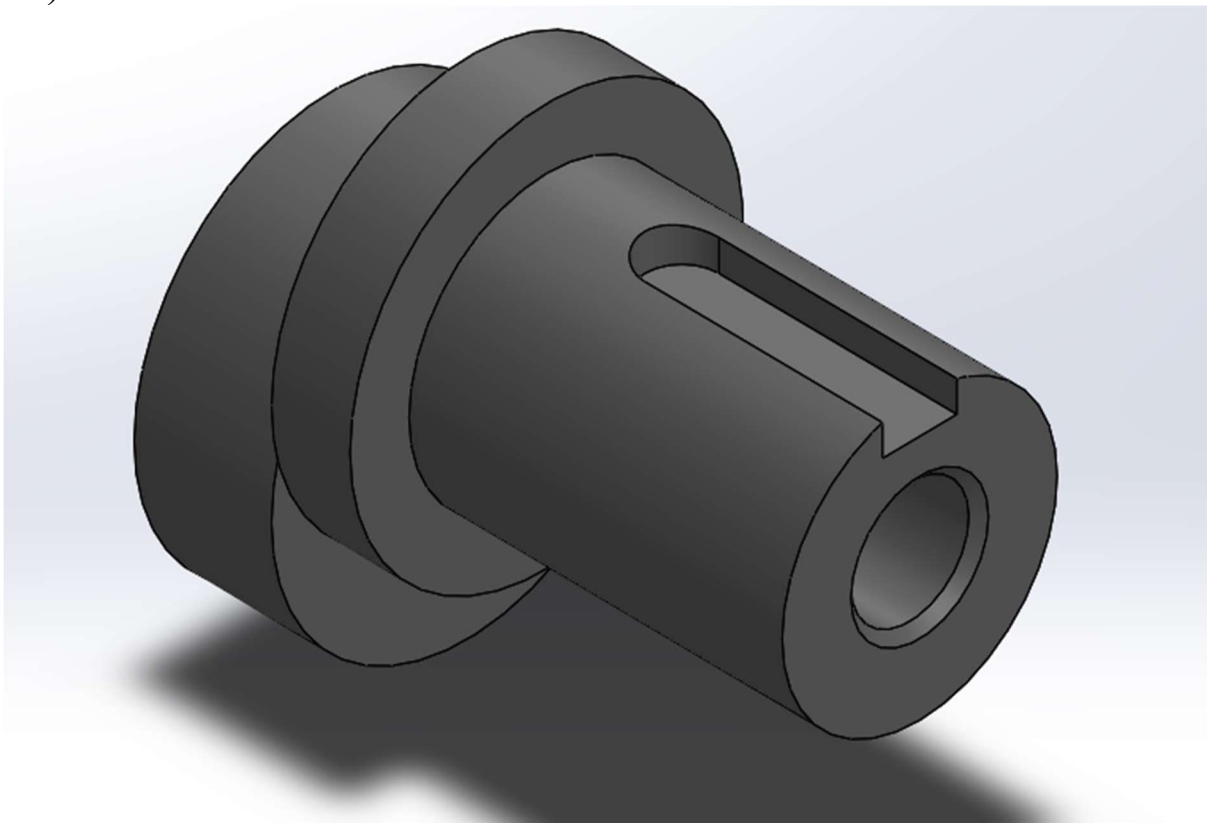
16) Connecting Rod link



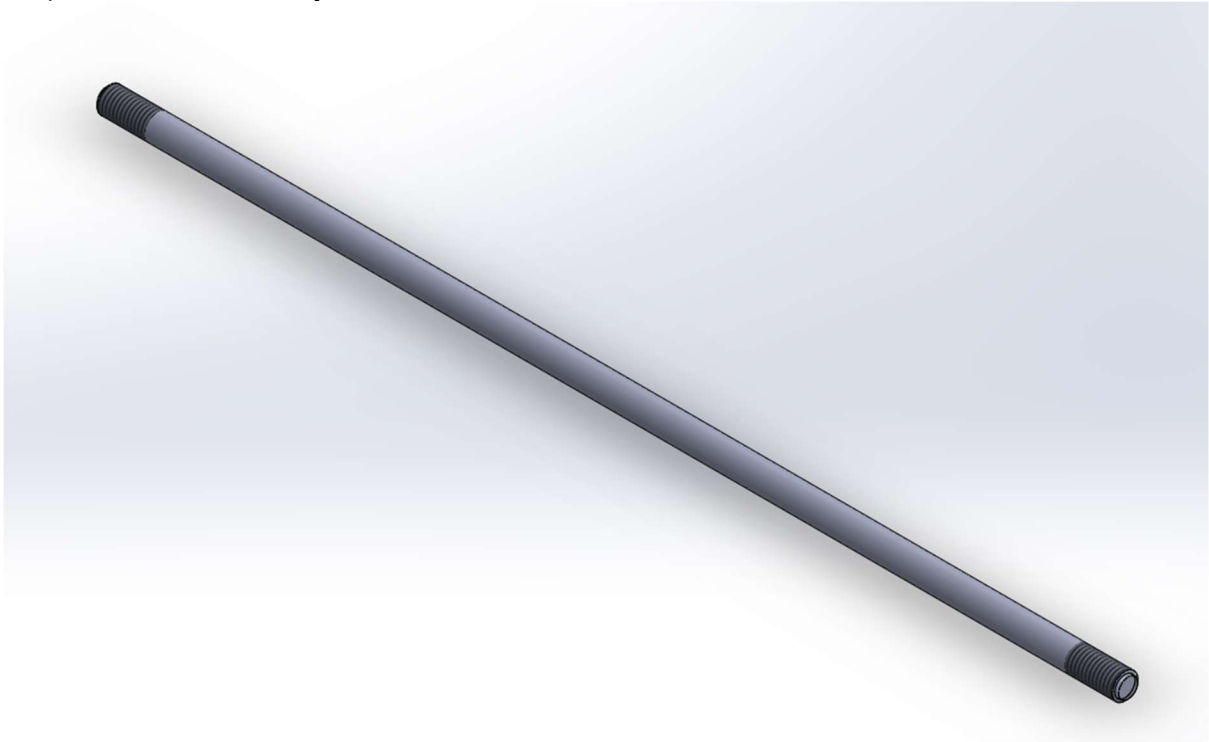
17) Inlet



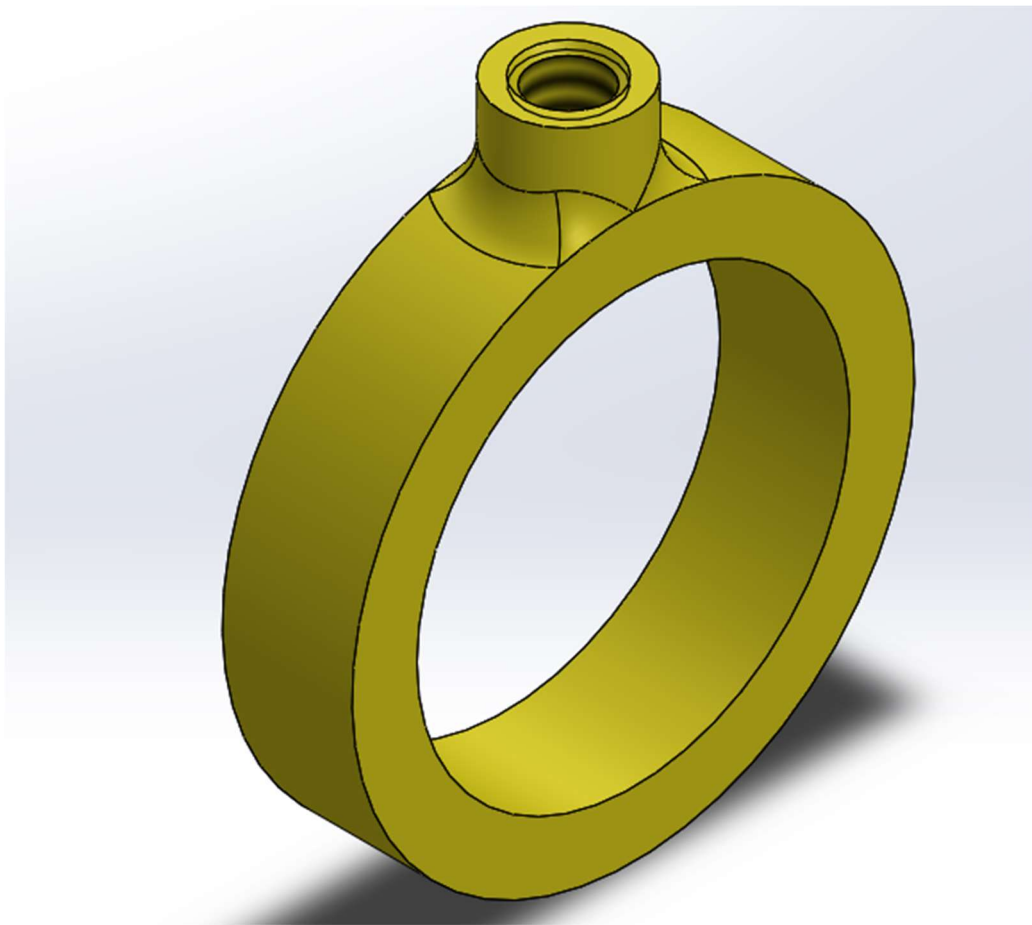
18) Eccentric Hub



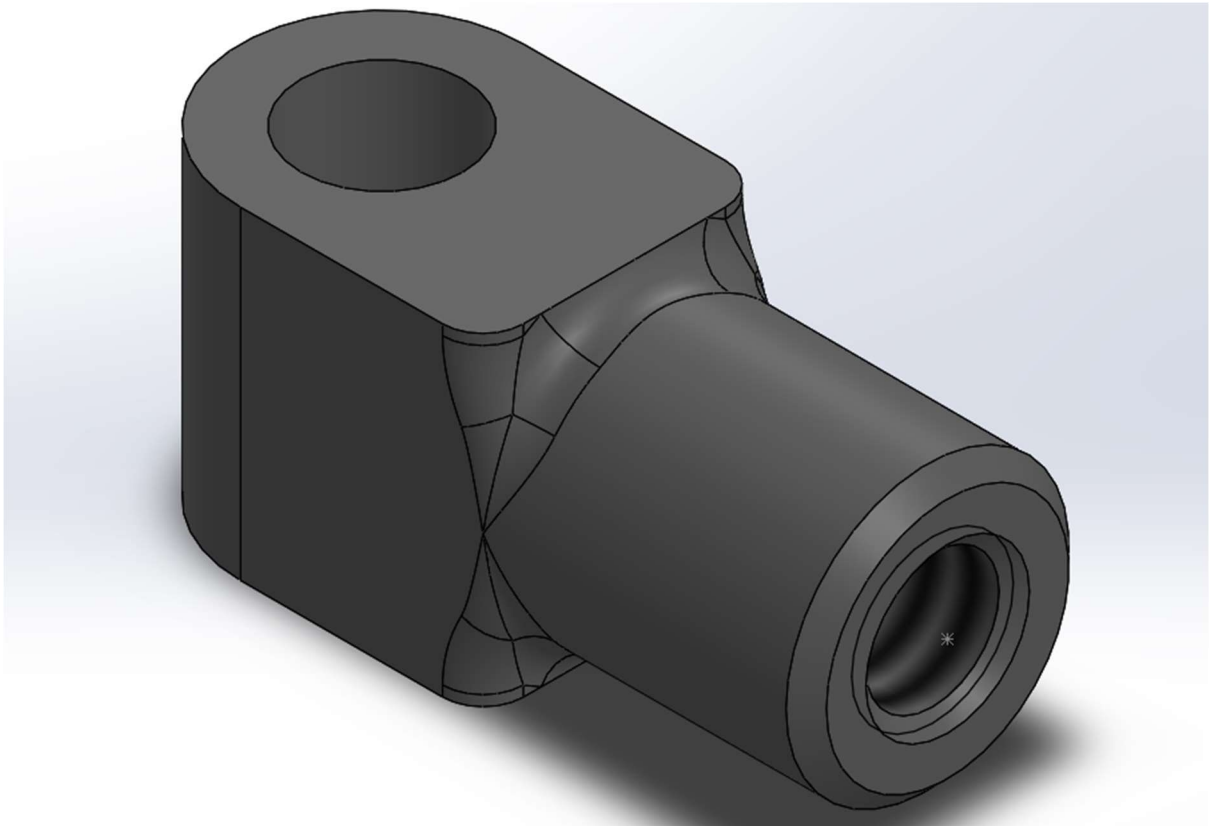
19) Eccentric Strap Rod



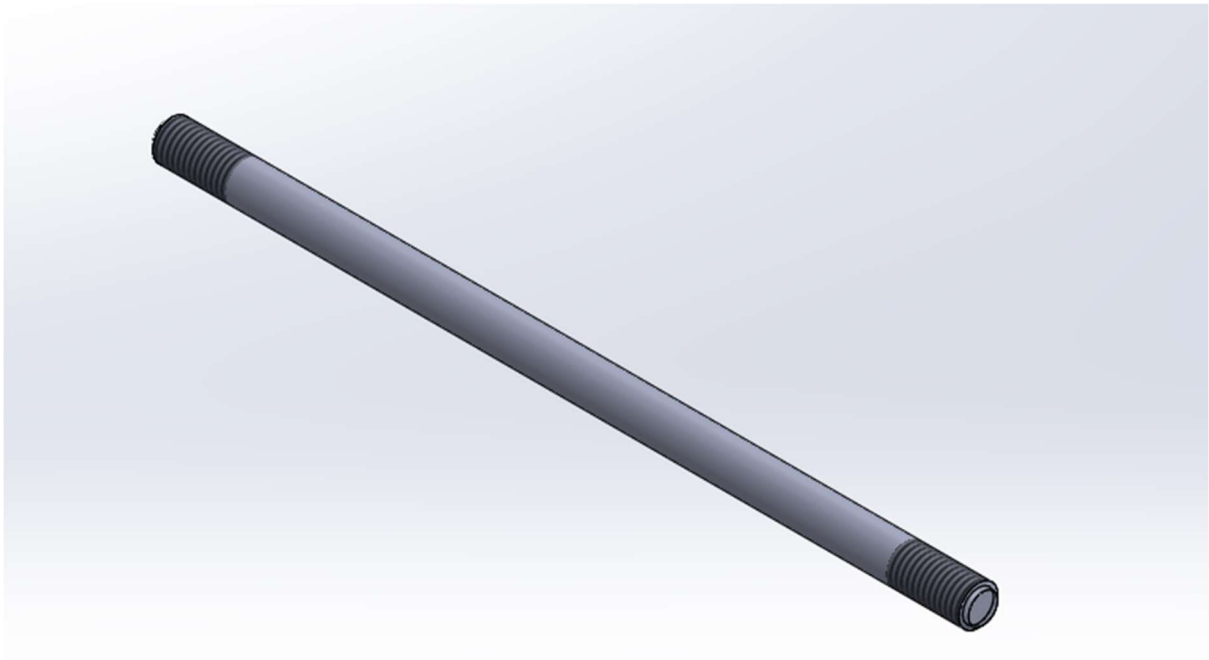
20) Eccentric Strap



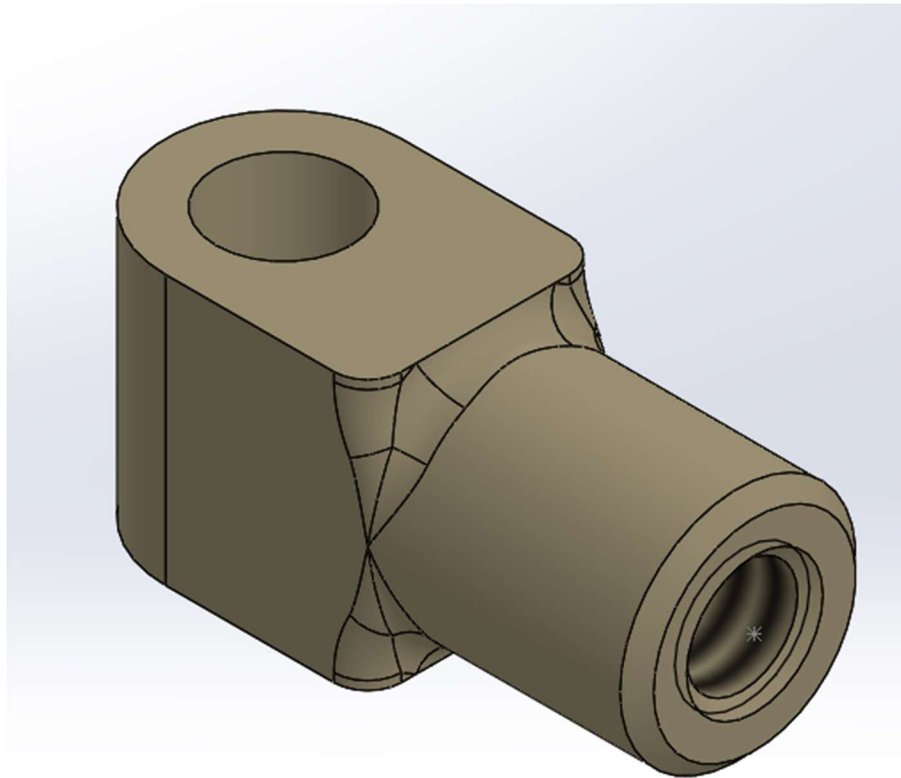
21) Eccentric Strap Head



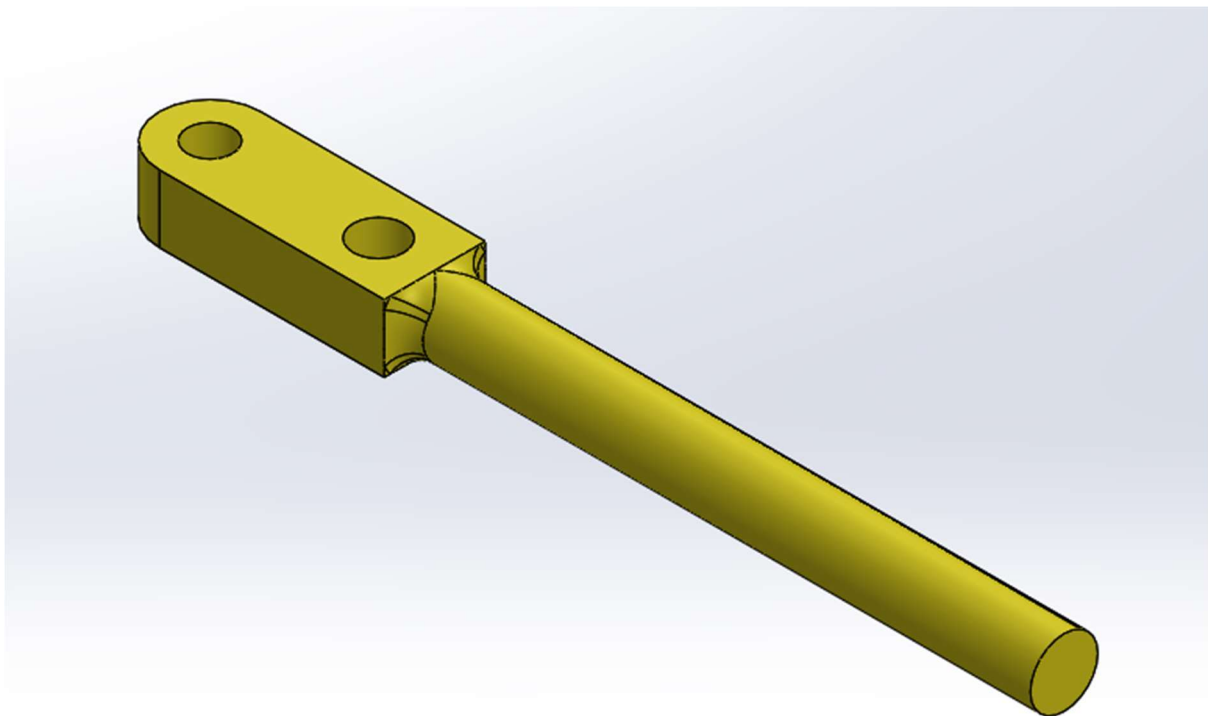
22) Piston Rod



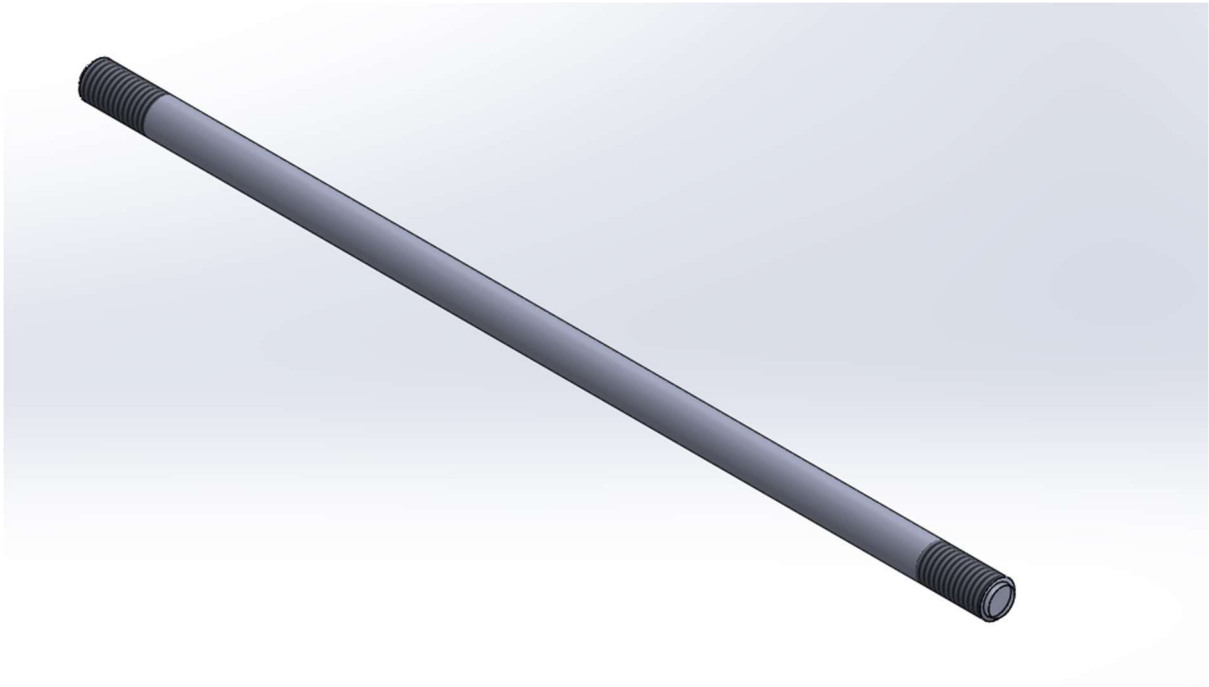
23) Piston Rod Head



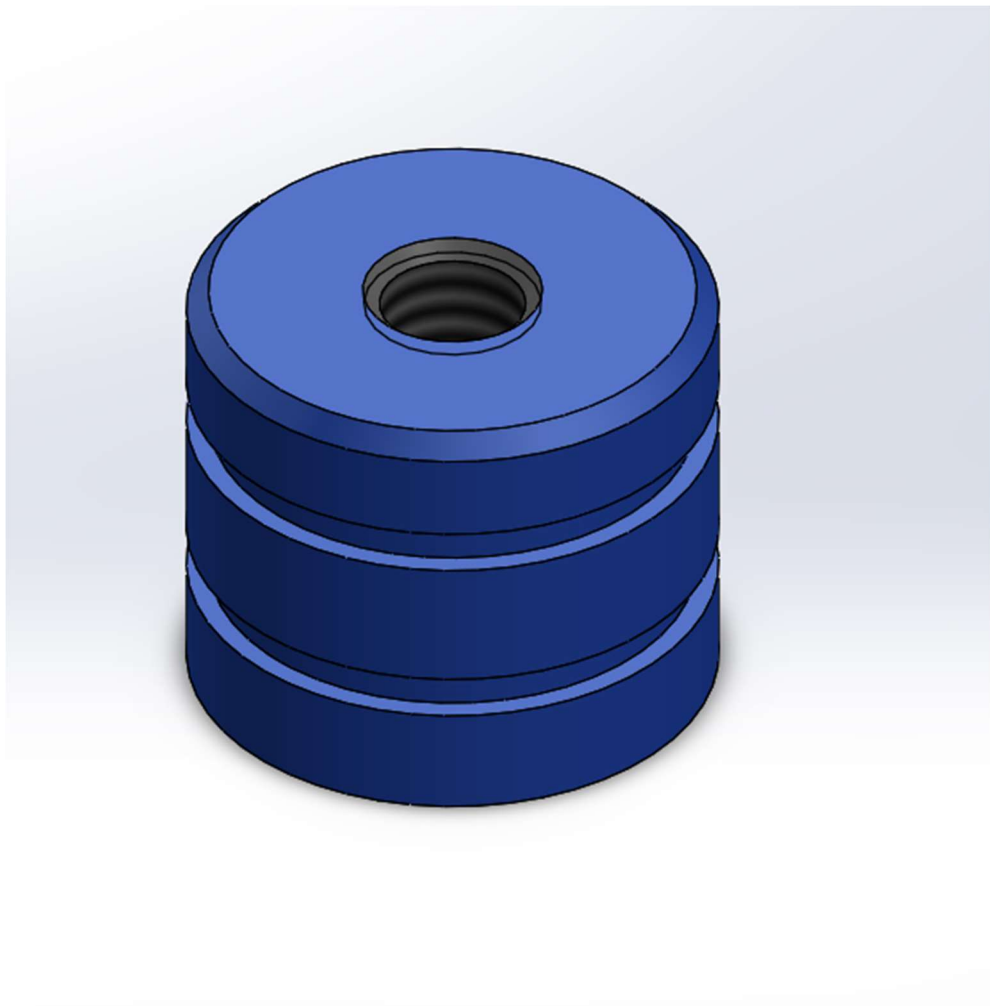
24) Piston Support Beam



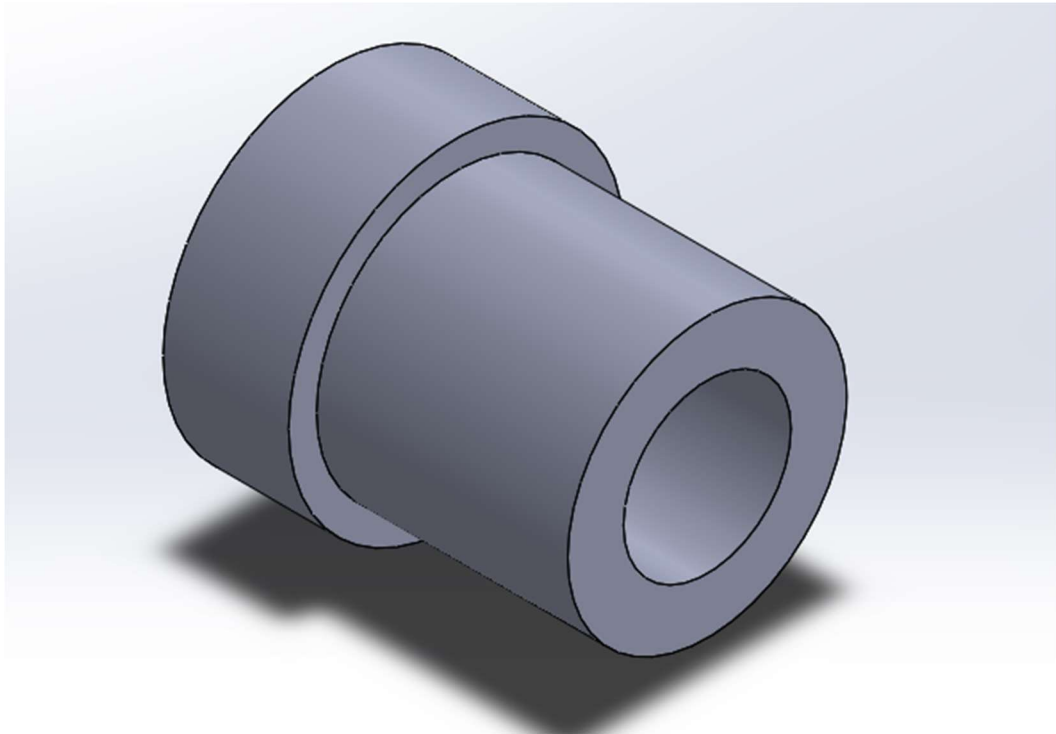
25) Piston Support Rod



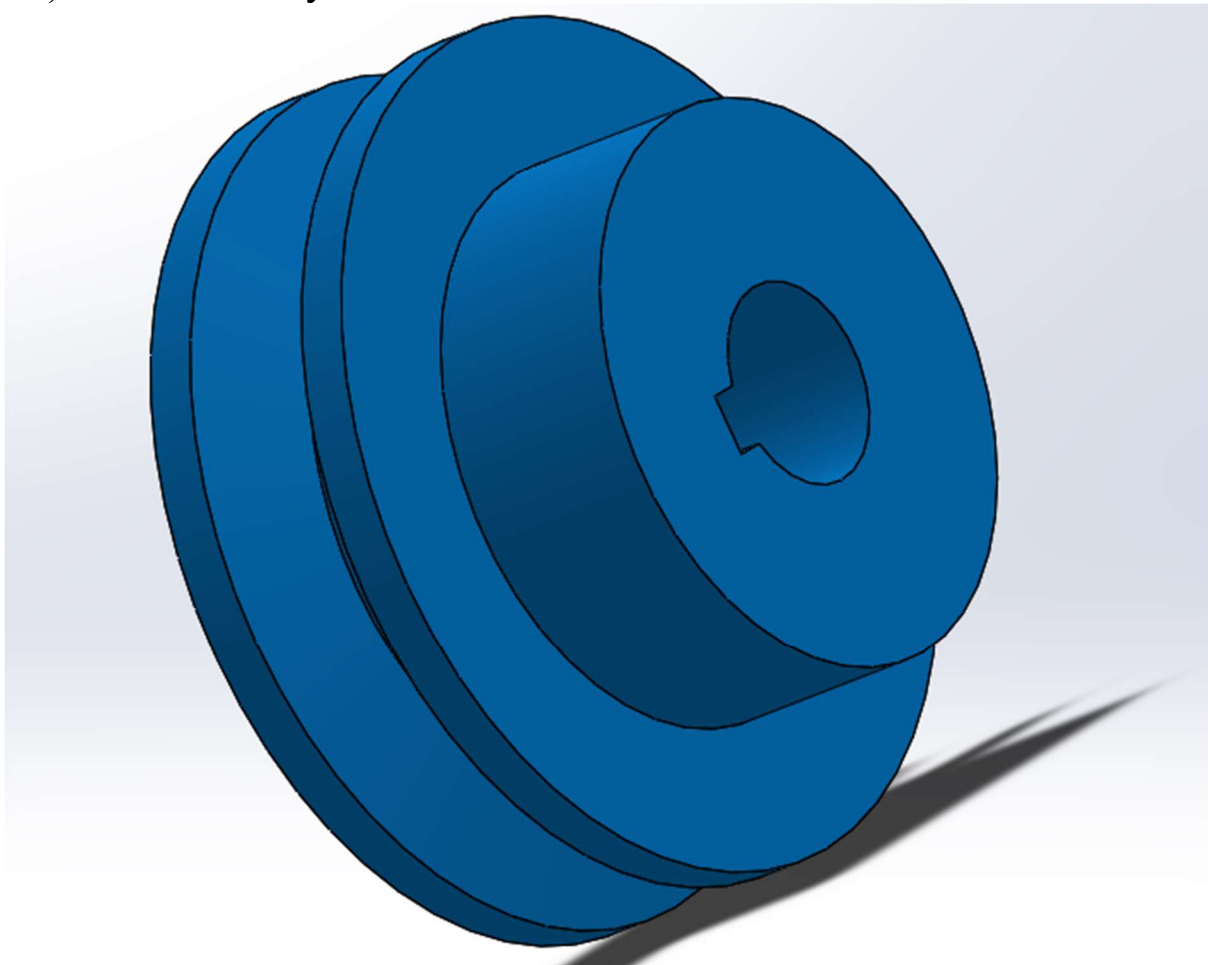
26) Piston



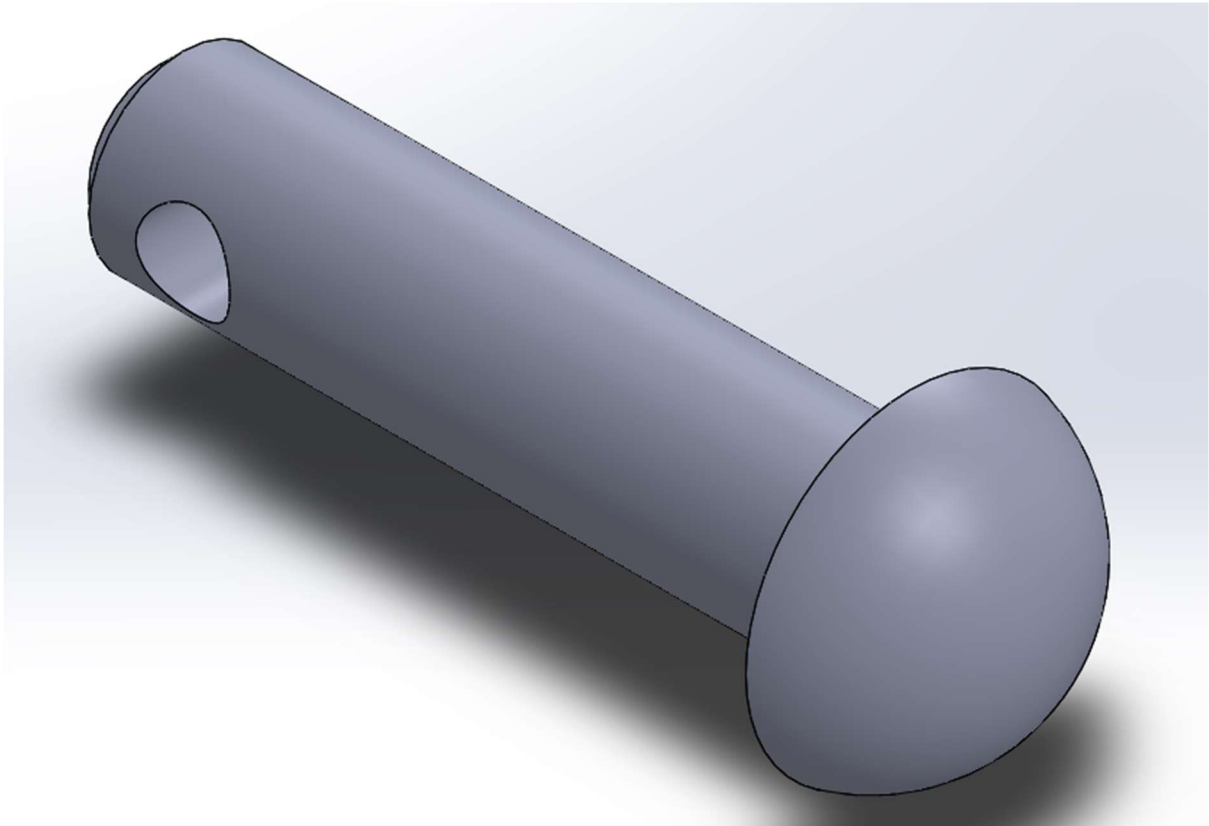
27) Plain Bearing



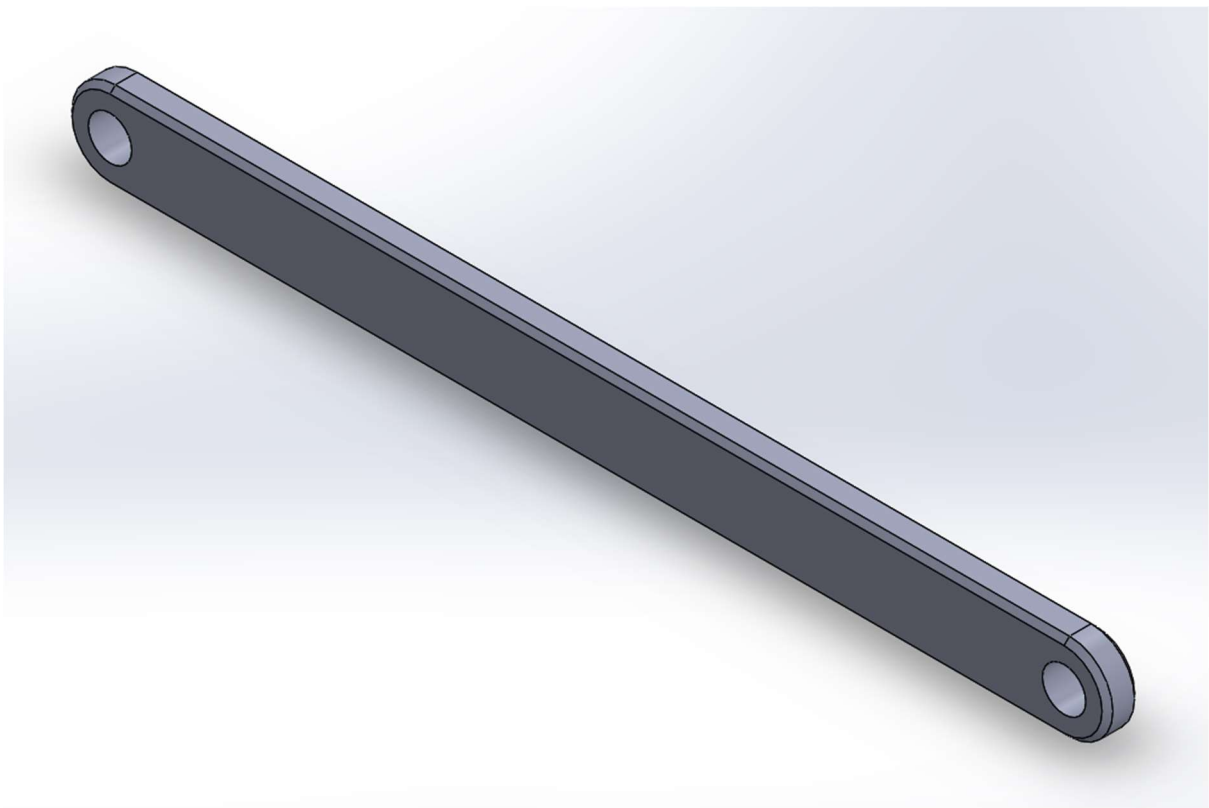
28) Turbine Pulley



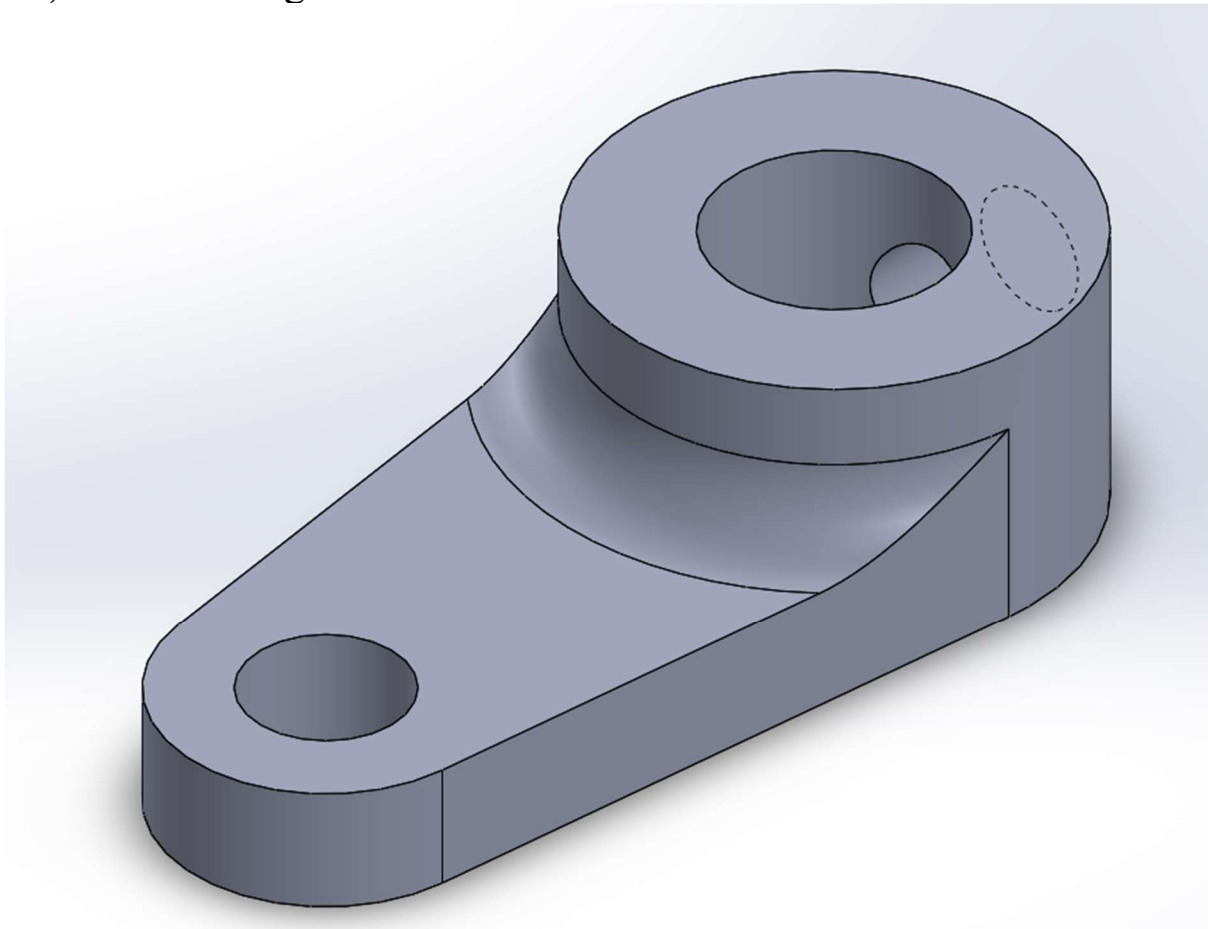
29) Valve Linkage Bolt



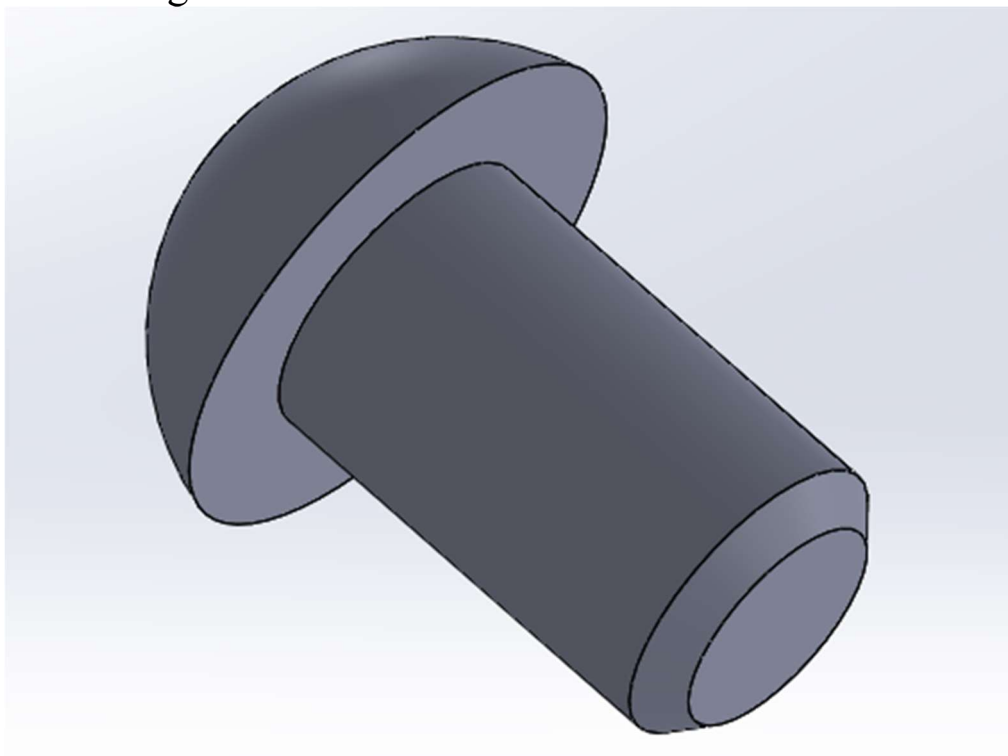
30) Valve Linkage



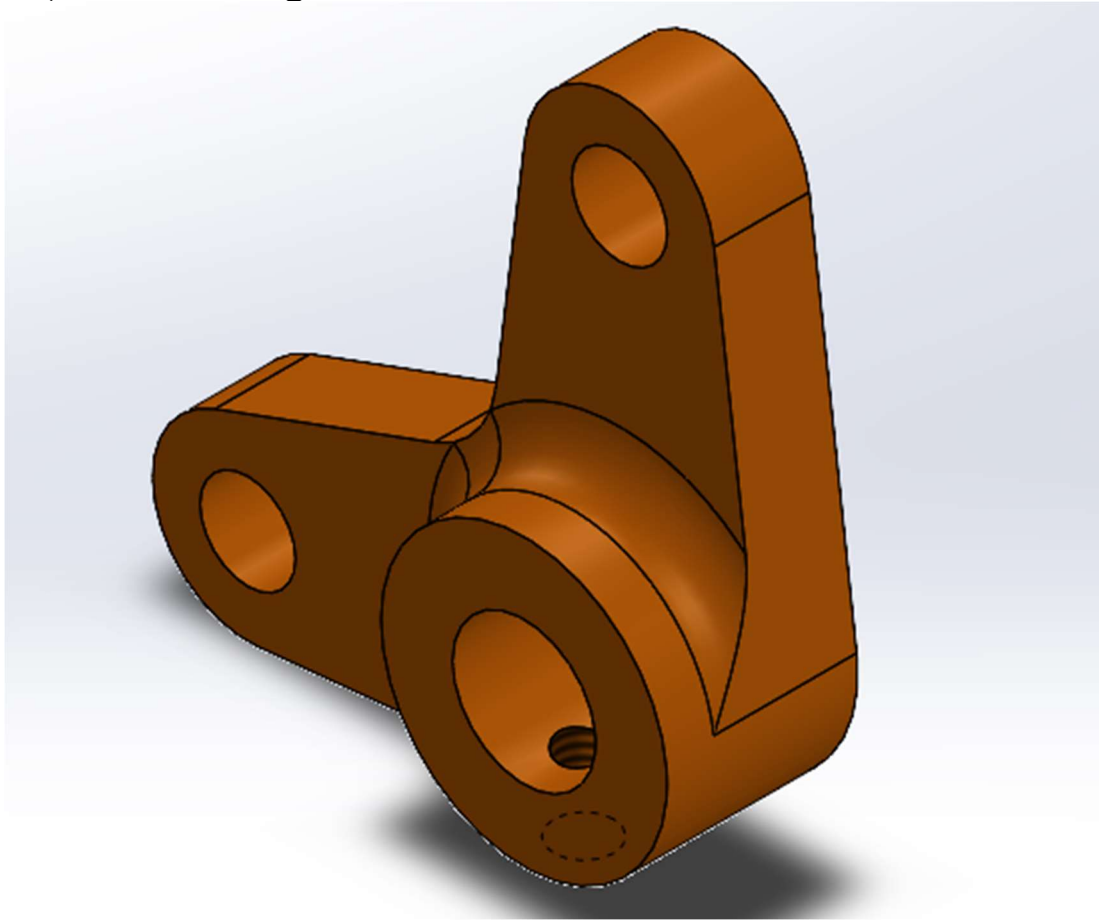
31) Valve Linkage Rocker



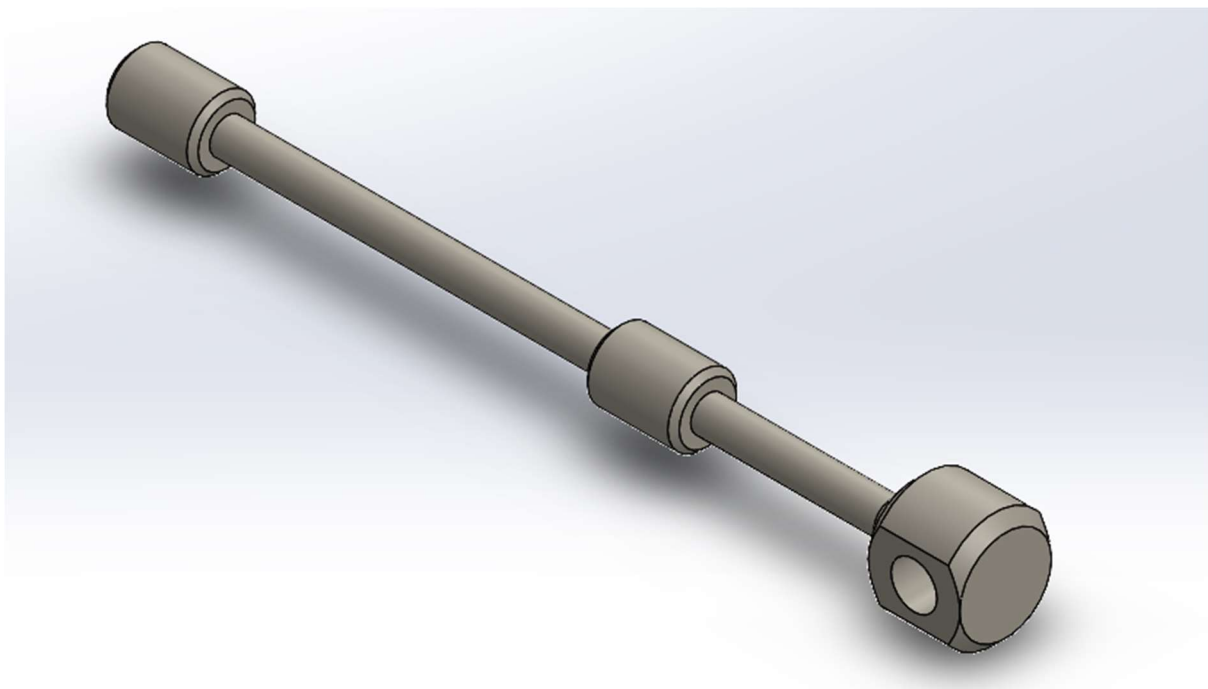
32) Valve Linkage Stud



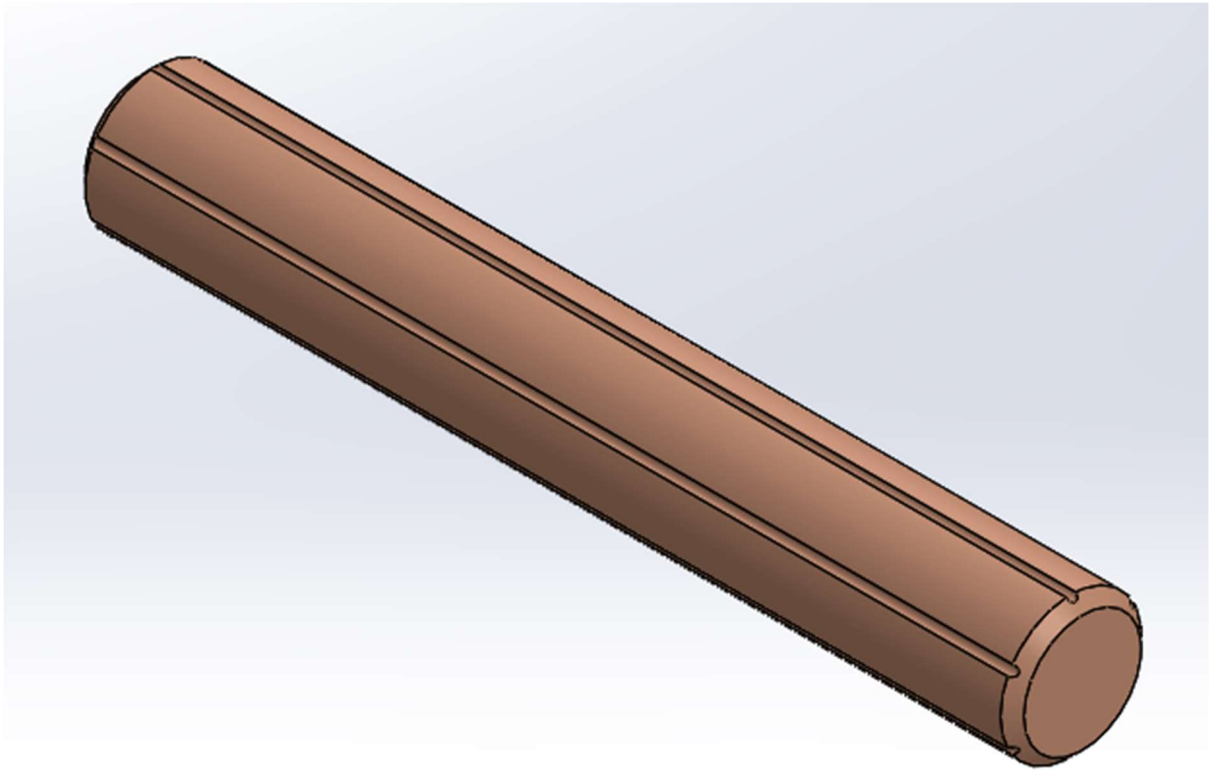
33) Valve Linkage Dual Rocker



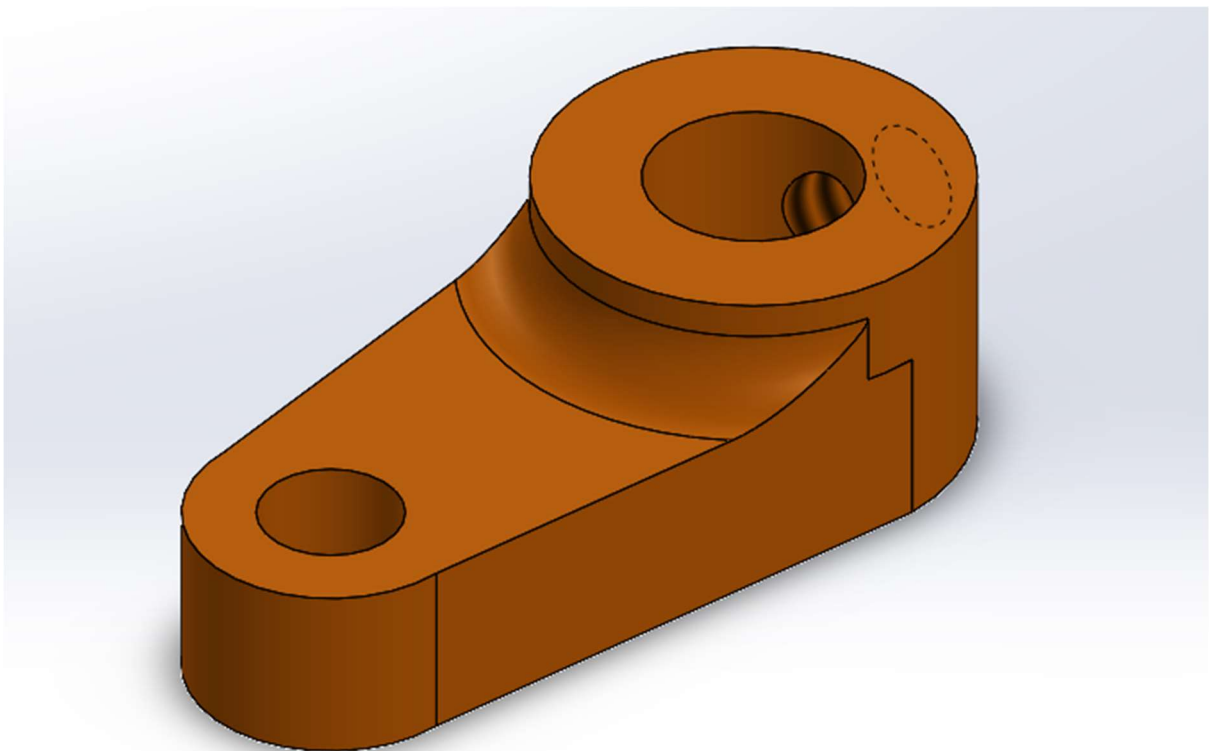
34) Valve



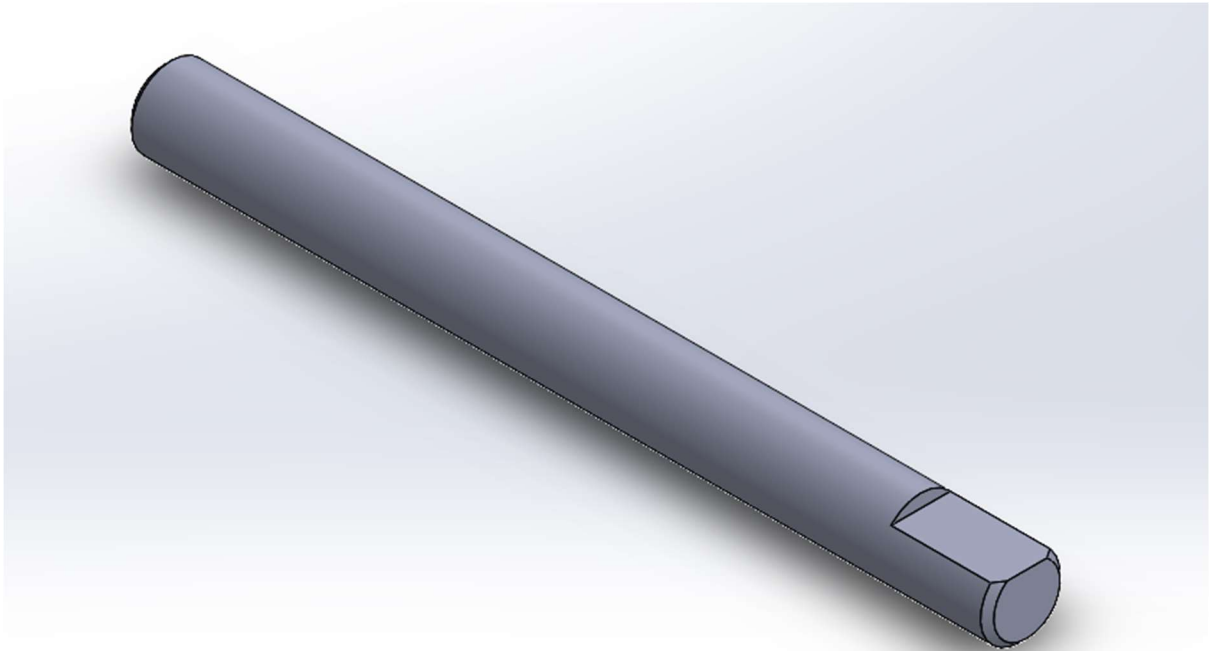
35) Wooden Pin D6 L40



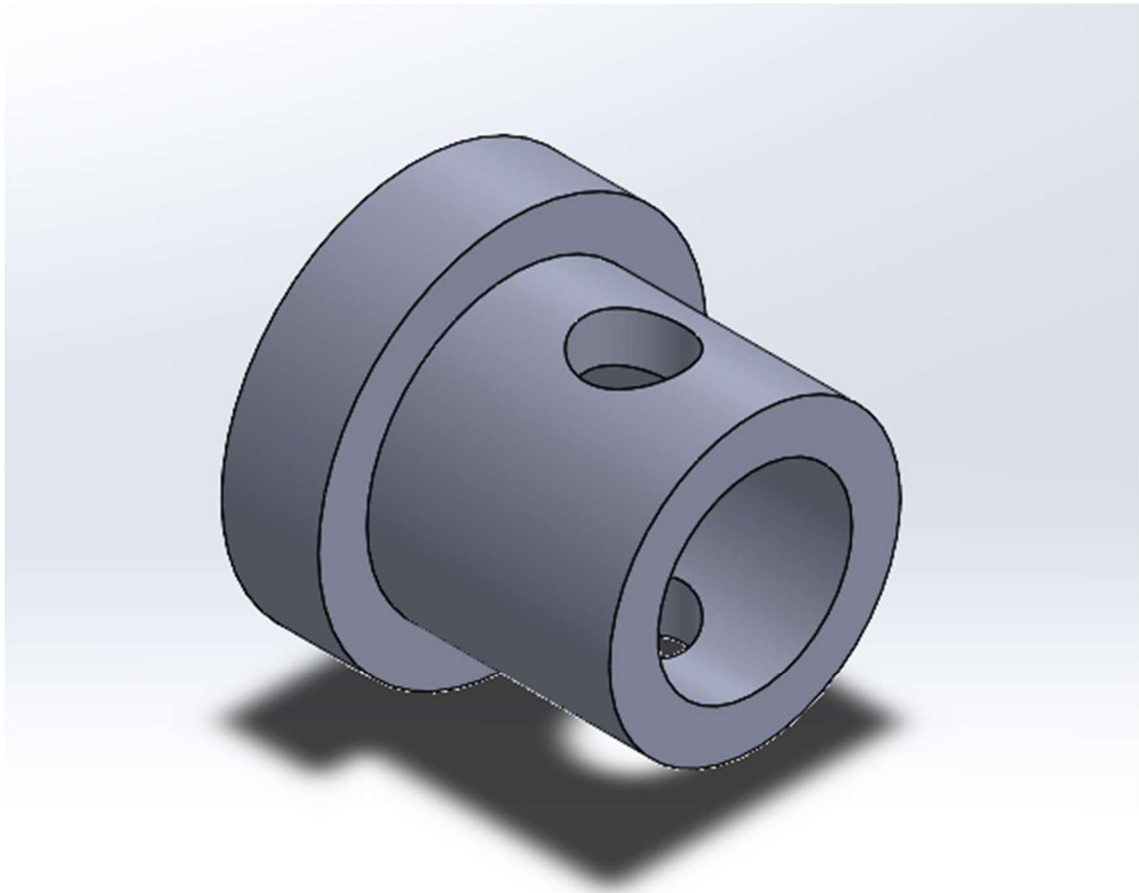
36) Crankshaft Rocker



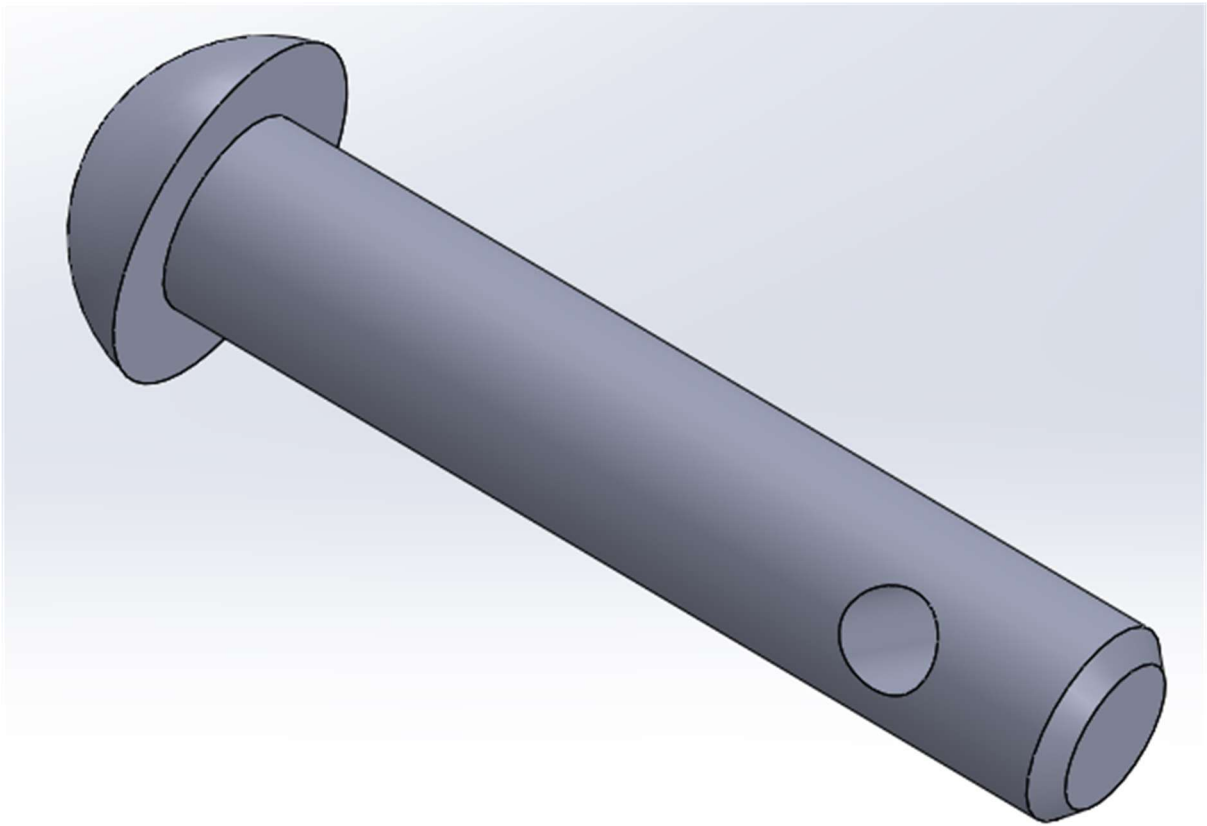
37) Crankshaft Rod



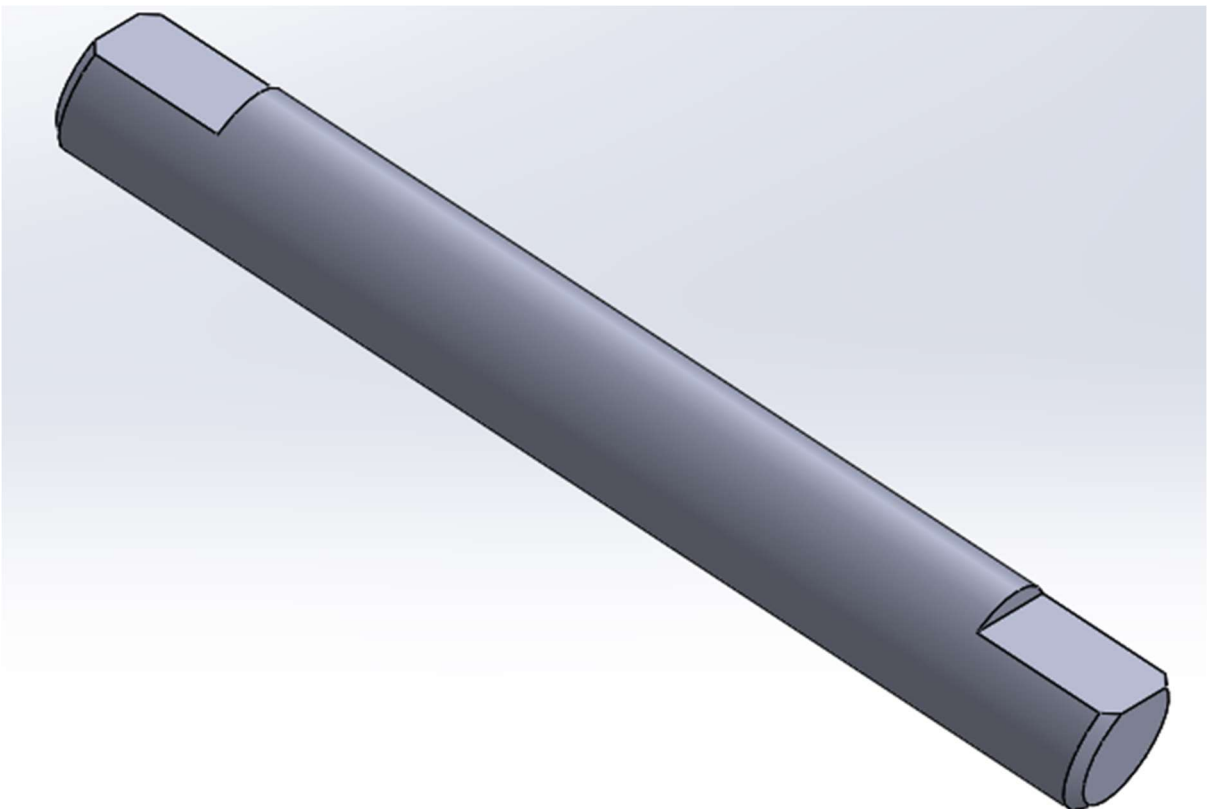
38) Crankshaft Nut



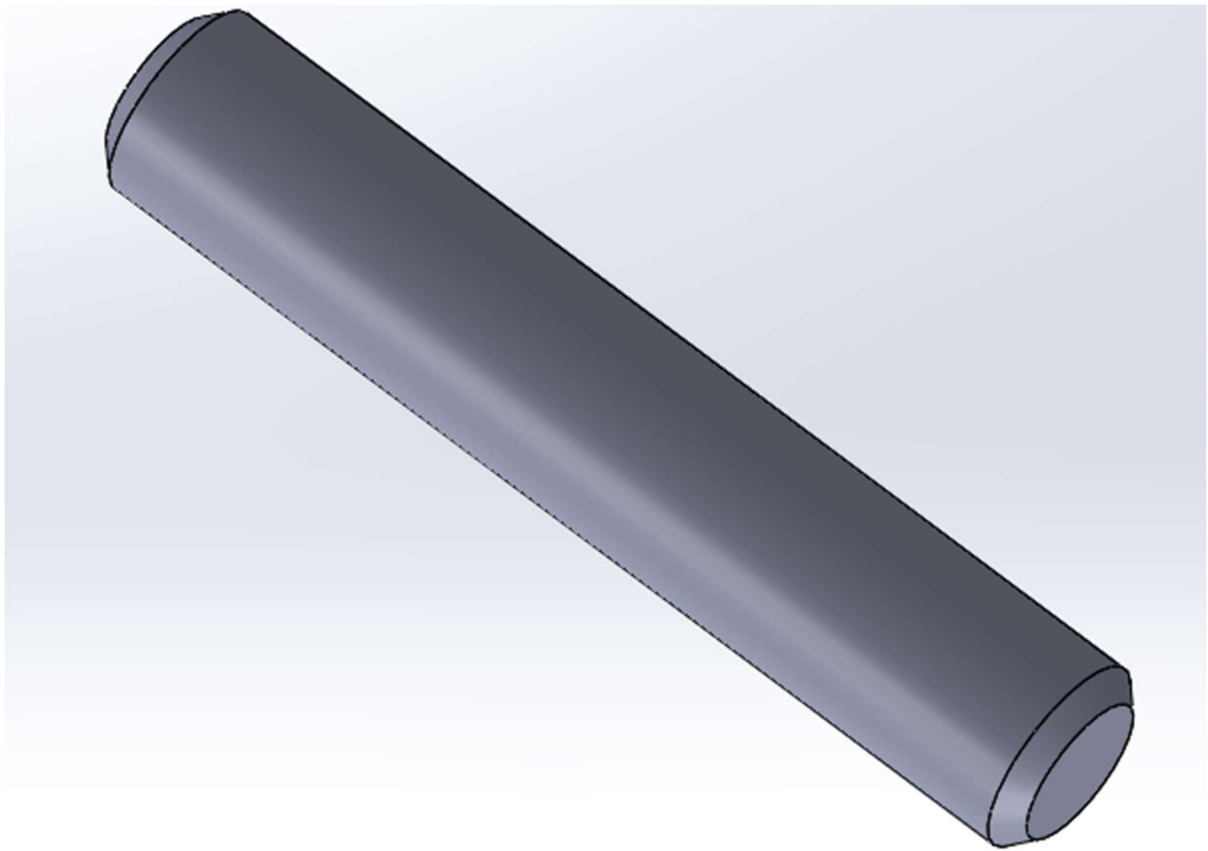
39) Crankshaft Bolt



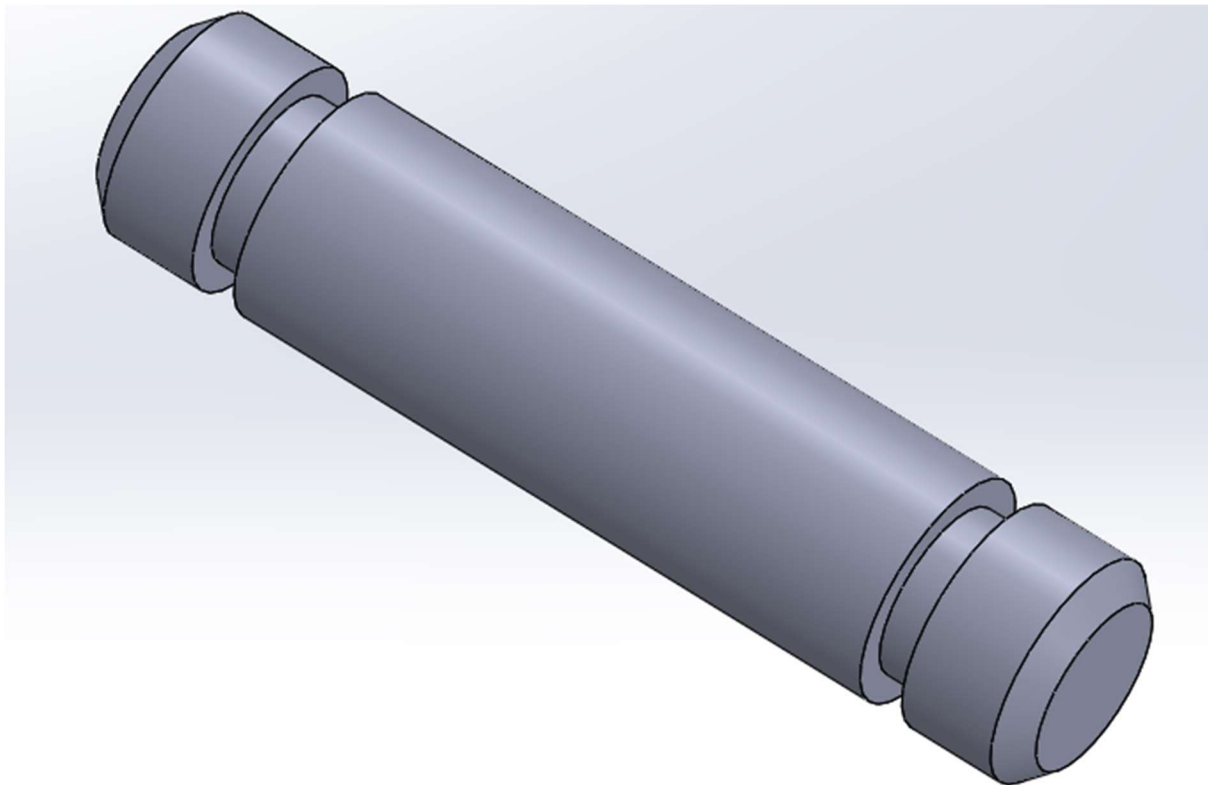
40) Rod D6 L46



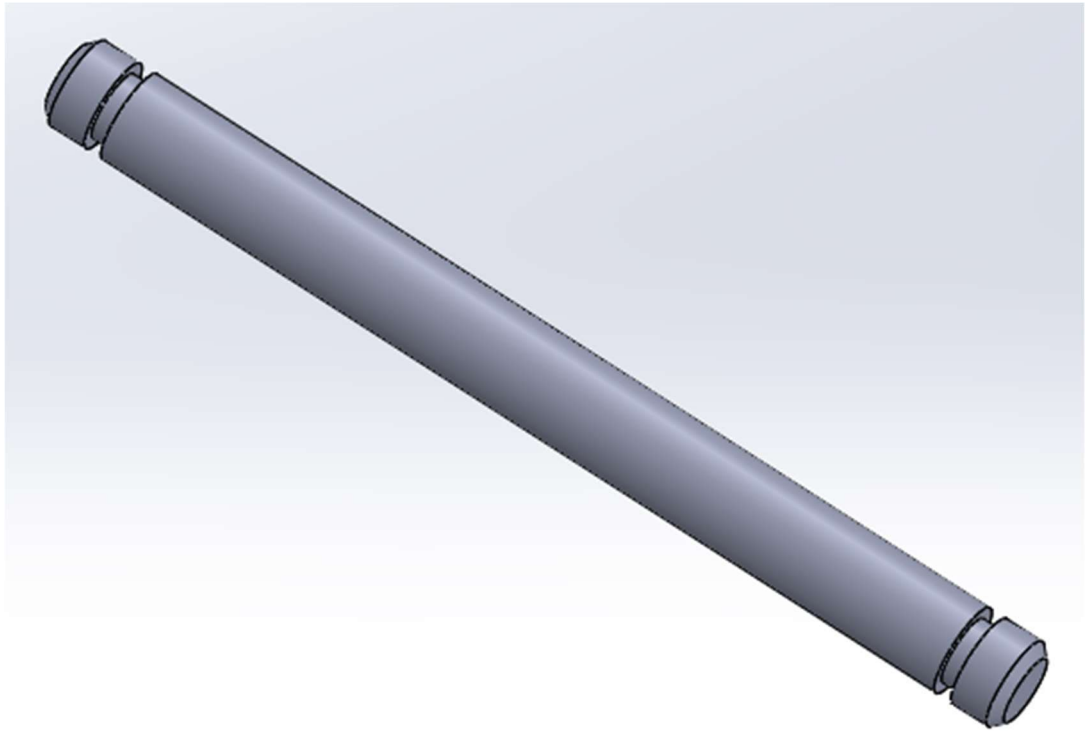
41) Pin D6 L22



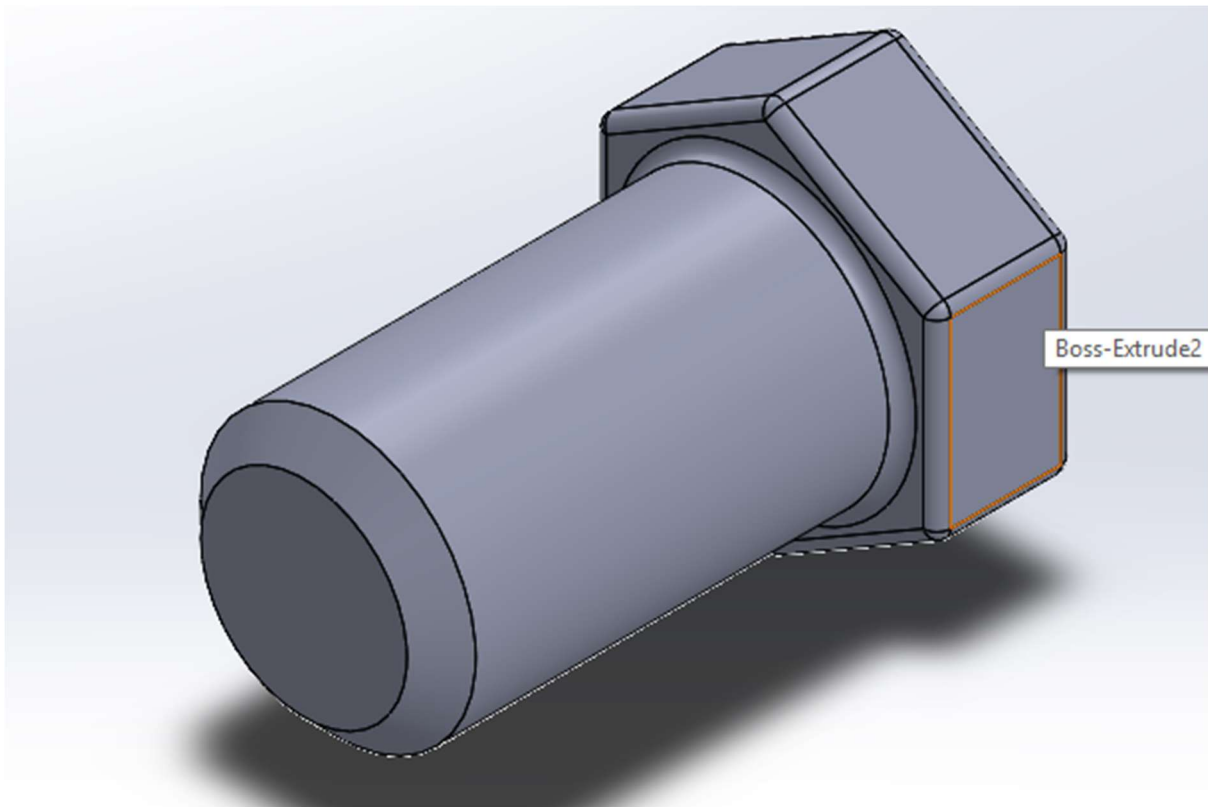
42) Pin D6 L18



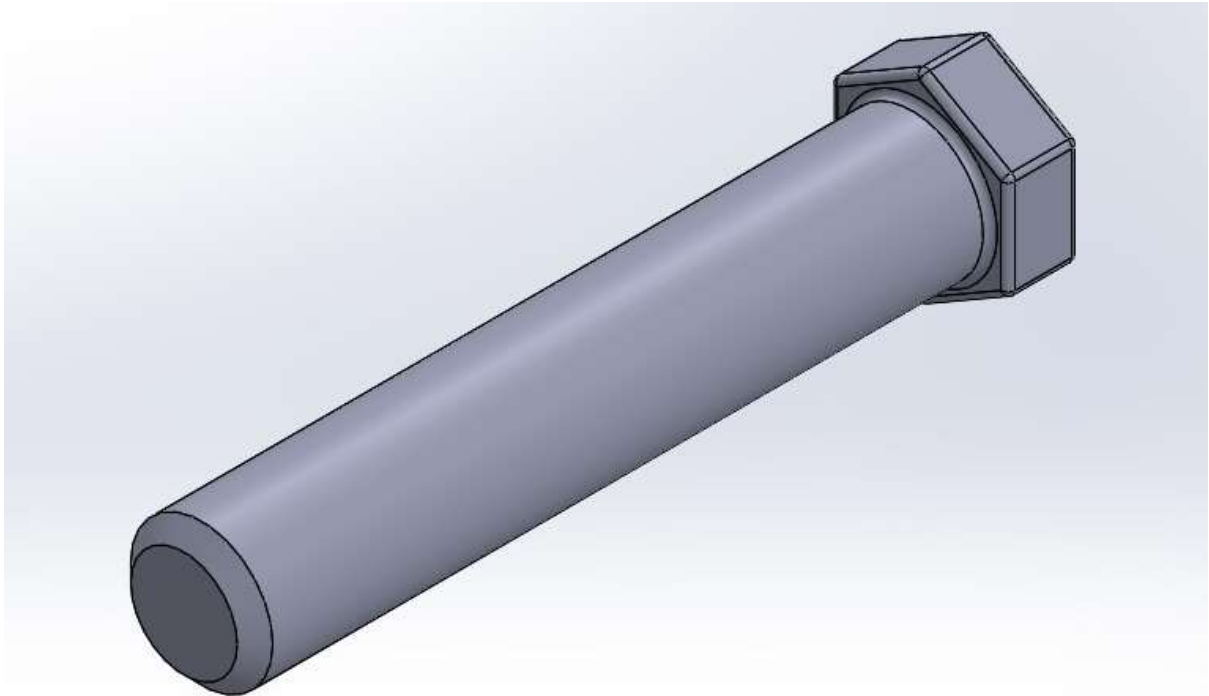
43) Pin D6 L46



44) Bolt M4 L6.7



45) Bolt M4 L20.7



46) Pulley Belt

