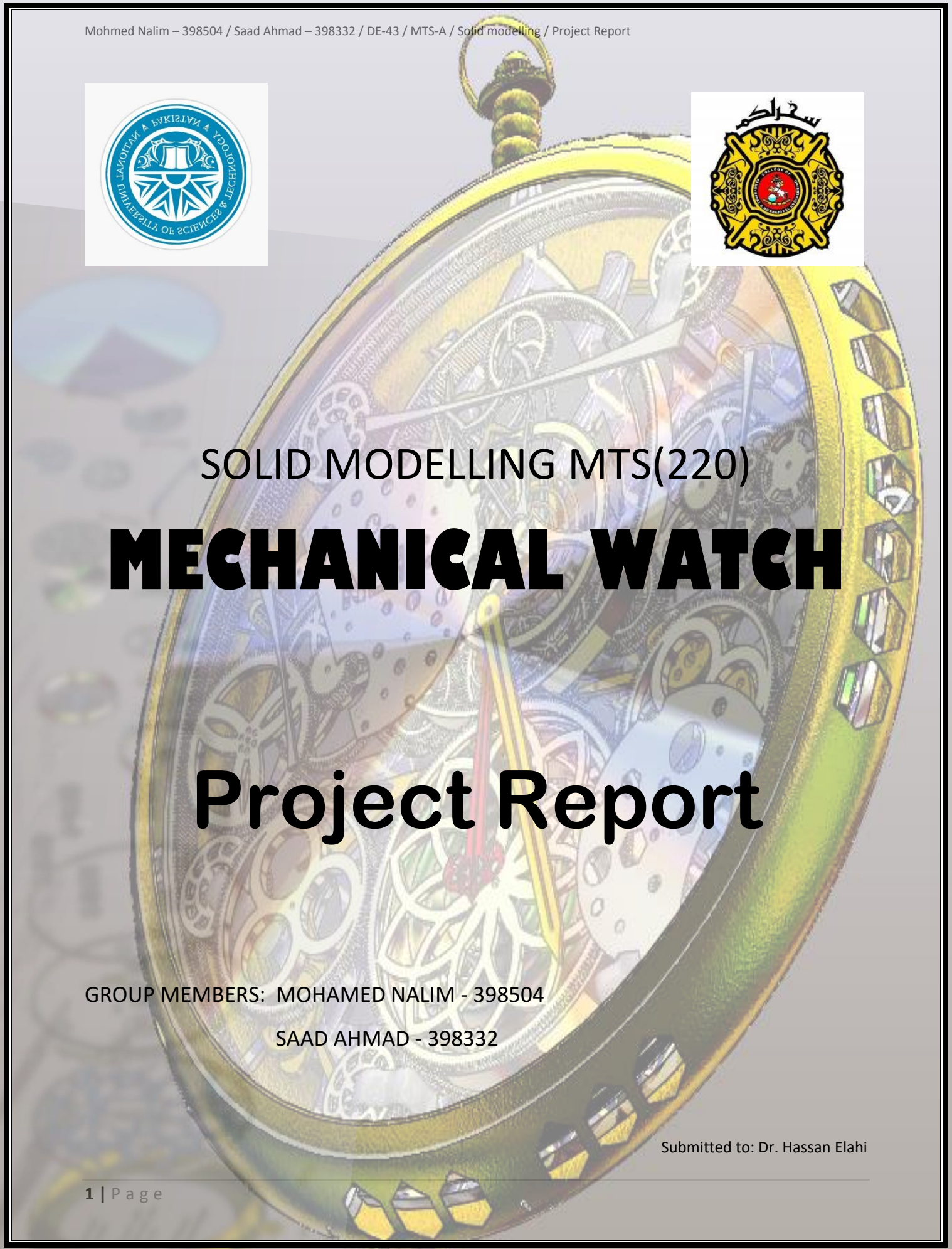

SOLID MODELLING MTS(220)

MECHANICAL WATCH

Project Report

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SAAD AHMAD - 398332

Submitted to: Dr. Hassan Elahi

TOPIC:

Mechanical watch in solid works.

INTRODUCTION:

Time is the most precious gift in the world because you only have a set amount of it. You can make more money, but you cannot make more time. When you give someone your time, you are giving them a portion of your life that you will never get back. Your time is your life. That is why the greatest gift in the world is time. The object that will display the time is called a watch.

A mechanical watch is made up of mechanical movements. All the components that enable it to work are such as mainspring, the escapement, and the resonator. It works through the kinetic energy stored in the barrel. These made us interested in this topic. We completed our project by using the only software named “Soliworks”.

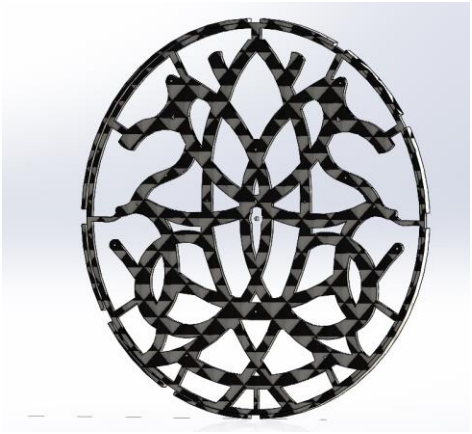
OBJECTIVE:

This is a mechanical pocket watch that can be useful to watch the time. This is a kind of watch that was used in the early days of 90’s. This is more complex and beautiful than modern watches. The total modelling was done by using Solidworks.

PROCEDURE:

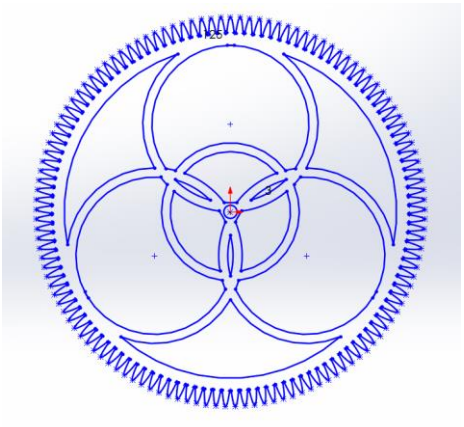
- We tried to find a source file or image of mechanical that is with all the dimensions. But unfortunately, we couldn’t find anything useful.
- Therefore, we found a YouTube channel that shows all the parts of a mechanical watch and fixing that step by step.
- By looking at that we assume the dimensions as per the real dimension of a watch.
- Link of the YouTube channel we used,
  https://youtu.be/E9prY3ky6Bo
- First, we took the screenshot of the base and insert that image in Solidworks according to assumed dimension.

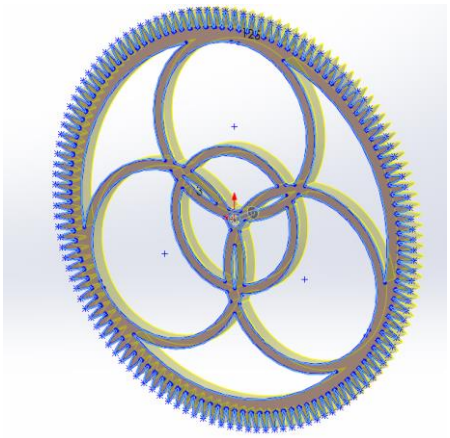
- Then above that image draw the base part and using spline command and extrude to make the base.



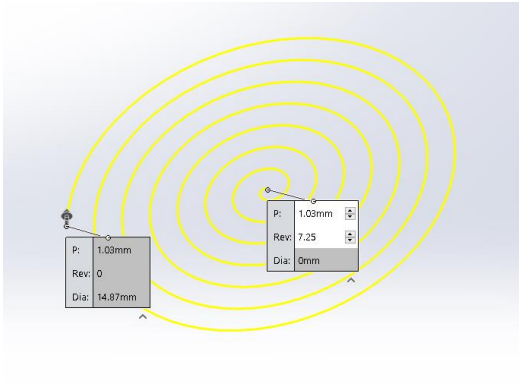
- There are number of gears in this mechanical watch. But we don't know the exact dimensions of those gears.
- Therefore, we used a copy of the base and make rough sketches of gears by assumed dimensions.

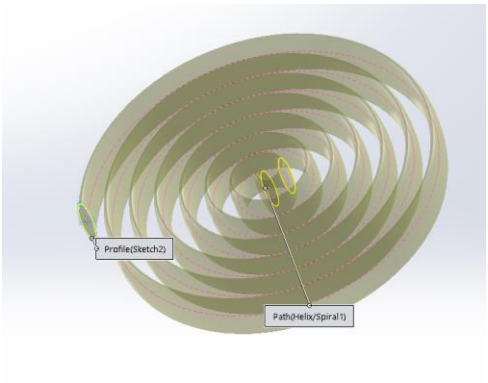
- Then copy those sketches by opening a new part. This is how we assumed the dimensions.
- For different gears, we made the sketch according to the shape of that specific gear and by extrude command we made the gears.



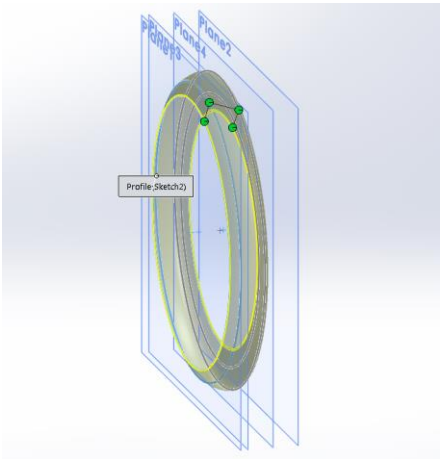


- All the gears made by using the same process.
- The spiral parts in the watch is made by sketching spirals using the command “helix and spiral” and then draw an elliptical circle perpendicular to the end of spiral line.
- After that by sing the swept command, we made the spiral parts.

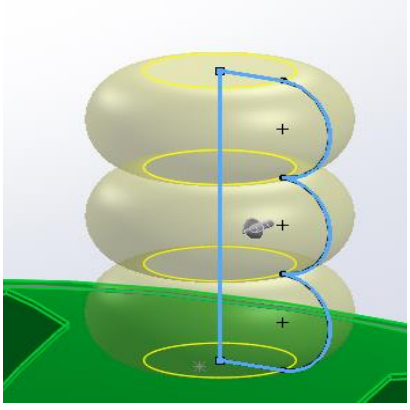




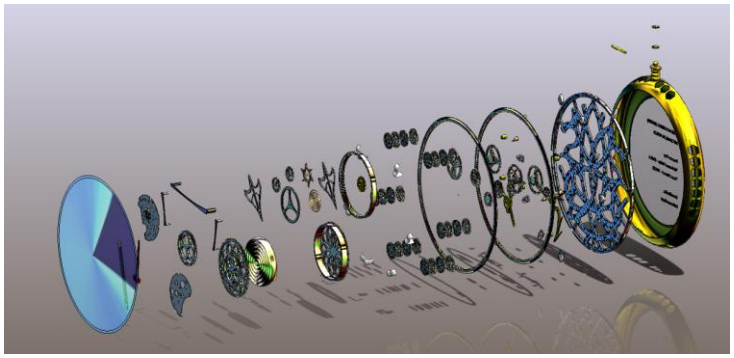
- All the indicators (second, minute, hour) are made by using just extrude command.
- We used fillet command in some places to smoothify the surface.
- Outer cover of the watch is made by making different circles by making different planes in different distances and by using the loft command (thin surface) and we made that surface.



- We add some beauty by extruding the surface in outer cover by using extrude command.
- The upper part of the outer cover is made by using revolve command.

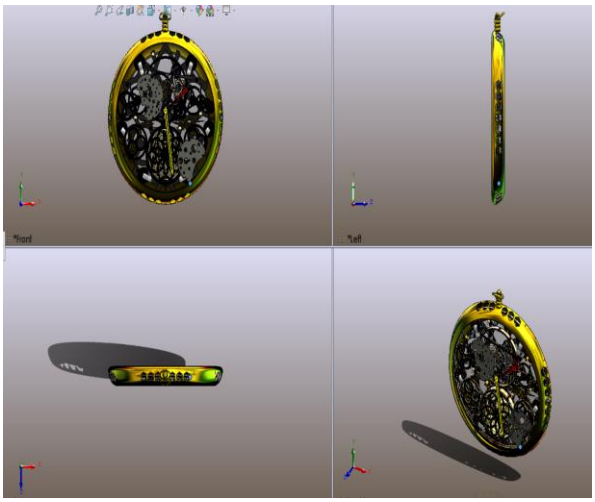


- After the making of all the parts we started assembly drawing to combine the parts together.
- We combine all the gears by using the mate coincide and co-centric.
- In some places we used distance coincide to fix the parts.
- Also, we used lock mate in some parts to fix the parts such as connectors and decorators.
- The main type of mate we used here is “gear mate”. By using this mate type, we made the gears to rotate exactly as the real gears.
- By using these mate types, we assembled all the parts together and completed our project.
- We apply some colours and appearances to give the real view of a watch and beautify our drawing.
- Finally, by using the exploded view command, we made the exploded drawing of the watch and completed our project.



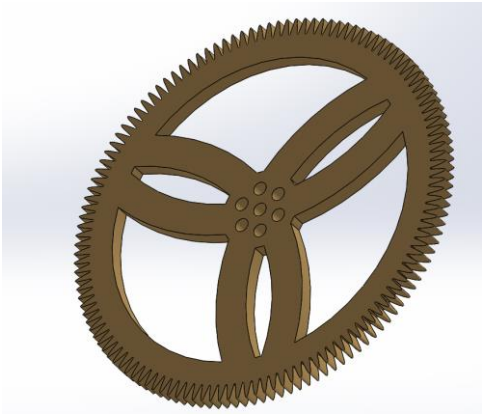
- We divided all these works equally and we combined all the parts together.

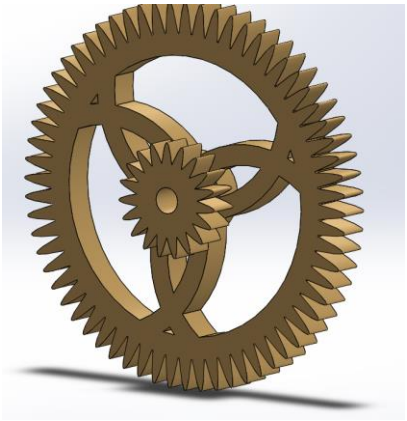
FINAL PICTURES OF THE WATCH:

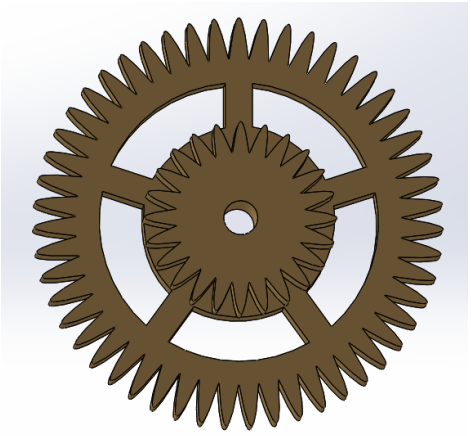


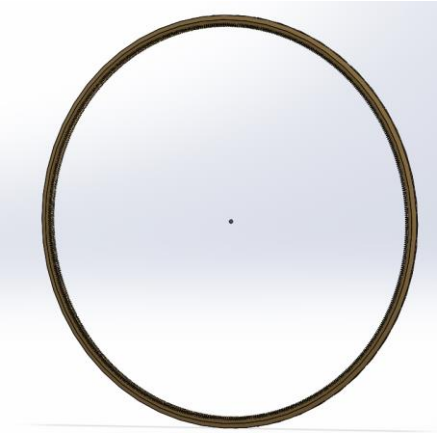
PARTS OF THE WATCH:

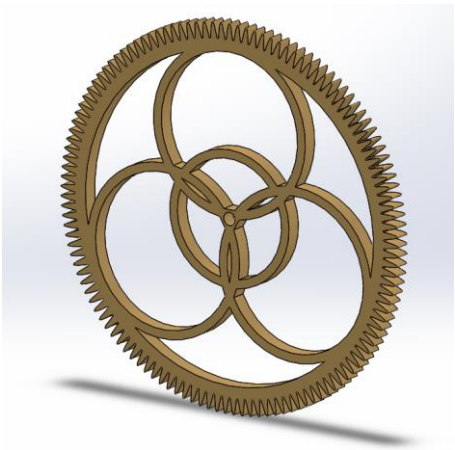
- Different types of gears used in the drawing

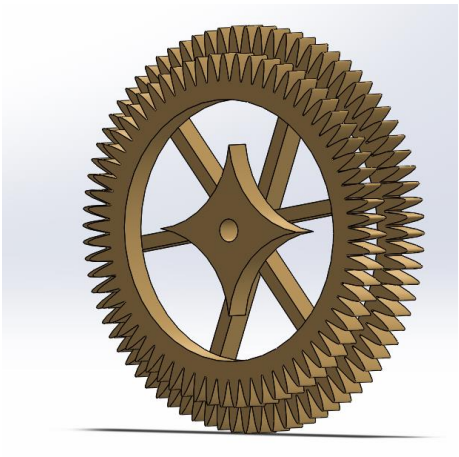


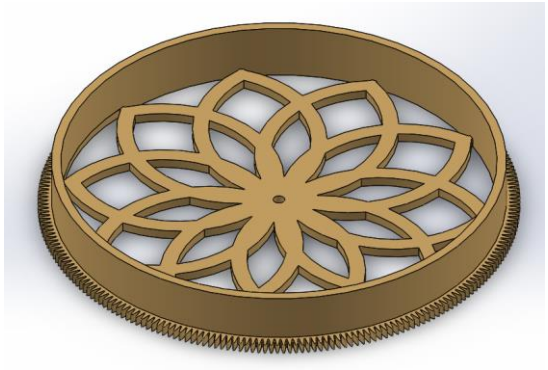


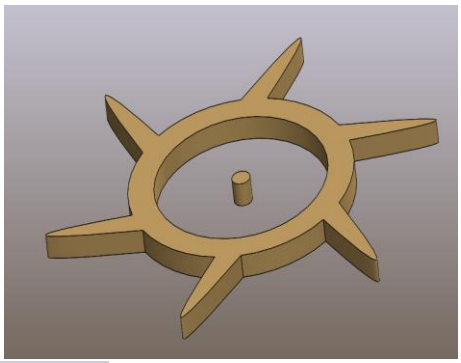


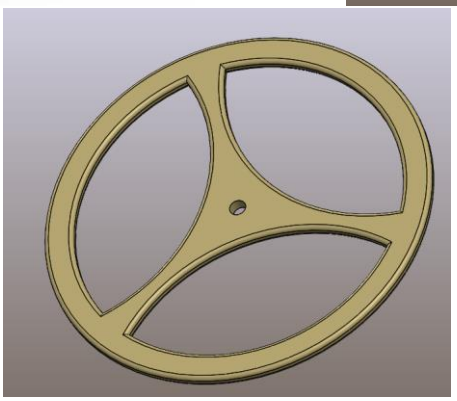




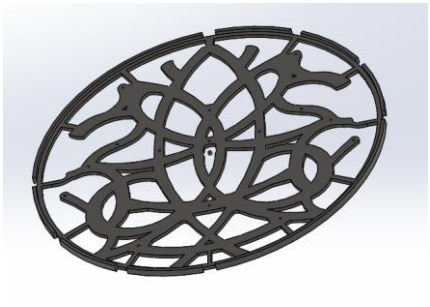




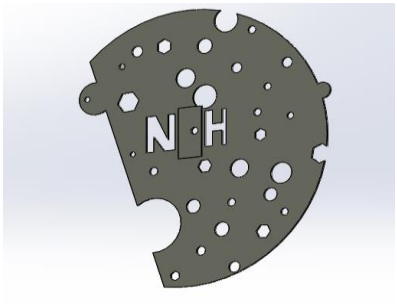




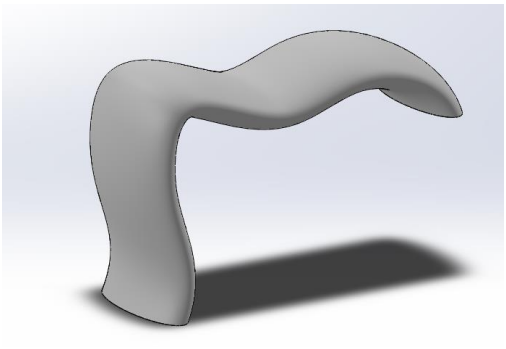
- Some other parts



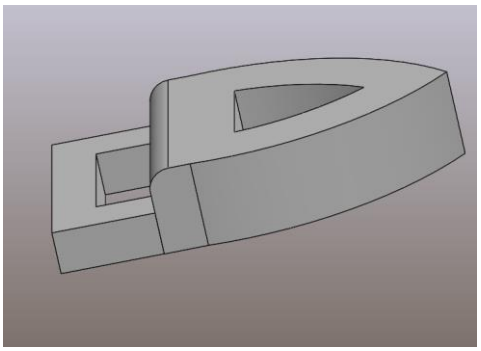
Base



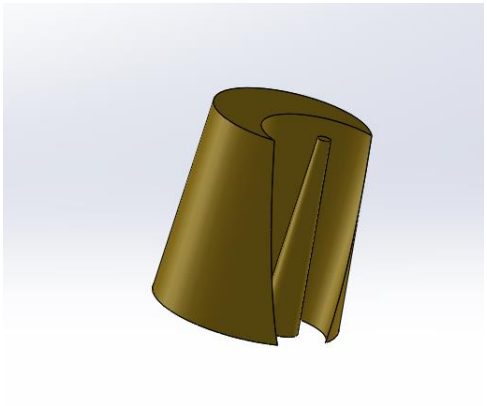
Brand tag



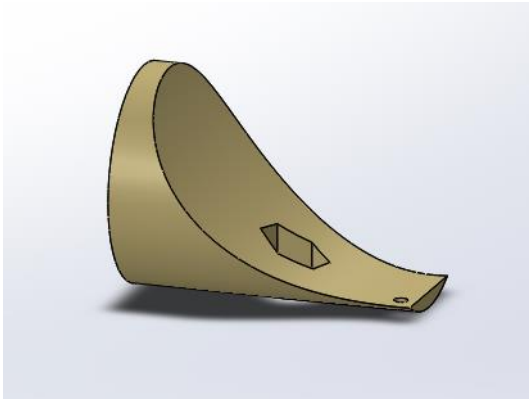
Connector clip



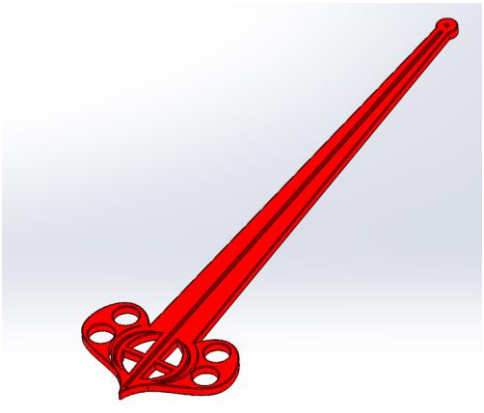
Number indicating clip



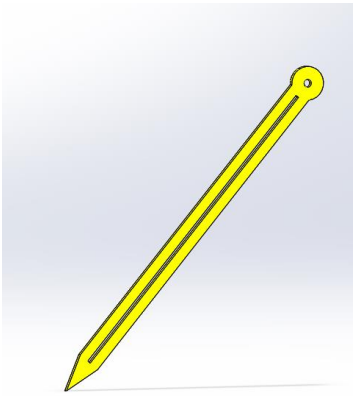
Decorator1



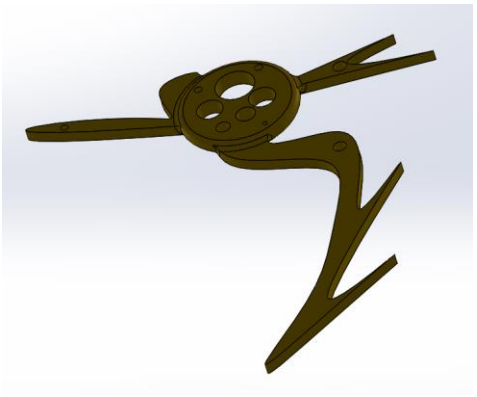
Decorator2



Hour needle



Minute needle

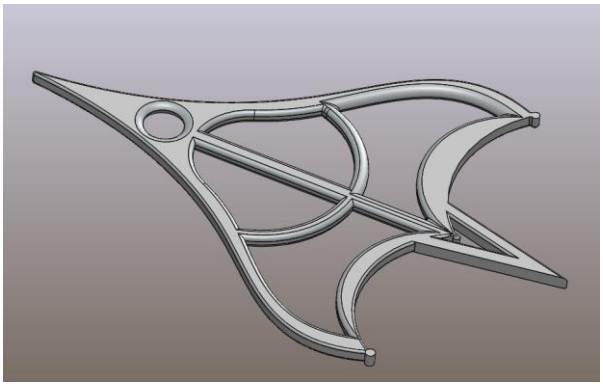


Gear supporter

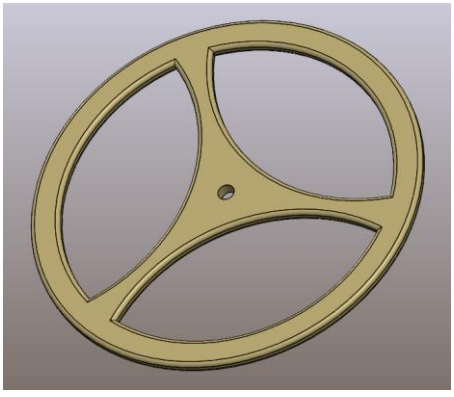
Outer cover

Connector

Top glass

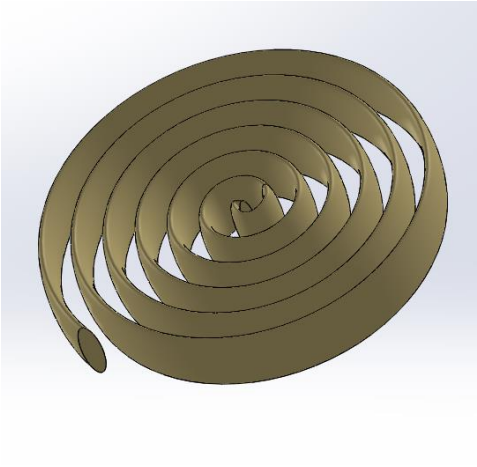


Second needle



Turbulation wheel

Spiral in turbulation



Main spring

END!