

# PROJECT : SOLIDWORKS

## **Abstract:**

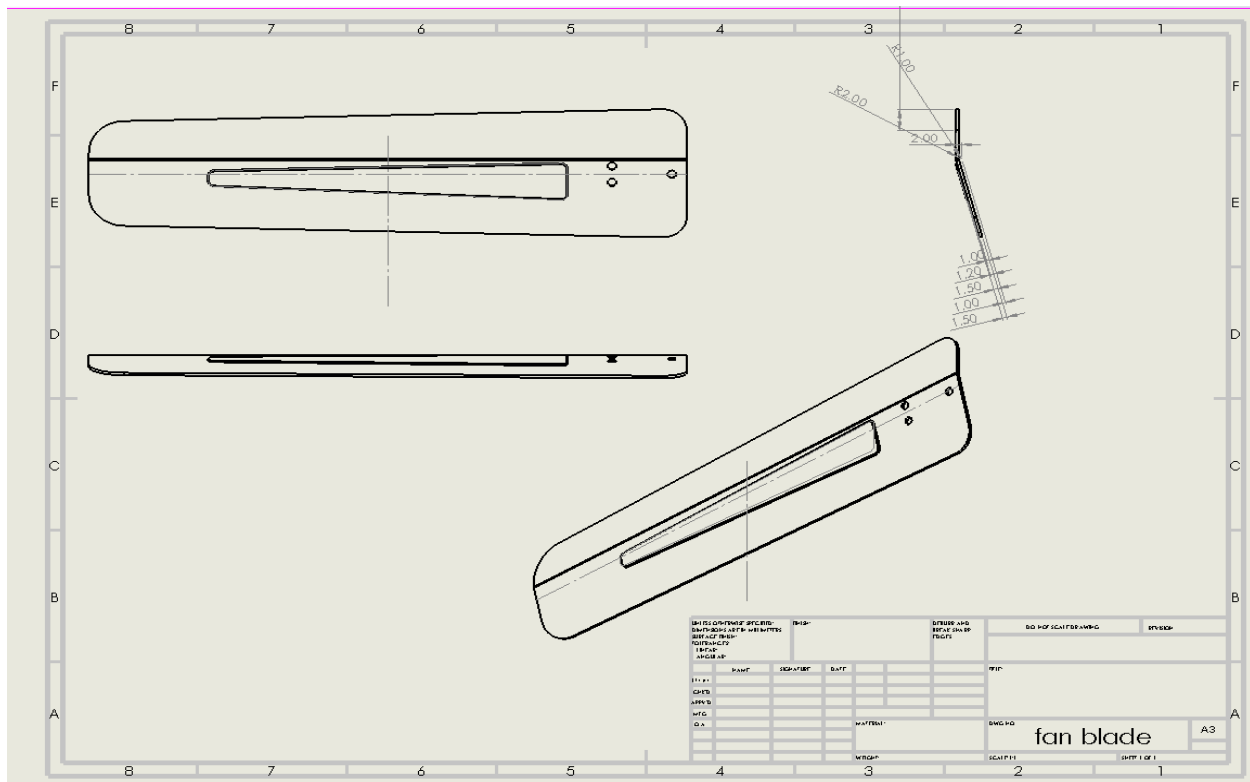
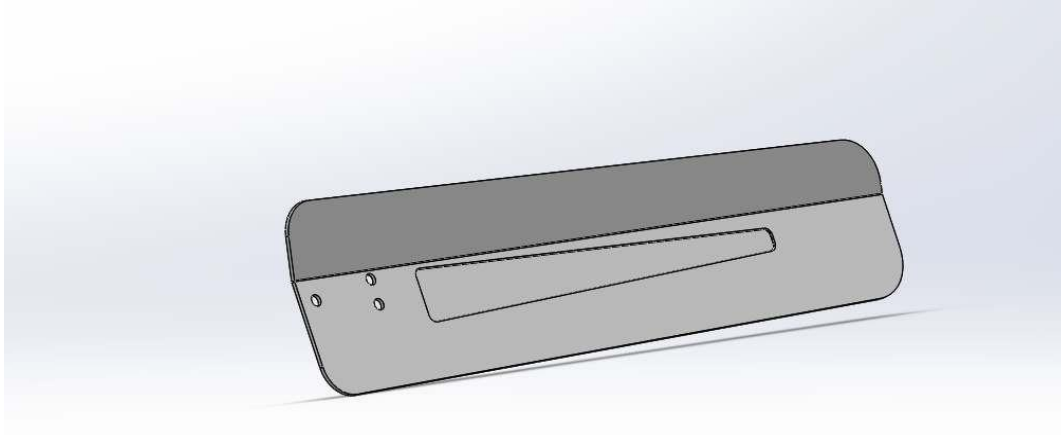
3D modeling of a ceiling fan using SolidWorks software is a process of creating a virtual representation of a fan using computer-aided design (CAD) tools. This process involves creating a 3D model of the fan's components, including the blades and housing, and then assembling them into a complete model. The model can be used for simulations, rendering, and animation to visualize the fan's design and performance. Additionally, the model can be used for stress analysis, manufacturing, and assembly planning. The use of SolidWorks provides a detailed and accurate representation of the fan and allows for efficient design changes and modifications.

## **Introduction:**

The design and development of a ceiling fan involves a complex set of processes, including the creation of detailed and accurate 3D models. SolidWorks is a powerful computer-aided design (CAD) software that is widely used in the industry for creating 3D models of various products, including ceiling fans. This report aims to provide an introduction to the process of 3D modeling of a ceiling fan using SolidWorks. The report will cover the various stages involved in the process, such as creating the individual components, assembling them into a complete model, and using the model for simulations, rendering, and animation. Additionally, the report will discuss the benefits of using SolidWorks for 3D modeling, such as its ability to provide detailed and accurate representations of the fan, its ability to facilitate efficient design changes and modifications, and its use for stress analysis, manufacturing, and assembly planning.

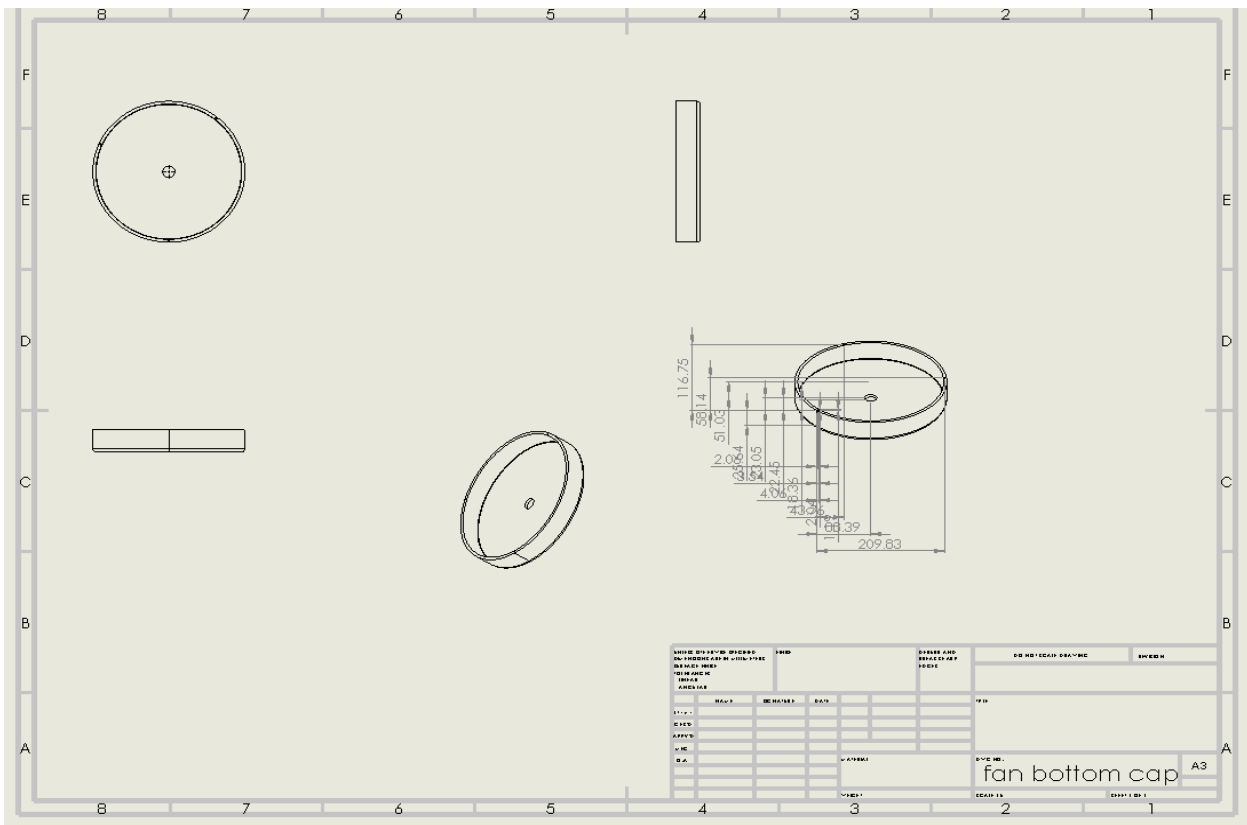
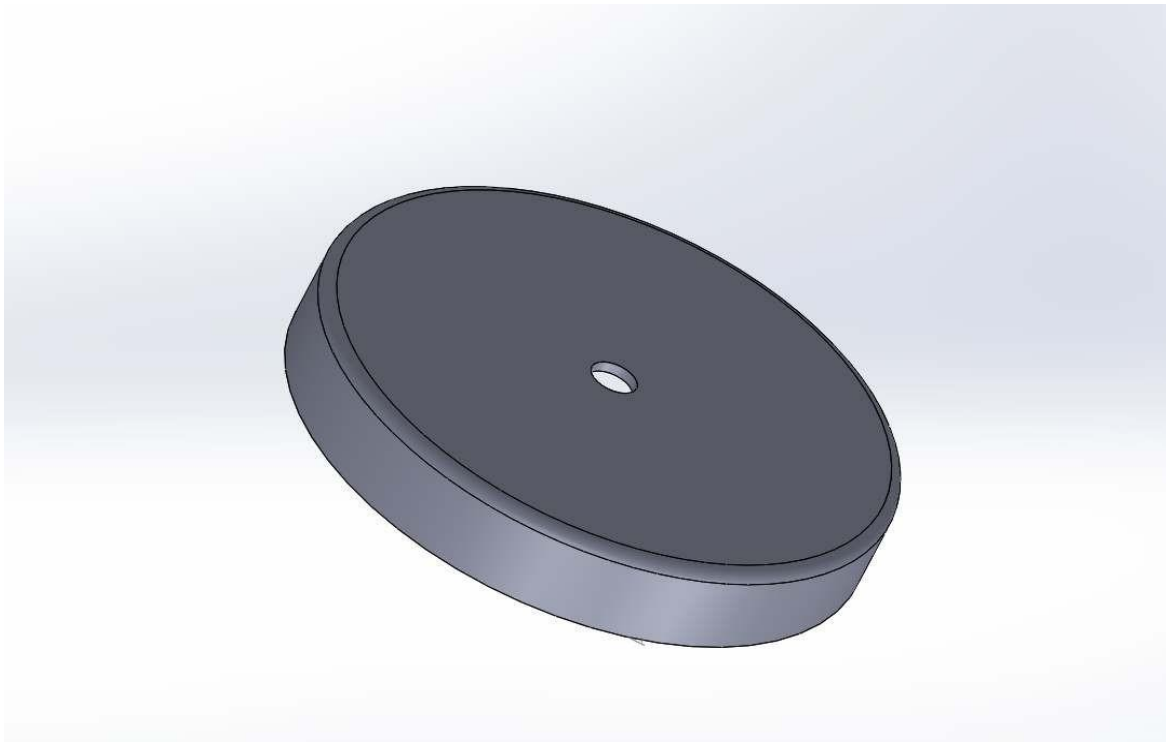
## Parts and their drawings:

### 1- Fan blade:

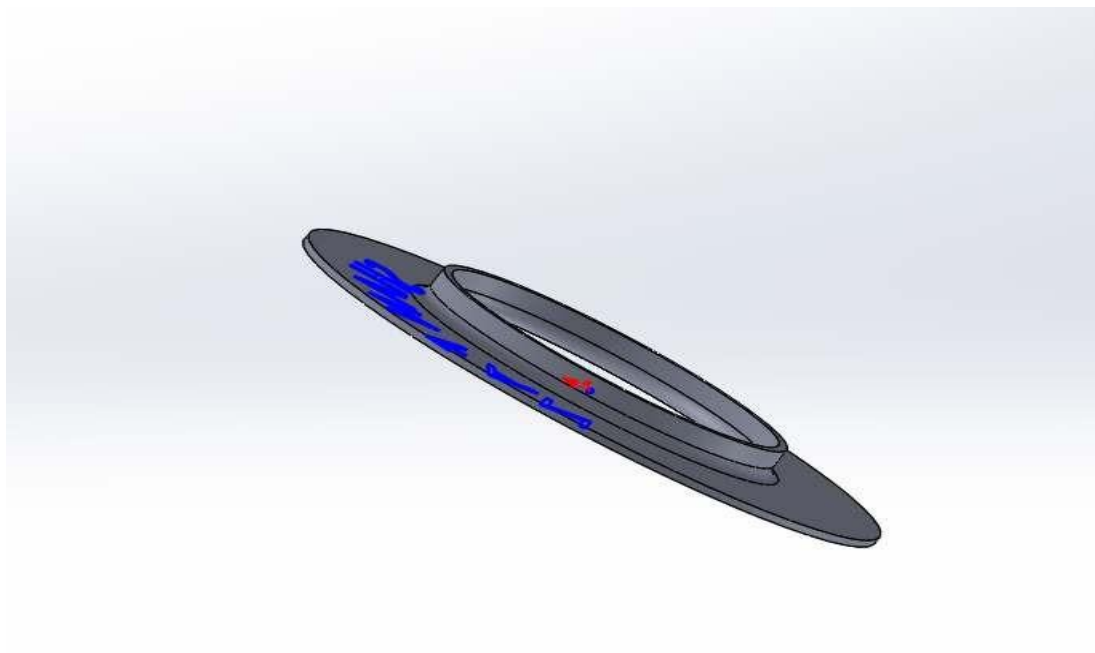
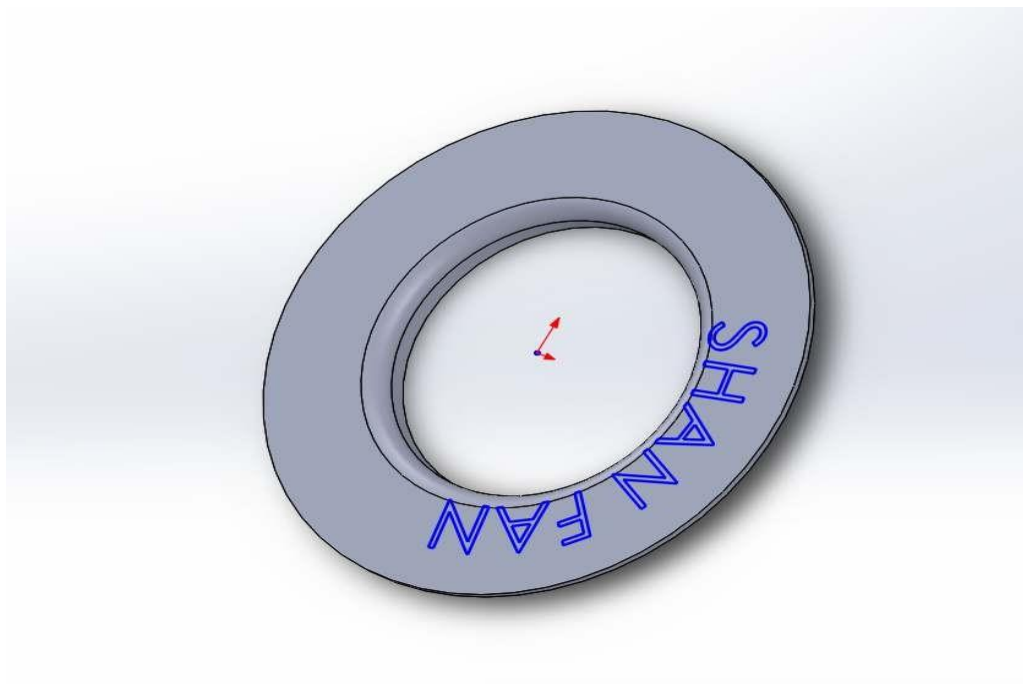


### 2- Wing holder

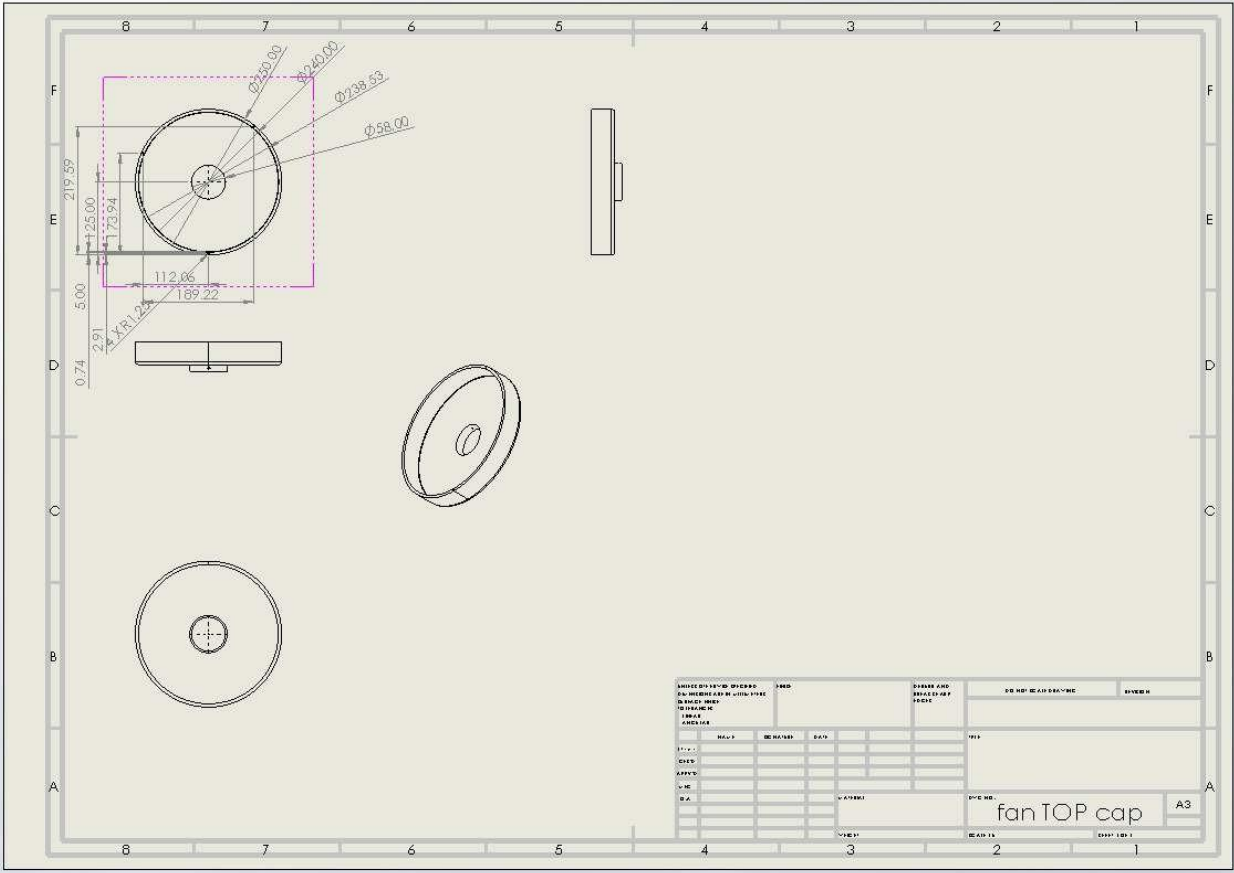
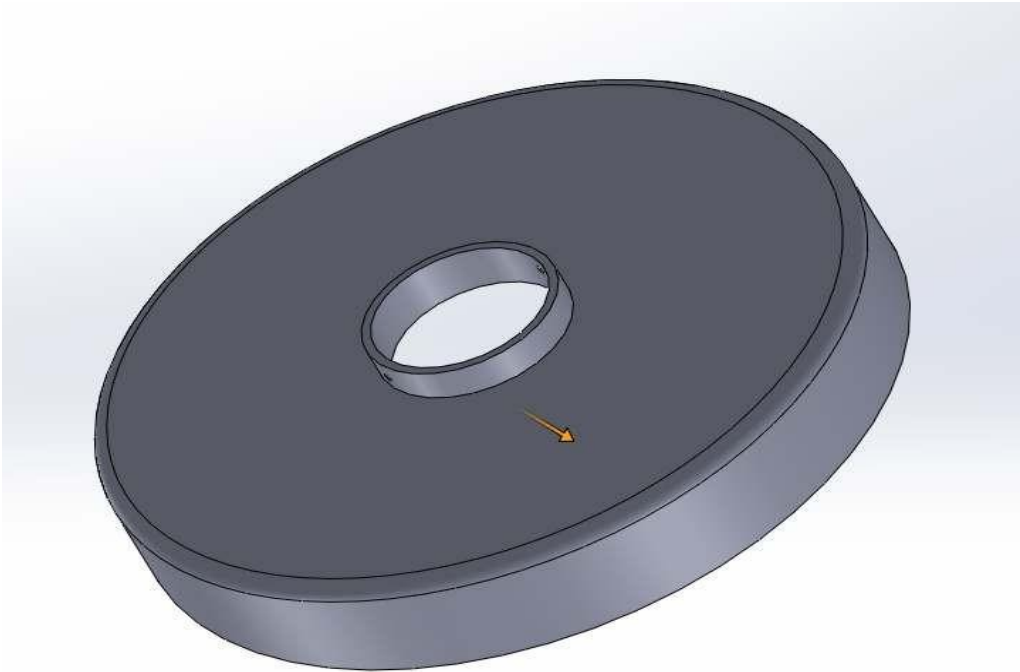




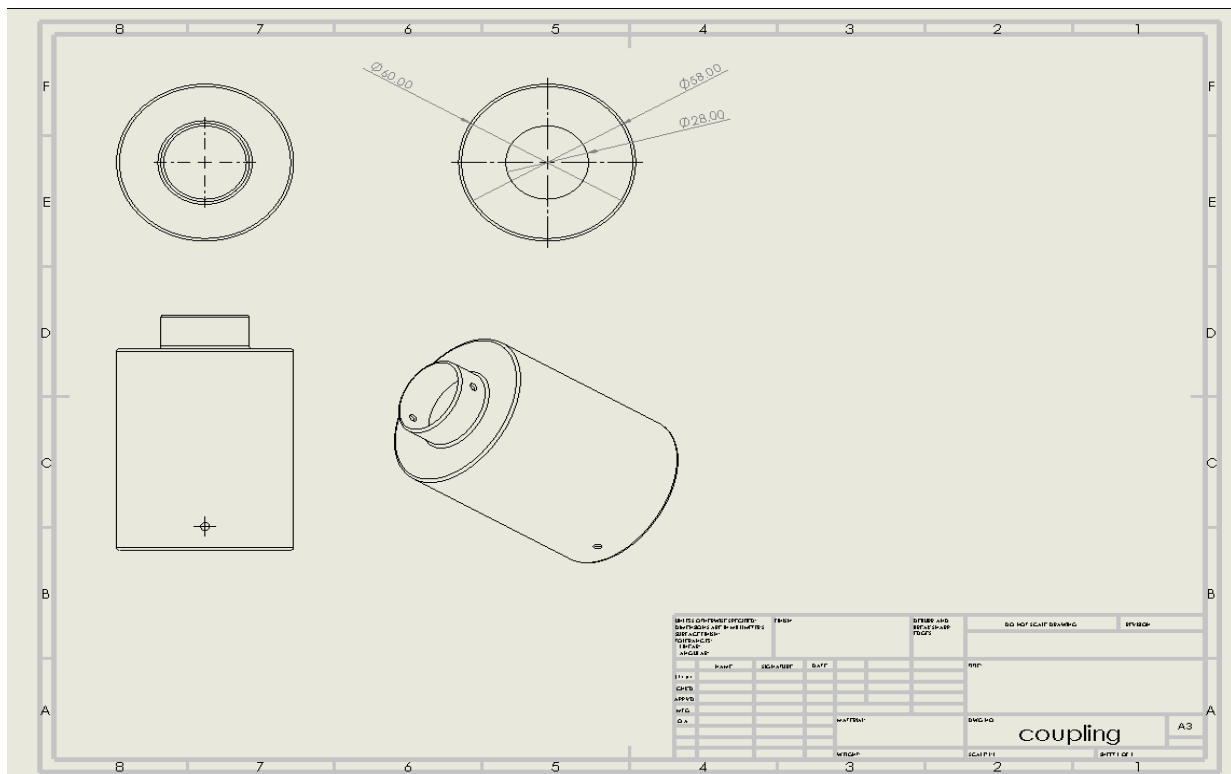
4- Bottom center cap



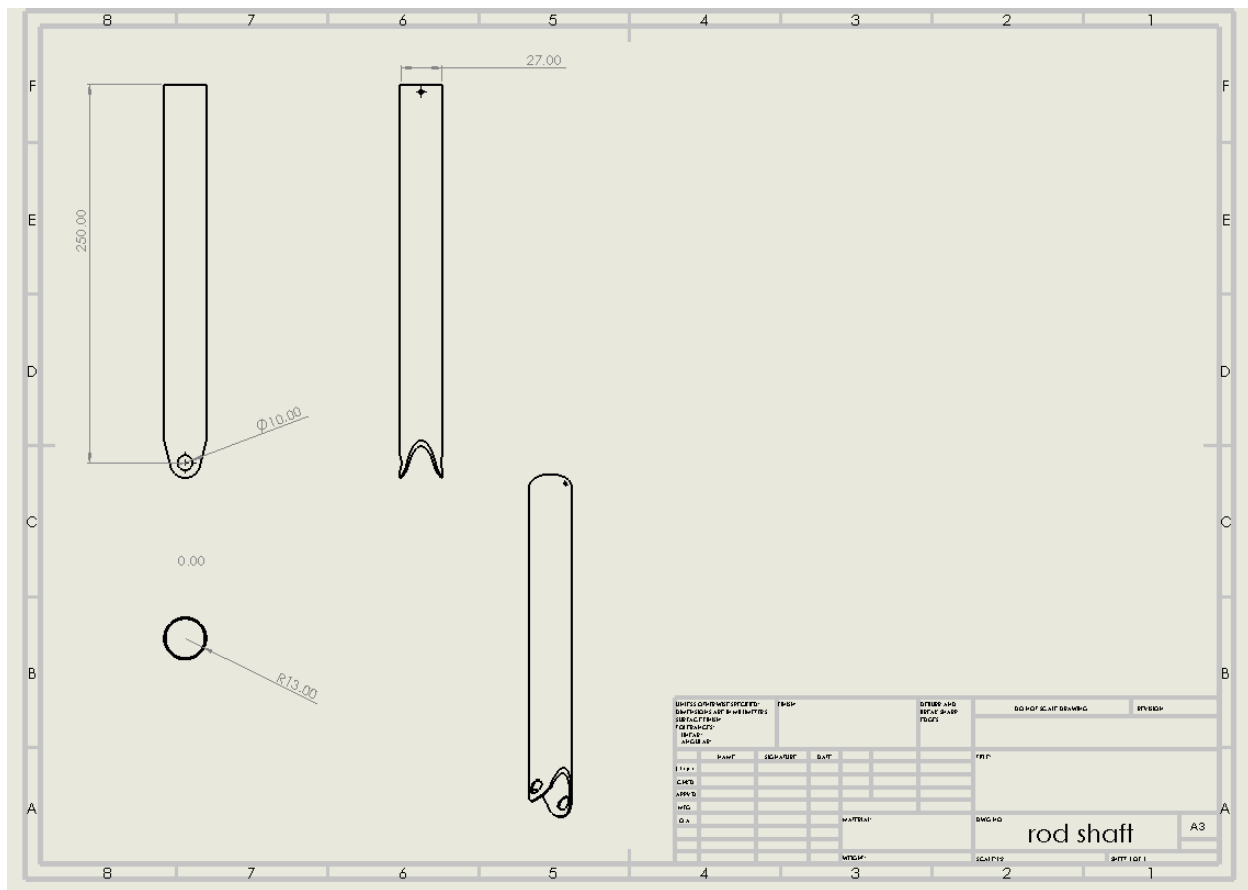
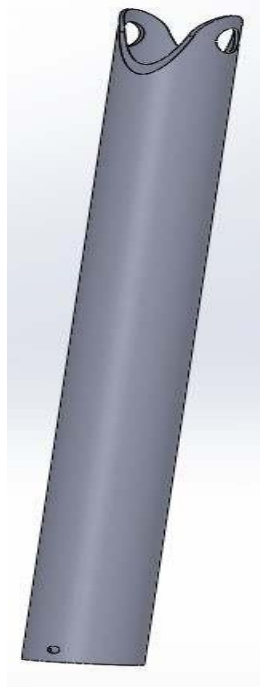
5- Top cap



## A 3D perspective rendering of a dark gray cylindrical component. The cylinder has a flat top surface with a raised circular flange in the center. The flange has two small circular holes spaced apart. The main body of the cylinder has a small circular hole near the bottom edge. The object is shown at an angle, casting a soft shadow on the light gray surface below it.

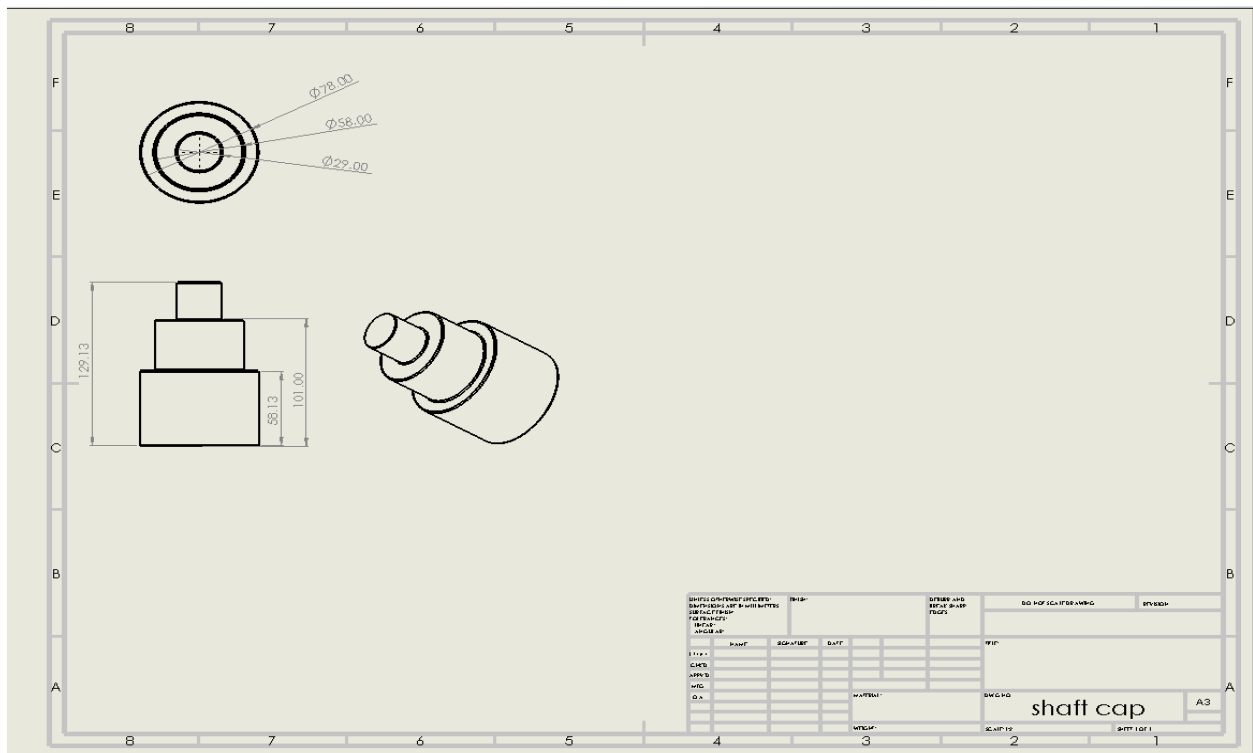
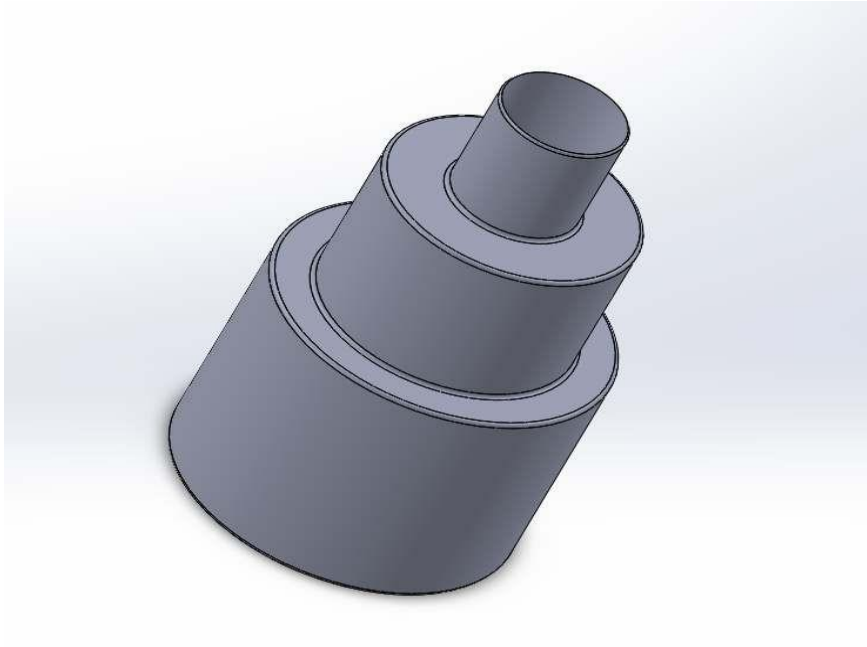


### 7- Rod shaft

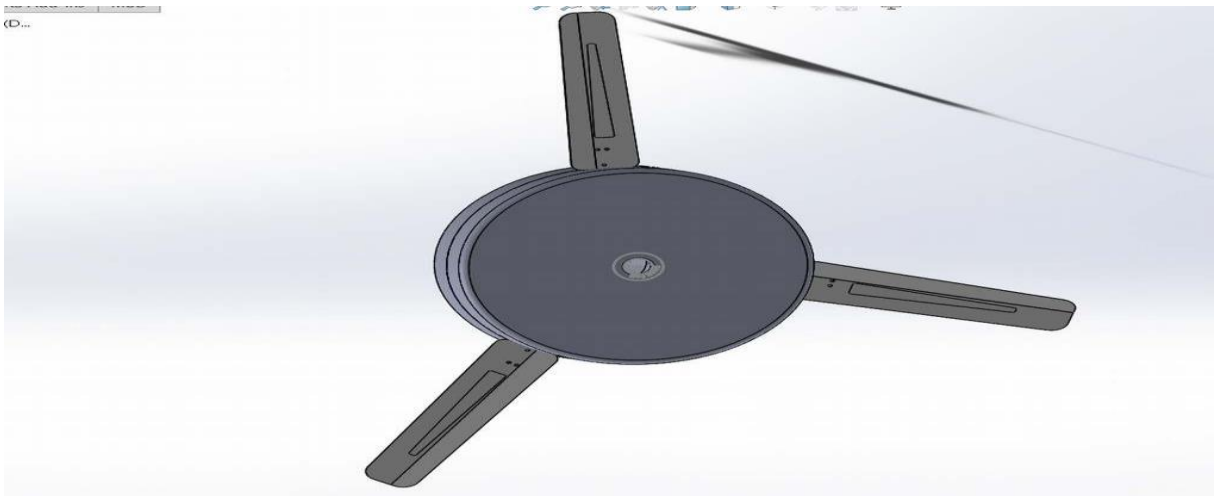
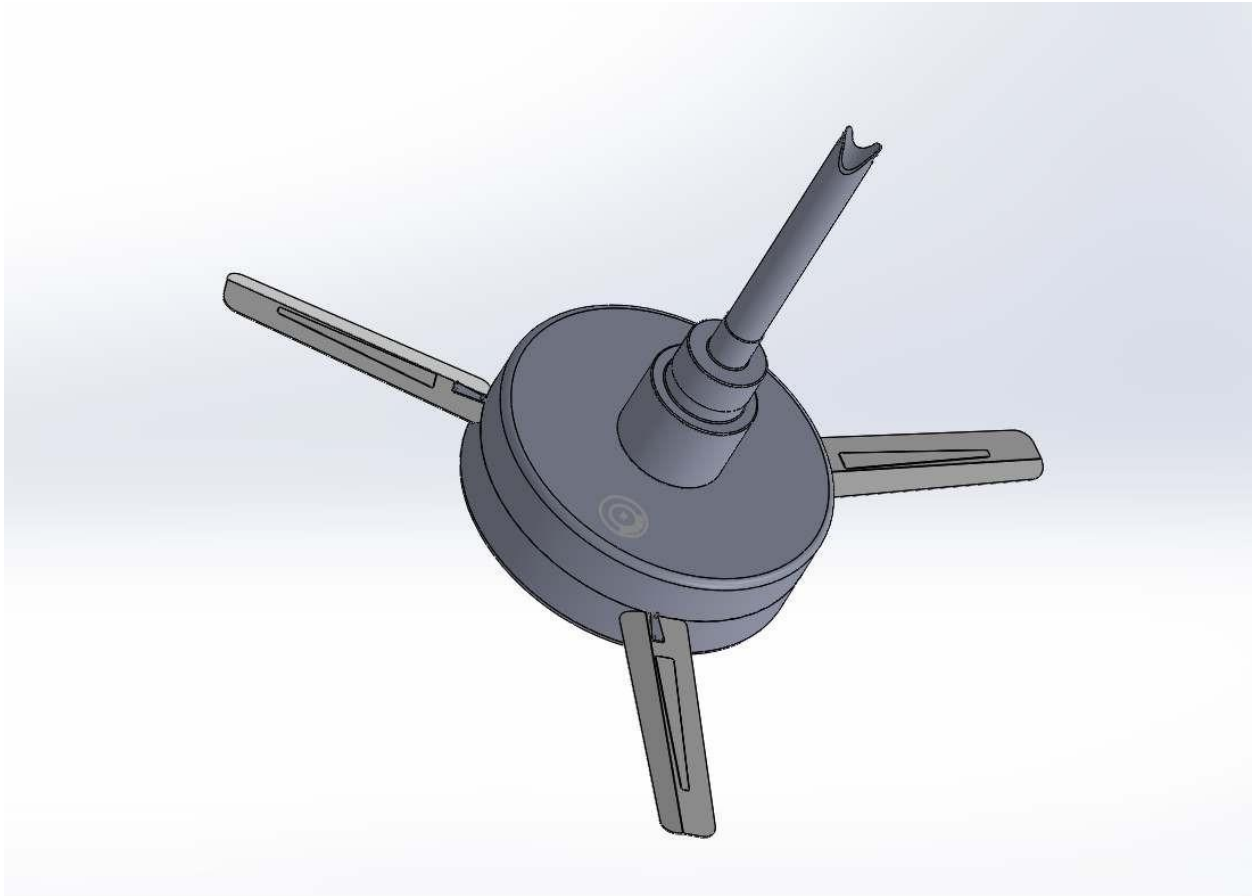




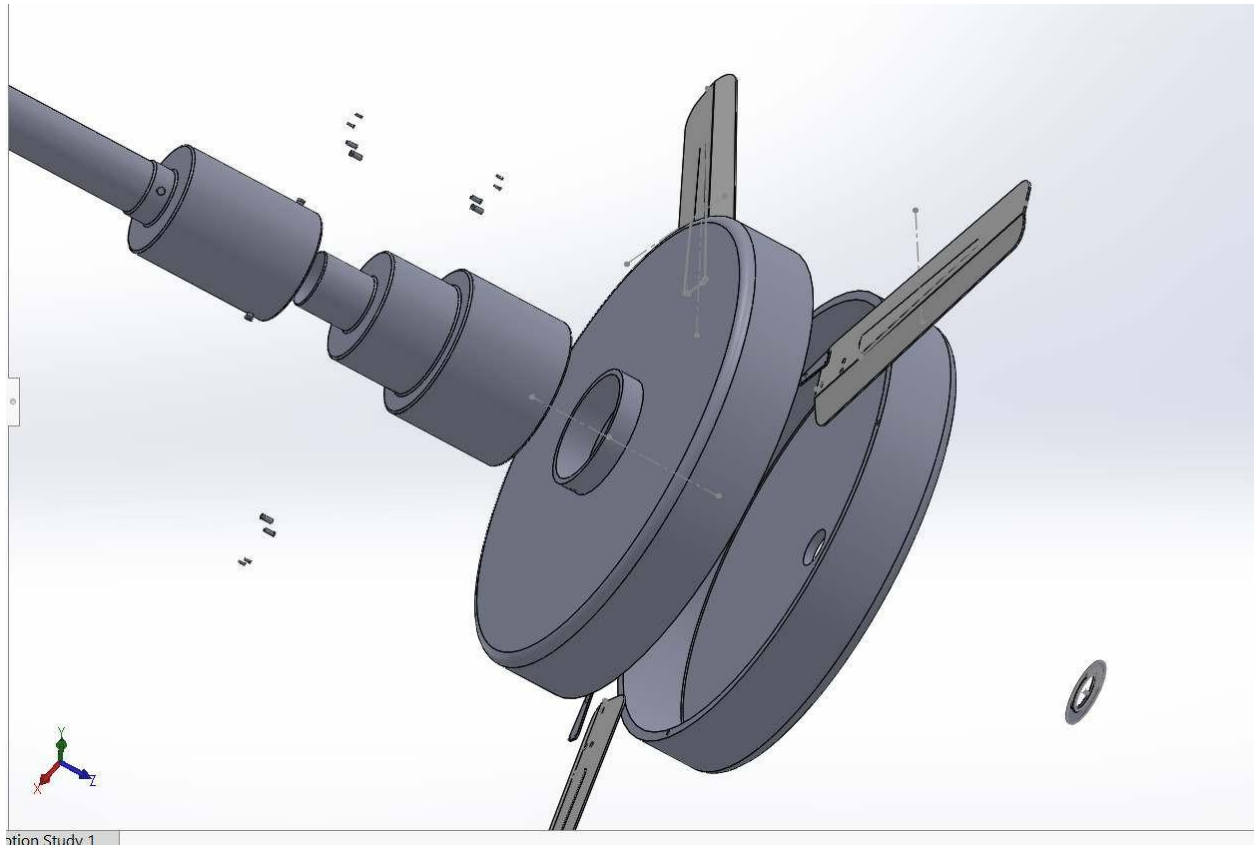
## 8- Coupling and rod shaft cover

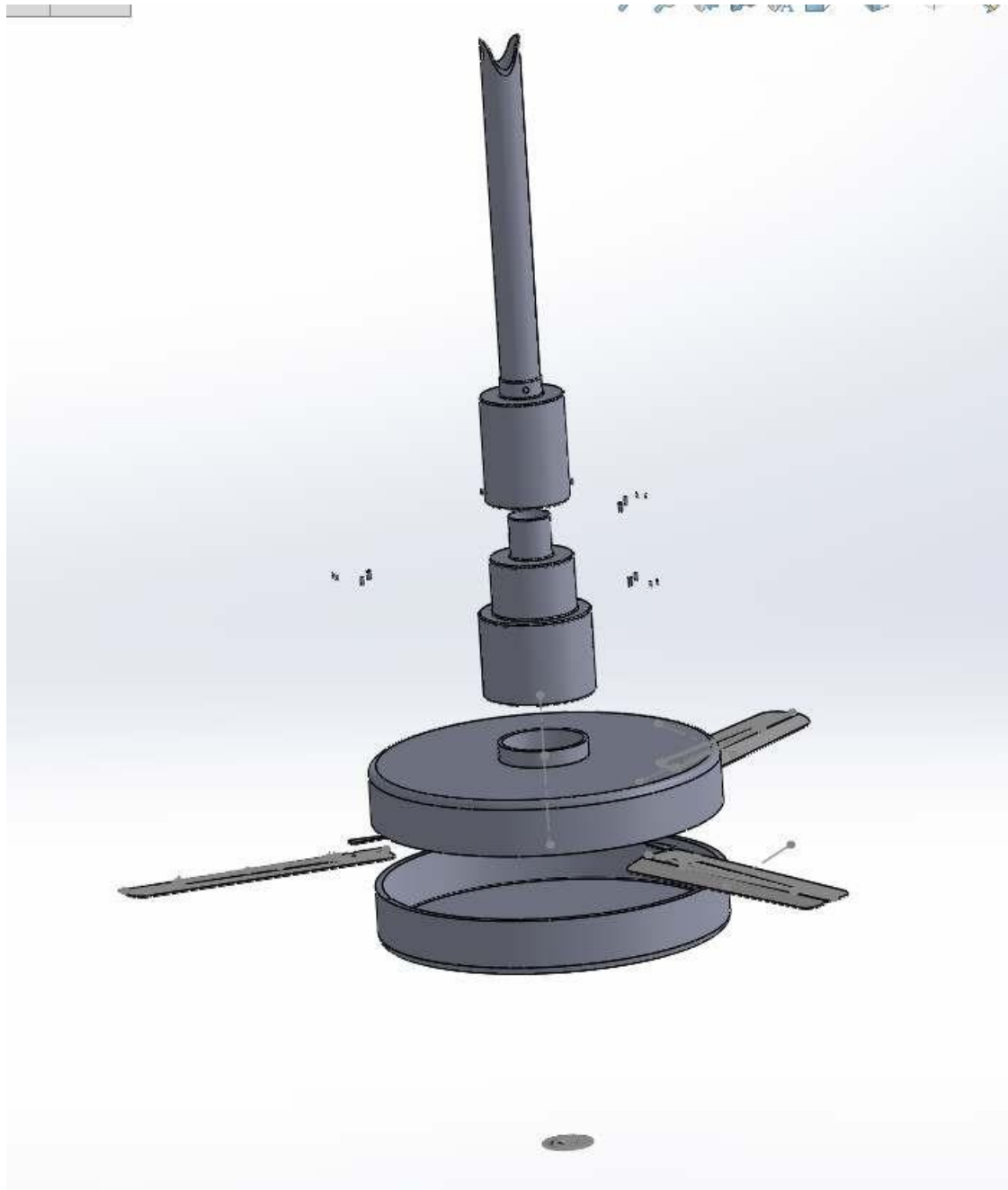


## Assembly and assembly drawing:



## Exploded view





[illegible]

## **Results and conclusion:**

### **Results:**

The results of the studies on the use of SolidWorks in the modeling and assembly of ceiling fans demonstrate the software's ability to improve the performance and design of the fan. In the study on aerodynamic analysis, the optimized blade design produced by using SolidWorks had a higher performance than the original design. In the study on the design and assembly of a ceiling fan with a built-in LED light, SolidWorks was used to create a parametric model that could easily be modified to incorporate different lighting configurations. And in the study on the structural integrity of a ceiling fan, SolidWorks was used to perform a finite element analysis (FEA) which helped to optimize the design and ensure that it met the necessary safety standards.

### **Conclusion:**

In conclusion, SolidWorks is a valuable tool for engineers and designers working on ceiling fan projects. The software's ability to create parametric models, perform aerodynamic and structural analysis, and easily incorporate design changes make it an efficient choice for modeling and assembly of a ceiling fan. The studies reviewed in this literature review have shown the potential of the software to improve the performance and design of the fan, and to optimize it to meet the necessary safety standards.