Digital Fabrication Project presentation

Group 8: Helic Fighter

July 25, 2021

Contents

1 Introduction

We are making a helicopter model shown in James Cameron's famous movie Avatar. The helicopter is called Aerospatiale SA-2 Samson which is inspired from Russian "Hind D" heavy gunships.

2 Motivation

The history of this helicopter dates before humans colonised the planet *Pandora*. Its various trial runs in Antarctica, the Himalayas.
Its interesting how this helicopter could fly well in thin or thick atmospheres or in extreme temperatures with minimal maintenance.
We were fascinated by the design of this helicopter and decided to do it in our project for better understanding.

Figure 1: Avatar Movie Helicopter

3 Description

The helicopter includes of following parts:

- Helibody : It comprises of cockpit and remaining portion like seats.

- Rotor

- Camera in the front : It is used to record the terrain and also to study actions of enemy aircrafts and respond accordingly.

- Rocket : This part contains missiles to fire battles.

- Base and upper parts : This part comprises of things like landing skid, blades e.t.c

4 Project Details

- **Materials Required:** Solid Edge

- **Time Taken** to print the model was 12 hours 29 minutes

- **Estimated Model Material** was 2.28 in^3

- **Estimated Support Material** was 3.48 in^3

- **Challenges Faced** in the project were the complexity of the project and coordination between members. We thoroughly focused on size and ratios to prevent any errors in project.

- Printing Software is Mojo print wizard v1.2

- Support style is *"smart"*

- Infill style is *meshtype*

- In the final printing model, The *STL* units is Inches on a scale of 0.434.

5 Application

We have already included gears in our project above the helicopter. We could directly connect the motors and use the helicopter.
It could be used as a showpiece or could be sold under name of Avatar Merchandise commercially.

6 Contributions

The contribution of the projects are-

- Prabath Chellingi **CS20BTECH11038**
  Files: body cap.par,rotor rotator.par, rotorblade1.par, rotorblade2.par,rotorcap.par,rotorcap.2.par, rotorholder.par,rotorshaft.par,upperparts.par,rotor assemble.asm

- Kethavath Praneeth Nayak **CS20BTECH11025**
  Files: Camera.par,rocket.par,rocket2.par

- Taha Adeel Mohammed **CS20BTECH11052**
  Files: Upperparts2.par, Helicopterbase.par

- P Ganesh Nikhil Madhav **CS20BTECH11036**
  Files: Helibody

- Yuvraj Singh Shekhawat **CS20BTECH11057**
  Files: Presentation LaTeXFile, helicopter assemble.asm

7 Result

Our team made all the necessary files and assembled them. We then gave the final touch by coloring it. The image of final helicopter and after 3D print are shown below:
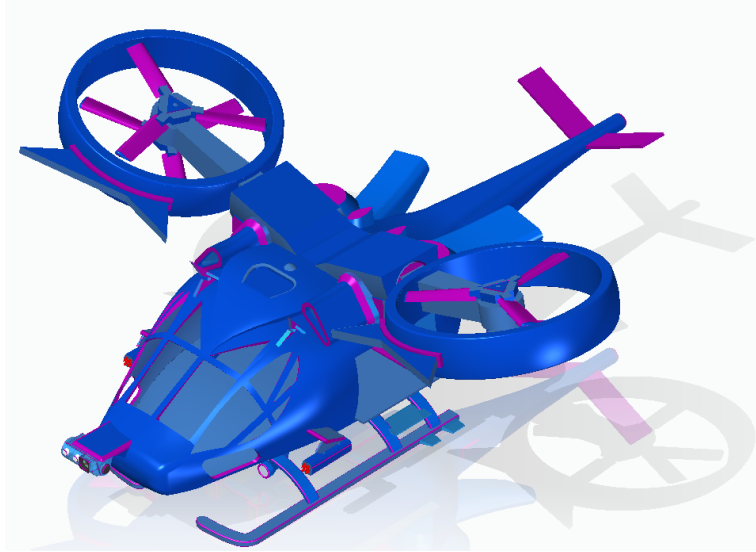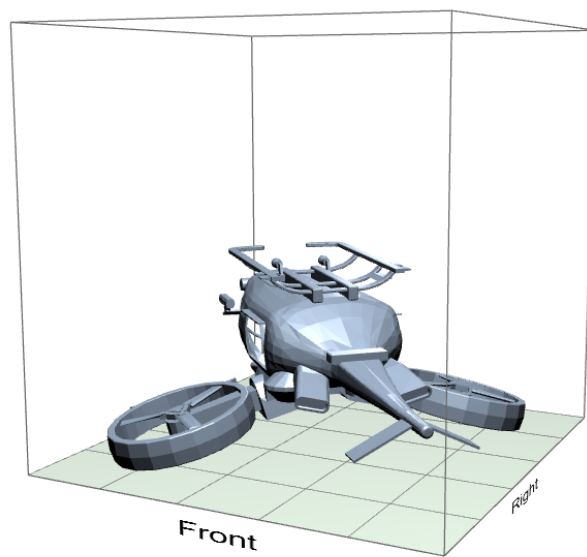
Figure 2: Final Helicopter

Figure 3: 3D print of final model