Material List

Part no.	Name	Material Used	Quantity	Process involved
1	Body	Galvanised Iron Sheet (0.5 mm)	1	Sheet Metal
2	Wing Assembly	Galvanised Iron Sheet (0.35 mm), MS Round 4mm	1	Object fabrication
3	Wheels	G-I Sheet (0.35 mm), Mild Steel Rod 4mm	3	Object fabrication, Brazing
4	Engine	Aluminium for melting, Thermocol	2	Moulding
5	Back Door	Galvanised Iron Sheet (0.5 mm), Rivet (2)	1	Object fabrication
6	Rotation Mechanism	Galvanised Iron Sheet (0.35 mm)	1	Object fabrication, Brazing
7	Ribs	Galvanised Iron Sheet (0.5 mm)	2	Object fabrication, Brazing

Work Distribution

Name	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
ADARSH KESHAV SHARMA	Body	Body	Body	Body	Assembly	Assembly
KRISHNA PASWAN	Body	Body	Body	Body	Assembly	Assembly
KRUTARTH DESHMUKH	Body	Body	Body	Body	Assembly	Assembly
LAKSHYA BHARDWAJ	Rotation Mechanism	Rotation Mechanism	Rotation mechanism	Wheels	Assembly	Assembly
LAKSHYA SHEKHAWAT	Engine	Engine	Wings	Wheels	Assembly	Assembly
LAVANSHU SINGH	Engine	Engine	Wings	Wheels	Assembly	Assembly
MADHAV KUMAR	Rotation Mechanism	Rotation Mechanism	Rotation Mechanism	Wheels	Assembly	Assembly
MALI ASHISH RAMNIWAS	Back door	Back door	Ribs	Ribs	Assembly	Assembly
MAYANK SINGH	Engine	Engine	Wings	Wheels	Assembly	Assembly
MEDANKI SRIYA	Back door	Back door	Ribs	Ribs	Assembly	Assembly

TA201A PROJECT REPORT (CHINOOK)

GROUP 08 (WEDNESDAY)

COURSE INSTRUCTOR: Dr. Niraj Mohan Chawake

LAB INCHARGE: Mr. Anil Kumar Verma

COURSE INCHARGE: Mr. Indra Singh

Group Members

1. ADARSH KESHAV SHARMA
2. KRISHNA PASWAN
3. KRUTARTH DESHMUKH
4. LAKSHYA BHARDWAJ
5. LAKSHYA SHEKHAWAT
6. LAVANSHU SINGH
7. MADHAV KUMAR
8. MALI ASHISH RAMNIWAS
9. MAYANK SINGH
10. MEDANKI SRIYA

ACKNOWLEDGEMENT

We are deeply grateful to our tutor Dr. Sudhanshu Shekhar Singh, course staff In-charge Mr. Indra Pal Singh and Laboratory In-charge Mr. Anil Kumar Verma for their valuable and constructive suggestions during the planning and development of this project. Without their guidance and technical support, we would not have been able to complete effortful task.

We would like to express our great appreciation towards all the lab staff (Mr. Nripen Deka, Mr. Rakesh Kumar, Mr. Anil Kumar Verma, Mr. Indra Pal Singh, Mr. Gaurav Mishra, Mr. Bharat Raj Singh, Mr. Anurag Prasad and Mr. Pappu) for their constant supervision and encouragement which helped us in the completion of the project.
Special thanks to our TAs, Swastika Paul and Satabhisha Ghosh for giving us their valuable time.

Overall, we would like to thank our instructor in-charge Dr. Niraj Mohan Chawake for providing us with this opportunity to learn something valuable using different manufacturing processes.

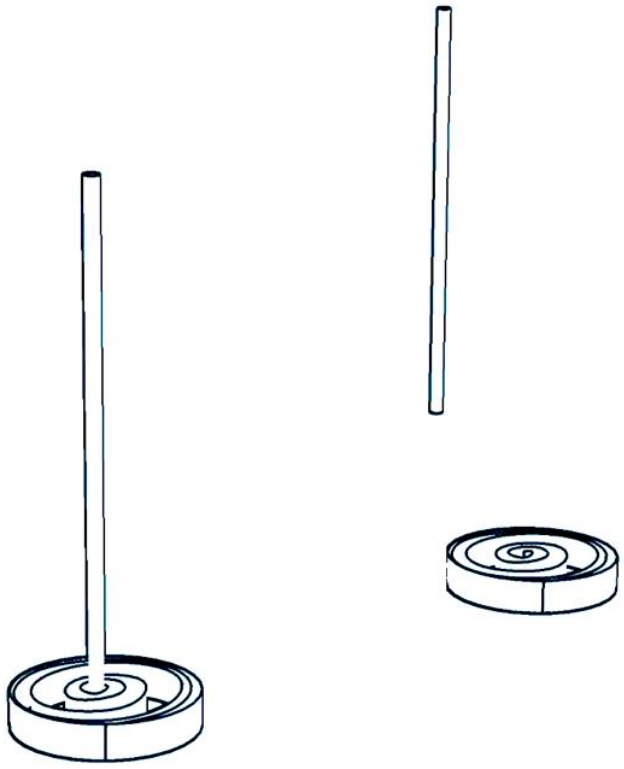
INTRODUCTION

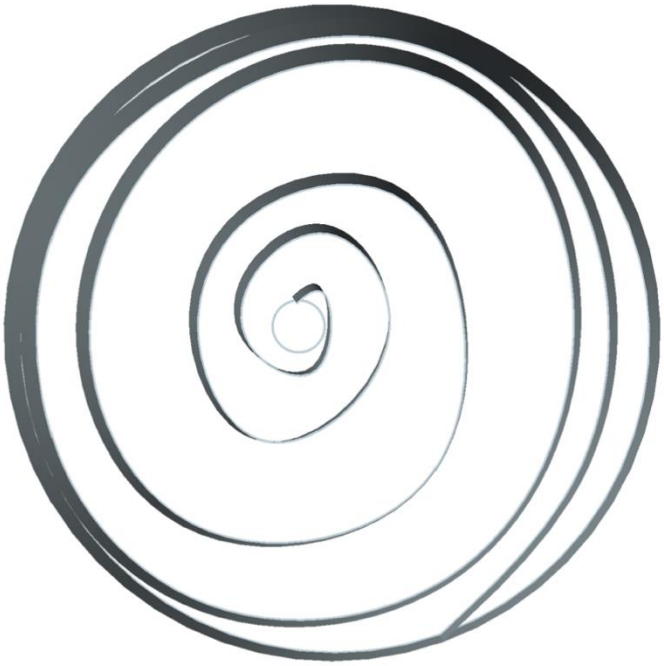
The Chinook Ch-47 IS a tandem helicopter with unmatched strategic airlift capability across different missions. It is used to deliver military equipment & cargo and transport army troops on battlegrounds and has been battle-tested in diverse, extreme conditions. The essential aspect of the tandem helicopter is that they use two counter-rotating rotors separated by a pedestal, with each cancelling out the other's torque; therefore; all of the power from the engines can be used for lift, whereas a single rotor helicopter uses some of the engine power to counter the torque. Thus Chinook has better lifting capacities accompanied by a good range of centre of gravity and longitudinal stability.

Recollecting these properties, we have tried to make the model of Chinook Ch-47 with a mechanism that depicts helicopter aerodynamics and its mobility using gear systems.

MOTIVATION

We have made *Chinook* for our TA201A project. After thinking about possible ideas, we finalized this as it felt reasonable to do with the knowledge we had and resources at hand. We wanted to work on something that would challenge our skills, but at the same time was not over-ambitious. The knowledge of manufacturing process learnt in this course was applied to complete this project. It gave us a feel of how processes work in real-life systems.

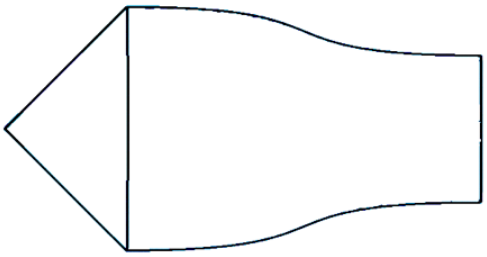


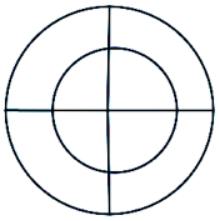


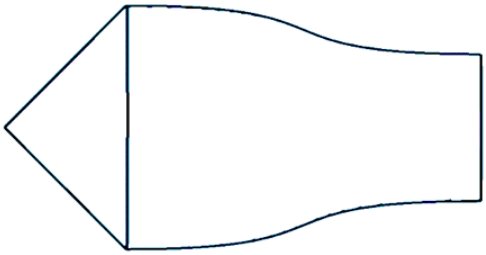
ROTATION MECHANISM

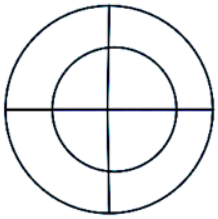
Material Used: .

Process: .





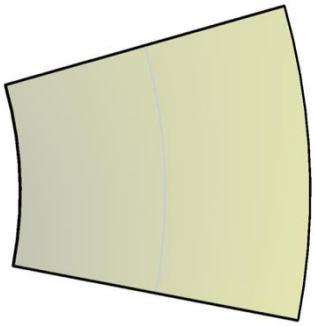


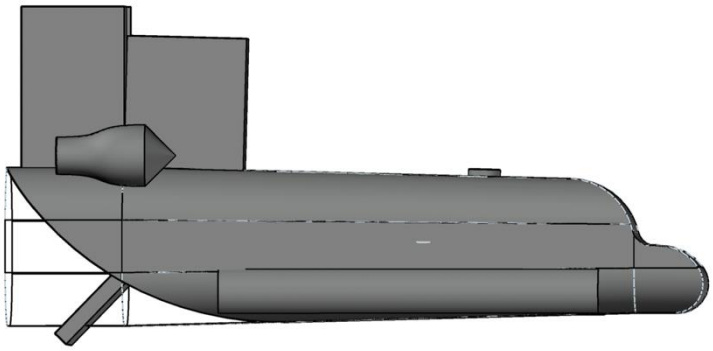


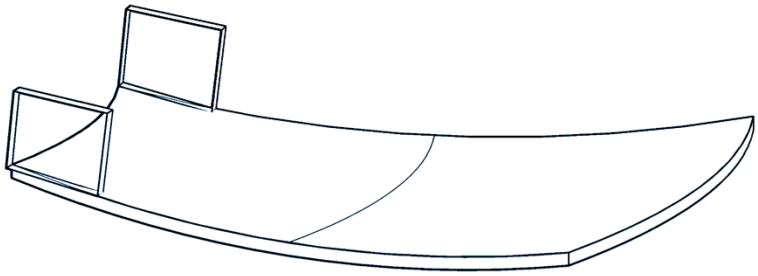
ENGINE

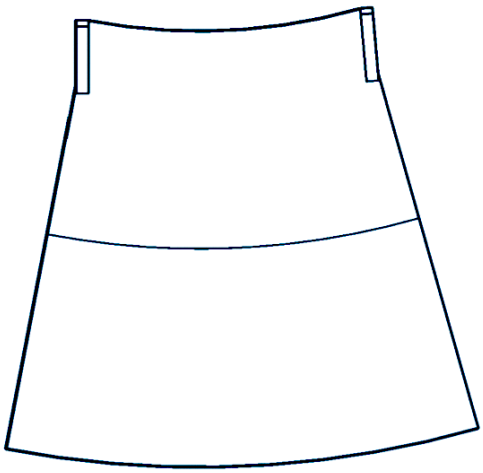
Material Used: .

Process: .





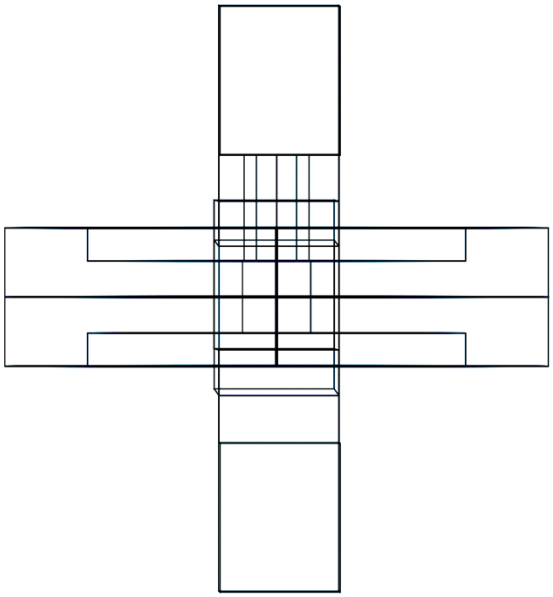


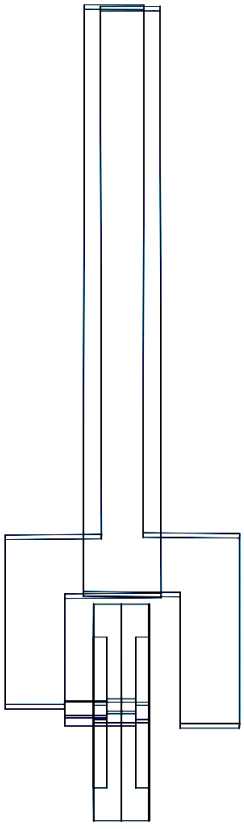


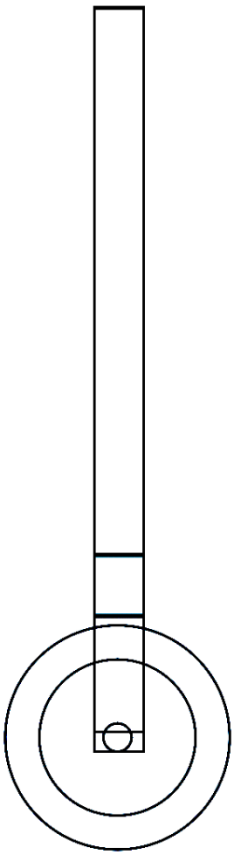
BACK DOOR

Material Used: .

Process: .



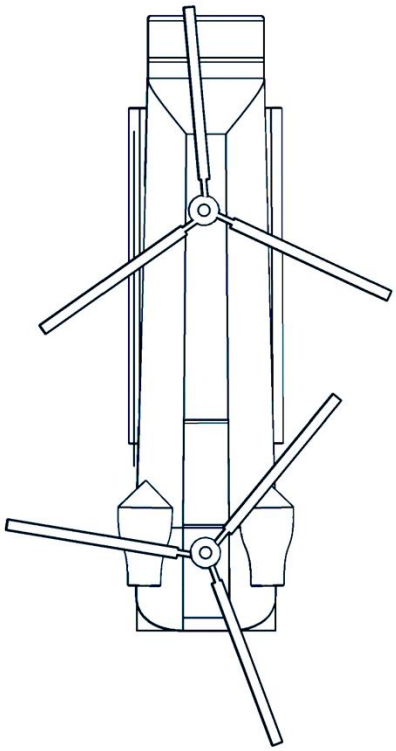


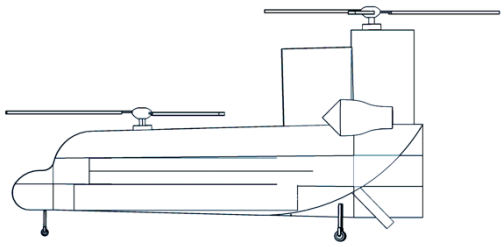


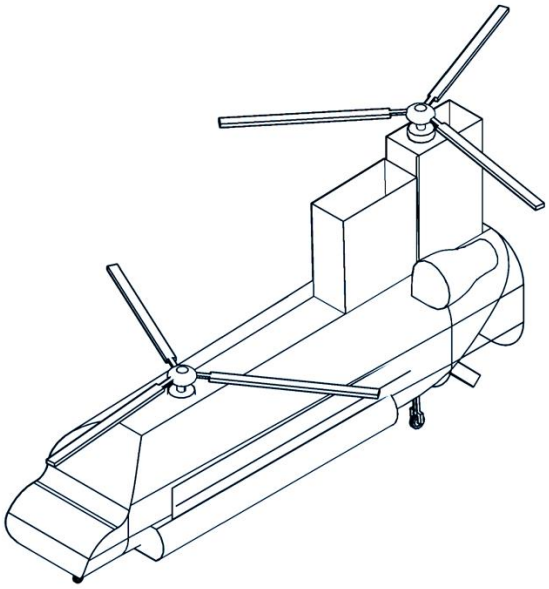
WHEEL MECHANISM

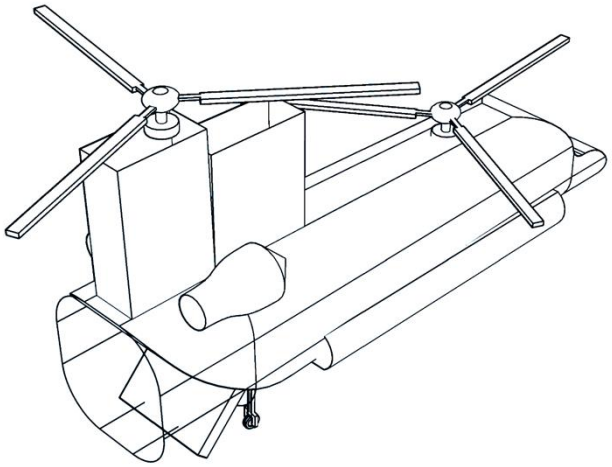
Material Used: .

Process: .

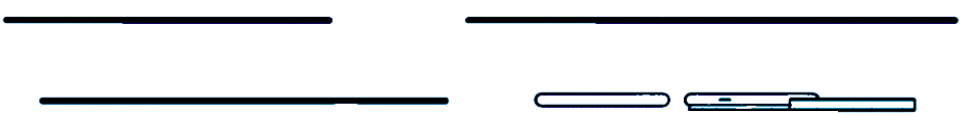


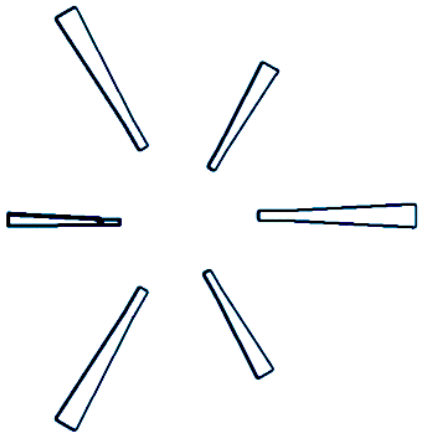


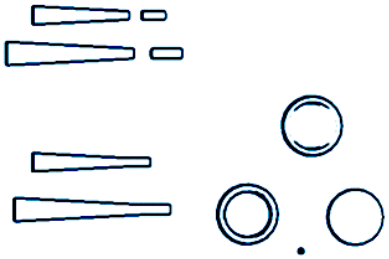




ASSEMBLED BODY





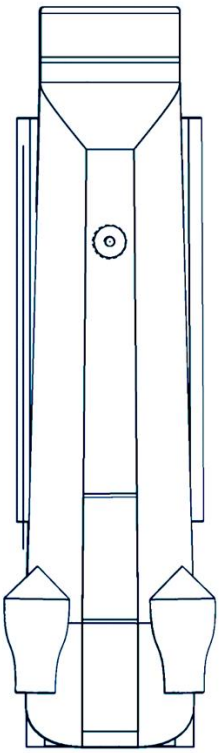


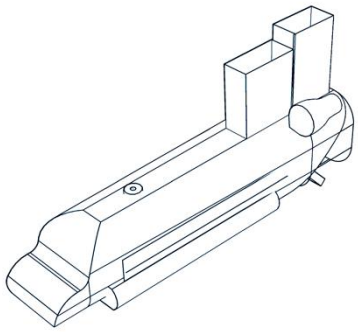
WING ASSEMBLY

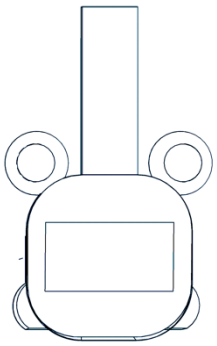
Material Used: .

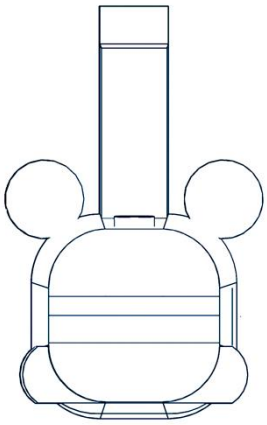
Process: .

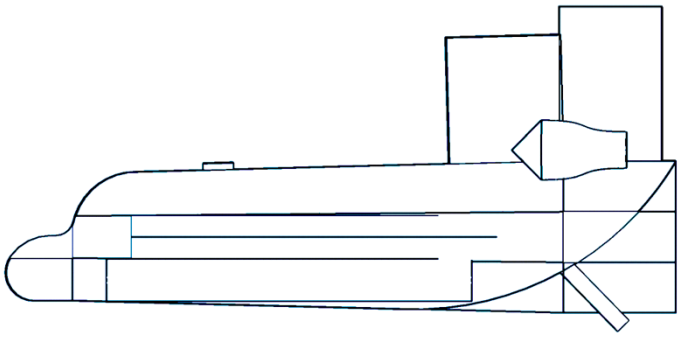
INDEX











CENTRAL BODY

Material Used: Galvanized Iron Sheet
Process: Sheet Metal