INTERNSHIP REPORT

Name: Arnisha Dhingra
Program: B.Tech in Mechanical Engineering
College: Indian Institute of Technology, Kanpur
Internship Duration: 19th May 2025 – 4th July 2025 (7 weeks / approx. 50 days)
Internship Organization: Honda Cars India Ltd. (HCIL)
Department: Part Logistic and Control (PLC)
Supervisor: Mr. Sudhanshu Singh Raghuvanshi
Date of Submission: 4th July 2025

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Mr. Sudhanshu Singh
Deputy Manager

Mr. Gufran Sami
Senior Manager

Mr. Viresh Kant Shaida
Assistant General Manager

Executive Summary

This report summarises my 7-week internship at Honda Cars India Ltd. (HCIL) in the Part Logistic and Control (PLC) Department. My work included the structural assessment of rim pallet stacking, stability analysis of steel chute systems, and contribution to layout replanning of the Knock Down (KD) Unit, leading to a space saving of over 950 m². I also refined and analysed operational databases using Microsoft Excel to support layout planning and inventory management decisions. Additionally, I performed a contamination survey of the engine assembly line. These tasks enhanced my technical, analytical, and professional competencies in an industrial setting.

Introduction

The internship at Honda Cars India Ltd., a global leader in automotive manufacturing, provided a unique opportunity to gain insights into industrial engineering, logistics, and manufacturing practices. Working in the Part Logistic and Control Department, I was involved in projects aimed at improving structural safety, optimizing facility layout, analyzing operational data, enhancing vertical space utilization, and maintaining product quality in logistics handling systems.

Objectives of the Internship

- Apply academic knowledge in structural mechanics, material flow, and layout planning in a real-world setting.
- Contribute to design and evaluation tasks in logistics storage and handling systems.
- Support data-driven decisions through Excel-based analysis of key operational databases.
- Observe quality control mechanisms including contamination risk management in engine assembly.

Tasks and Responsibilities

A. Structural Assessment – Rim Pallet Stacking

• Evaluated the existing rim pallet stacking structures for stability and load distribution.
• Identified risks related to improper stacking or deformation.
• Assisted in preparing retrofit design solutions to improve safety and stacking consistency.
• Compiled a formal assessment report detailing observations, risk factors, and structural recommendations, submitted to the engineering department.

B. Structural Stability Analysis – Interconnected Steel Chute Storage System

• Conducted a full-scale stability analysis on interconnected steel chutes used for part transfer and storage.
• Investigated base anchoring, joint integrity, and load transfer characteristics.
• Compiled findings in a detailed PDF report with structural improvement suggestions, submitted to the engineering team.
• Developed an Excel-based tool to help the team assess structural stability for future designs with varying chute heights or widths.
• Relevant screenshots of the Excel tool have been included in the Appendix for reference.

C. Layout Replanning – Knock Down (KD) Unit

• Collaborated with the internal team to replan the KD Unit layout, which handles CKD parts from Thailand, Japan, China, Indonesia, and the USA.
• Conducted area mapping, workflow study, and congestion analysis.
• Contributed to a new layout design that resulted in over 950 m² of space optimization, improving logistics efficiency.
• Applied vertical space utilization techniques to enhance part storage and accessibility.
• Layout visuals (before and after) have been included in the Appendix for reference.

D. Excel-Based Database Refinement and Analysis

• Worked on refining and analyzing multiple Excel-based data systems, including layout dimensions, part flow tracking, and storage utilization.
• Cleaned and reformatted raw data, created formulas, and generated comparison reports to support layout decisions.
• Enabled faster decision-making by organizing large datasets into actionable summaries.

Tasks and Responsibilities

E. Contamination Survey – Engine Assembly

• Carried out a survey of the engine assembly line to observe contamination risks.

• Documented processes involving material handling, tool cleanliness, and environmental controls.

• Shared findings for awareness

Learning Outcomes

a. Technical Proficiency

- Developed practical understanding of structural analysis and retrofit techniques through rim pallet and steel chute assessments.
- Created and used an Excel-based tool for chute stability analysis, incorporating real structural parameters.
- Applied industrial layout planning principles to significantly optimize floor space usage in the KD Unit.
- Enhanced skills in Excel for engineering data processing, visualization, and database streamlining.

b. Industry Insight

- Gained exposure to the operational framework of a leading automotive manufacturing facility.
- Understood logistics coordination in CKD operations involving international part sourcing from Thailand, Japan, China, the USA, and Indonesia.
- Observed the interplay between engineering design, safety, and efficiency in plant logistics and manufacturing operations.

c. Professional Skills

- Strengthened collaborative skills through interactions with logistics, quality, and engineering departments.
- Practiced technical documentation by compiling formal reports and structured data summaries.
- Improved observational and analytical thinking through contamination surveys and workflow analysis.
- Experienced the discipline and structure of working in a corporate industrial environment.

Conclusion

The internship at Honda Cars India Ltd. provided an invaluable introduction to the real-world applications of mechanical engineering concepts. Through hands-on involvement in structural assessments, layout redesign, stability analysis, and data refinement, I was able to contribute meaningfully to several ongoing initiatives within the Part Logistic and Control Department.

This experience not only strengthened my technical and analytical skills but also gave me a deeper appreciation of the complexities involved in manufacturing and logistics operations at an industrial scale. The exposure to teamwork, professional communication, and practical problem-solving has broadened my understanding of the automotive industry and reaffirmed my interest in pursuing engineering challenges beyond the classroom.

Acknowledgements

I would like to express my sincere gratitude to Mr. Sudhanshu Singh Raghuvanshi, my mentor at Honda Cars India Ltd., for his constant guidance, valuable insights, and encouragement throughout the internship. His mentorship was instrumental in shaping my learning experience.

I am also thankful to Mr. Gufran Sami and Mr. Viresh Kant Sadia for their consistent support, technical inputs, and cooperation during various stages of the projects. Their practical knowledge and openness to discussion greatly enhanced my understanding of real-world engineering challenges.

I extend my appreciation to the entire Part Logistic and Control team at HCIL for providing a collaborative and supportive environment during the course of my internship.

I would also like to thank Indian Institute of Technology Kanpur for equipping me with a strong academic foundation and fostering a spirit of curiosity that encouraged me to independently pursue this industrial learning opportunity.

Lastly, I am grateful to my peers and batchmates whose ideas, encouragement, and shared experiences throughout our first year helped shape the mindset with which I approached this internship.

Appendix

A. Layout Replanning – Knock Down (KD) Unit

Figure A1: Original layout of the KD Unit

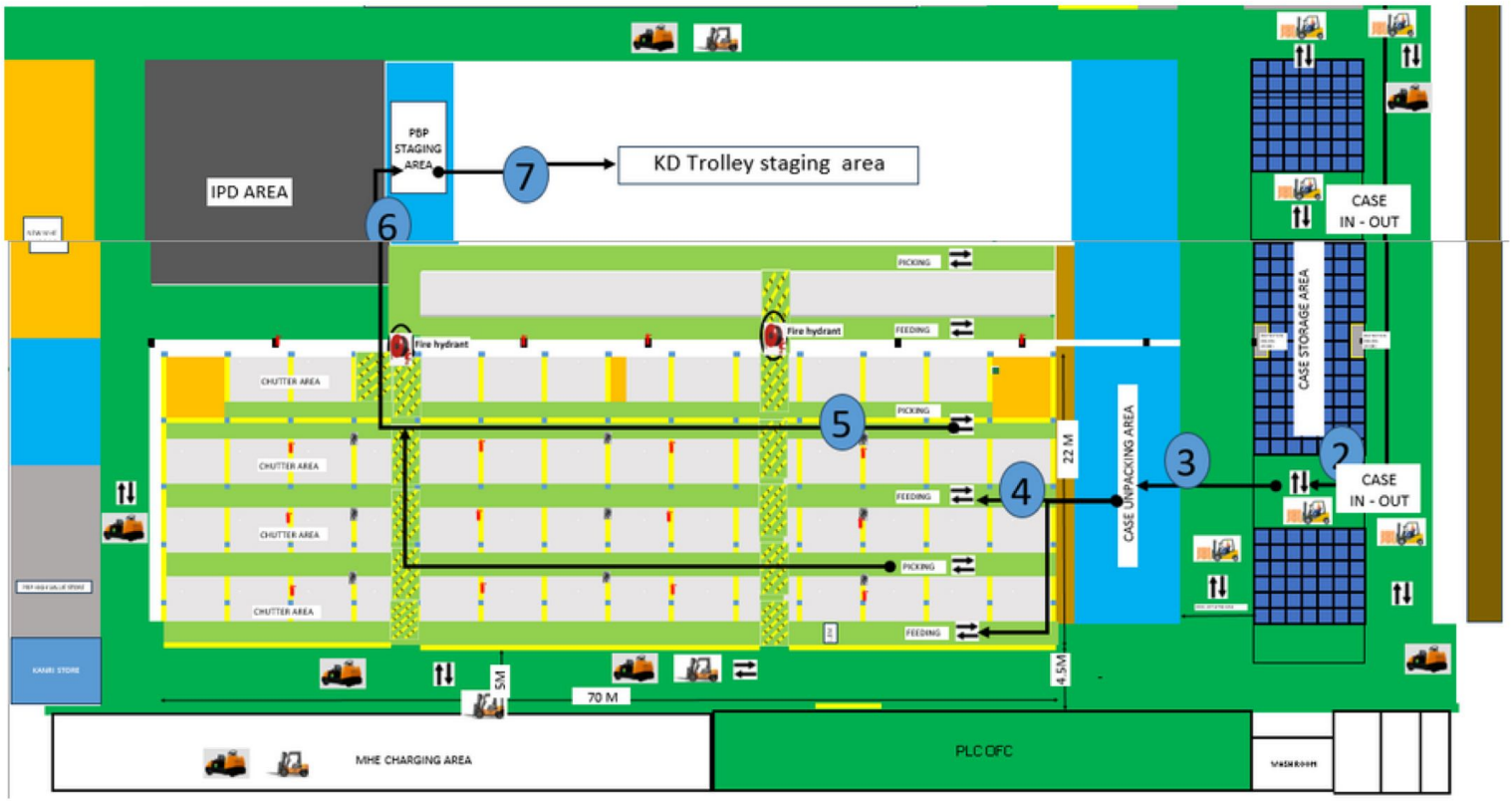


Figure A4: Final redesigned layout showing optimized part storage and improved space utilization

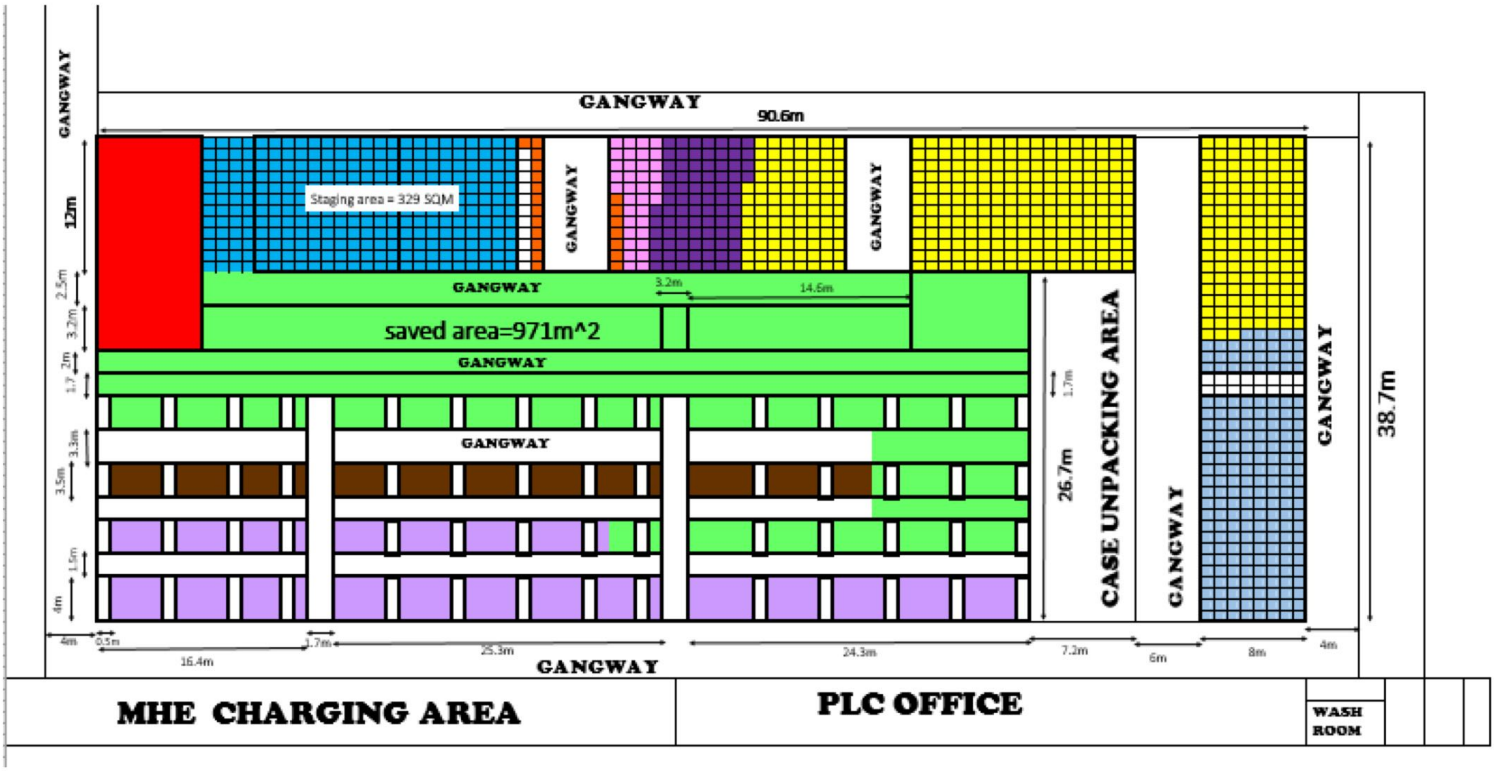


Figure A2: Area and dimension calculations used for optimization

cases	
total area	1653.24
area not for storage(pillar+case unpacking)	205.84
gangway	352.2
net area	1095.2
%age gangway of total area	21.30362
%age gangway of area used for storage	24.33329

Chutes	
total area	1852.98
area not for storage(pillar+case unpacking)	136.73
gangway	842.58
net area	873.67
%age gangway of total area	45.47162
%age gangway of area used for storage	49.09425

TotL AREA REQUIRED INCLUDING GANGWAY	989
Addition	13.6
Staging area	330

Figure A3: Code snippets and logic applied to generate the new layout

Cases								
colour	length	breadth		number of case count including actual %age	stack	area of case	net cases	area covered
	1492	2290		508.9	4	3.41668	127.225	435
	1190	1145		554.2	4	1.36255	138.55	189
	1190	2290		28.2	4	2.7251	7.05	20
	1440	1020		221.64	4	1.4688	55.41	82
	1492	1145		80.4	4	1.70834	20.1	35

	chutes					
COLOUR	length	avg length	avg breadth	count	area required	
	2000+6000	2005	478	176	169	172.2
	4000+8000 +12000	4219	608	134	344	345.9
						518.1

Saved Area	
Chutes	972.4

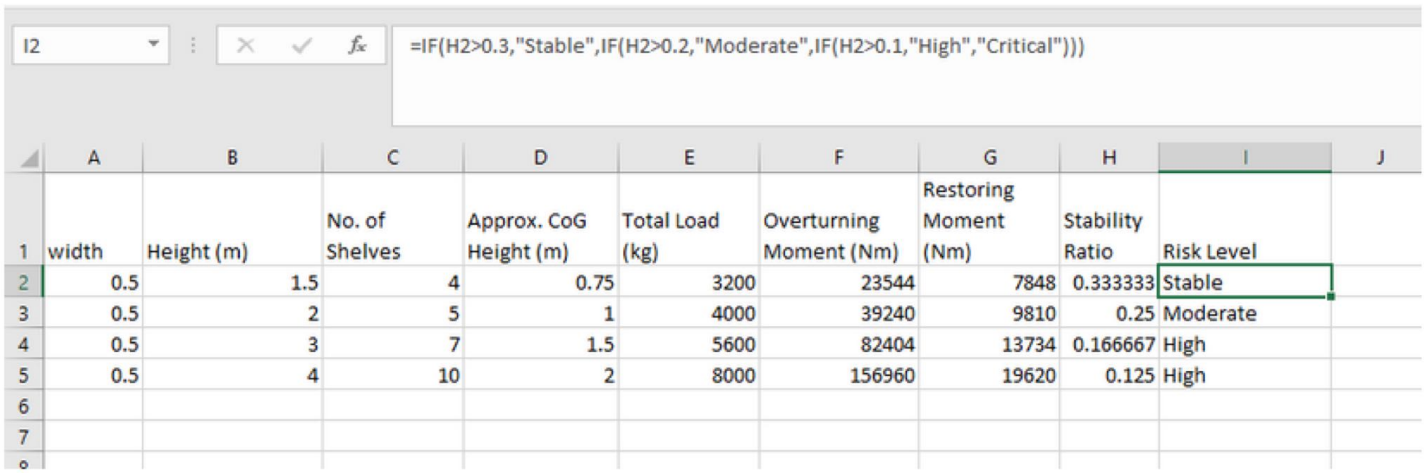
B. Structural Stability Analysis – Interconnected Chute System

Figure B1: Screenshot of Excel tool for slenderness check

E2 =IF(D2<600,"Acceptable",IF(D2<800,"Borderline",IF(D2<1200,"Buckling Concern","Critical (Needs Bracing)")))

	A	B	C	D	E	F	G	H	I	J	K
1	Height (m)	Unsupported Length (mm)	Radius of Gyration (m)	Slenderness Ratio (λ)	Stability Status						
2	1.5	1500	0.00291	515.4639175	Acceptable						
3	2	2000	0.00291	687.2852234	Borderline						
4	3	3000	0.00291	1030.927835	Buckling Concern						
5	4	4000	0.00291	1374.570447	Critical (Needs Bracing)						
6											

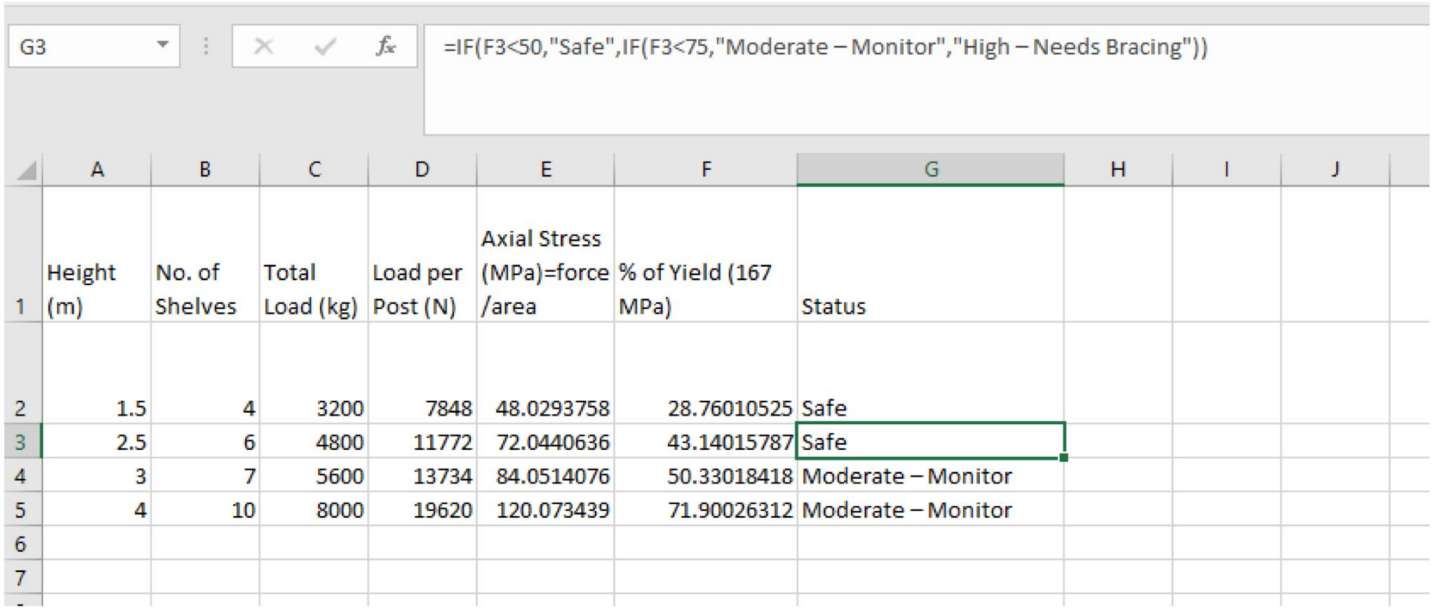
Figure B2: Screenshot of Excel tool for Moment Stability



I2 =IF(H2>0.3,"Stable",IF(H2>0.2,"Moderate",IF(H2>0.1,"High","Critical")))

	A	B	C	D	E	F	G	H	I	J
1	width	Height (m)	No. of Shelves	Approx. CoG Height (m)	Total Load (kg)	Overturning Moment (Nm)	Restoring Moment (Nm)	Stability Ratio	Risk Level	
2	0.5	1.5	4	0.75	3200	23544	7848	0.333333	Stable	
3	0.5	2	5	1	4000	39240	9810	0.25	Moderate	
4	0.5	3	7	1.5	5600	82404	13734	0.166667	High	
5	0.5	4	10	2	8000	156960	19620	0.125	High	
6										
7										

Figure B3: Screenshot of Excel tool for Axial Stress Check



G3 =IF(F3<50,"Safe",IF(F3<75,"Moderate – Monitor","High – Needs Bracing"))

	A	B	C	D	E	F	G	H	I	J
1	Height (m)	No. of Shelves	Total Load (kg)	Load per Post (N)	Axial Stress (MPa)=force /area	% of Yield (167 MPa)	Status			
2	1.5	4	3200	7848	48.0293758	28.76010525	Safe			
3	2.5	6	4800	11772	72.0440636	43.14015787	Safe			
4	3	7	5600	13734	84.0514076	50.33018418	Moderate – Monitor			
5	4	10	8000	19620	120.073439	71.90026312	Moderate – Monitor			
6										
7										