Industrial Robotics Telemetry & Performance Dashboard

This project presents a comprehensive industrial analytics dashboard focused on robotic operations and mechanical telemetry. It consolidates task execution data, operational status, and performance indicators to provide a clear overview of how an industrial robotic system behaves in production. Key metrics such as total tasks, average task duration, error rate, task status distribution, and execution time by task type enable fast identification of bottlenecks and performance differences across processes and robot models.

In addition, the dashboard integrates mechanical and temporal data such as speed, acceleration, and joint torque readings, allowing deeper analysis of robot behavior over time. The solution is connected to a MySQL database, supporting near real-time monitoring and demonstrating a professional data modeling approach suitable for industrial analytics, automation, and mechatronics use cases. This project highlights practical skills in data modeling, Power BI visualization, and end-to-end monitoring of industrial systems.

| FLA-2019 |
| FLA-2022 |
| FLA-2025 |

| 12/08/2025 |
| 12/09/2025 |
| 12/10/2025 |
| 12/11/2025 |
| 12/12/2025 |

Assembly	Pick & Place
Calibration	Quality Check
Inspection	Sorting
Metal Cutting	Welding
Packaging	
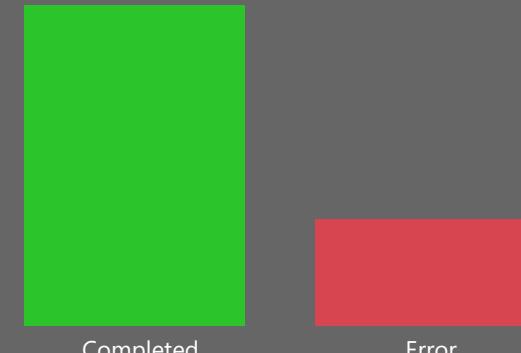
0,25	660,17	12
Error Rate	Avg Task Duration (Sec)	Total Tasks
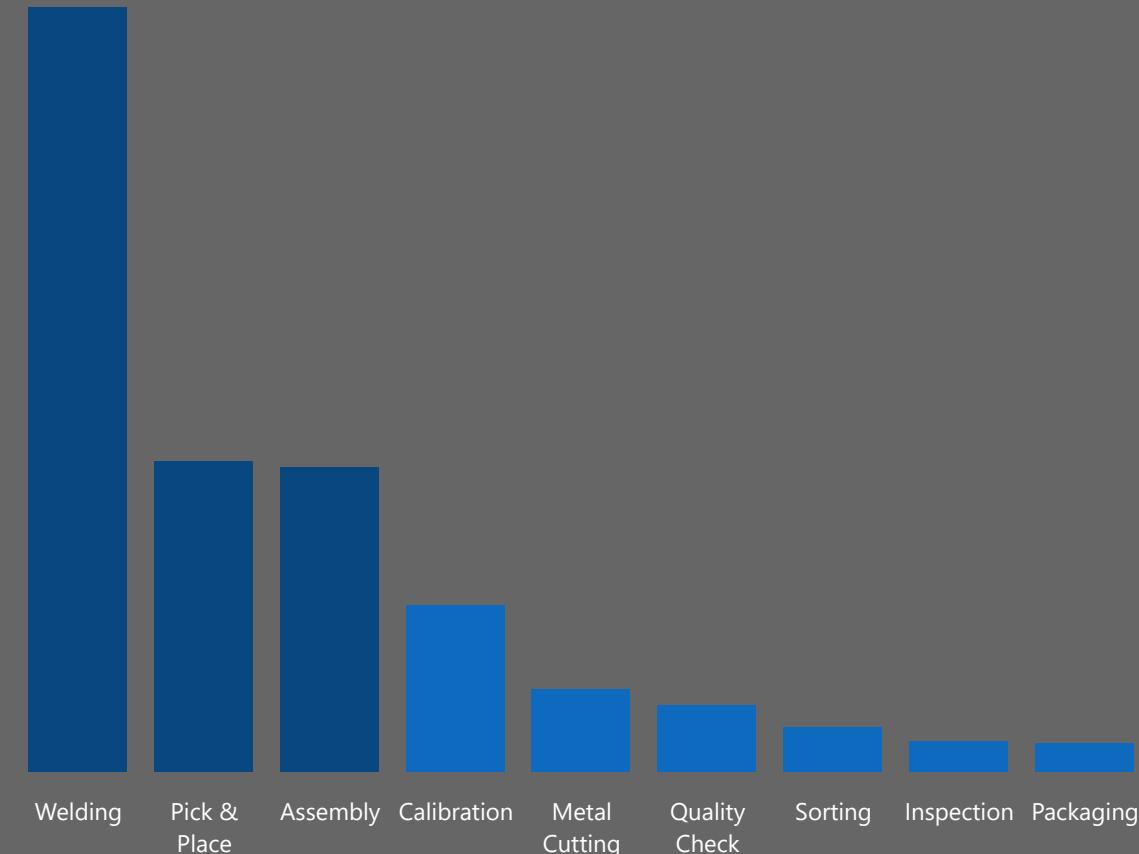
Task Duration Avarage (Sec)

Task's Status

Speed, Acceleration, and Joint Torque Monitoring

24.00
Peak Torque (Max)

**52**
Total Movements
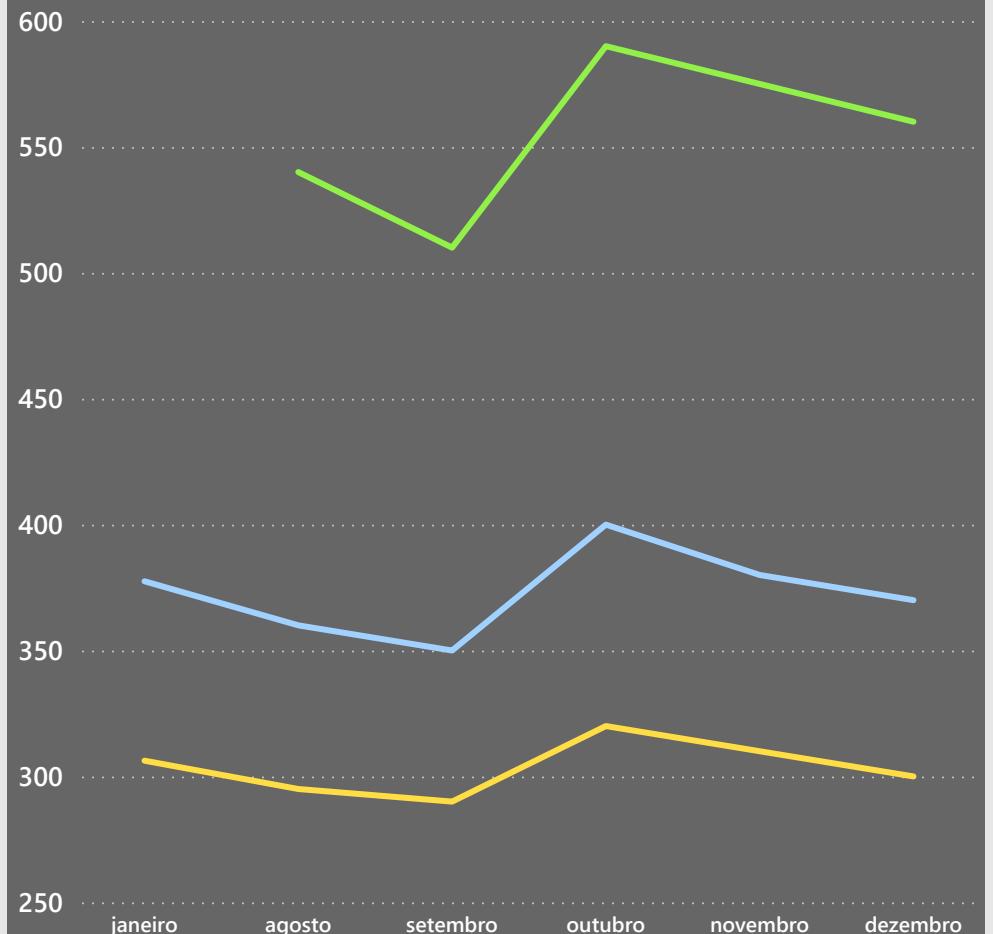
FLA-2019
FLA-2022
FLA-2025

12/08/2025   12/09/2025
12/10/2025   12/11/2025
12/12/2025
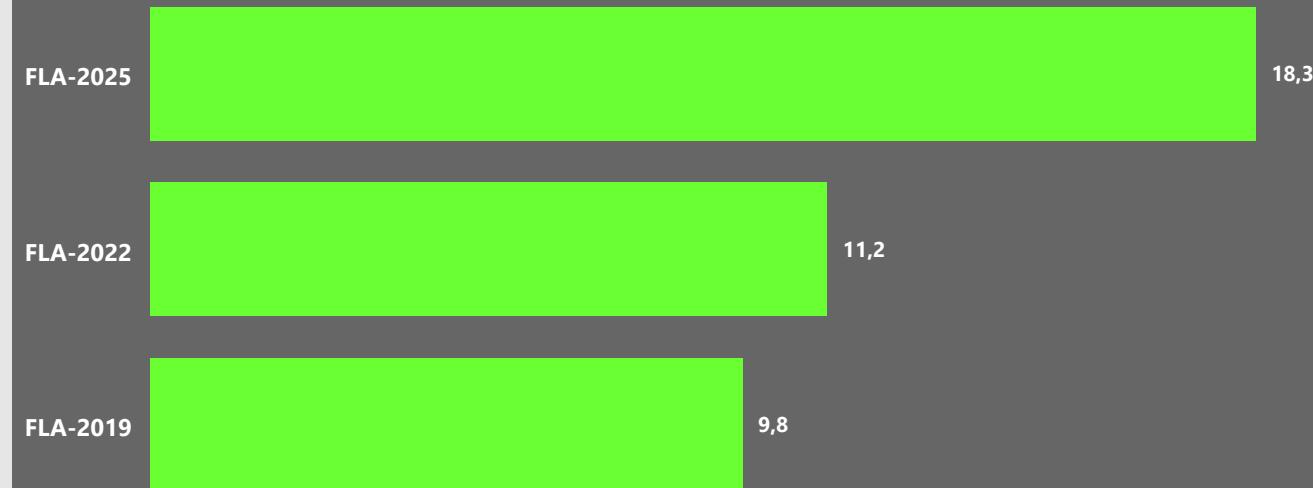
joint_1   joint_2
joint_3   joint_4
joint_5   joint_6

Speed Average by Month

ID ●1 ●2 ●3

600	
550	
500	
450	
400	
350	
300	
250	

janeiro   agosto   setembro   outubro   novembro   dezembro
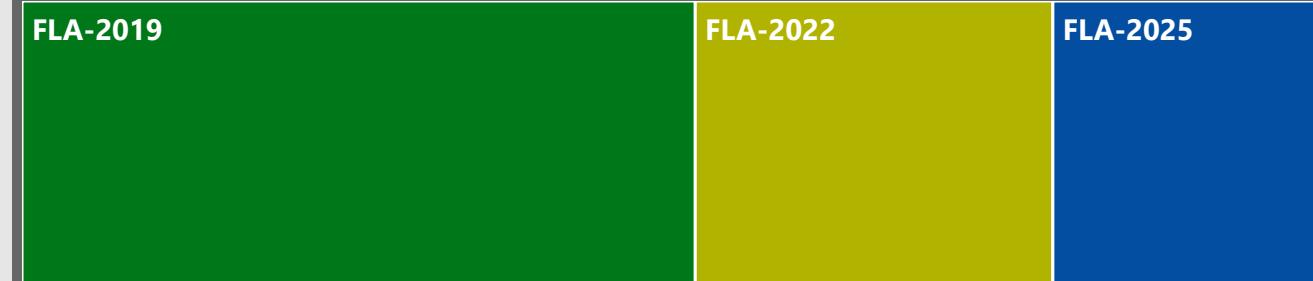
Torque Average per Joints

FLA-2025 — 18,3
FLA-2022 — 11,2
FLA-2019 — 9,8

Acceleration Avarage by Model

FLA-2019   FLA-2022   FLA-2025

Detailed Operational Logs and Telemetry for In-Depth Analysis and Troubleshooting

FLA-2019	FLA-2022	FLA-2025

Assembly	Pick & Place
Calibration	Quality Check
Inspection	Sorting
Metal Cutting	Welding
Packaging	

12/08/2025	12/12/2025

Count of task_ID	task_name	start_time	end_time	Task Duration (Secs)	status	m
	Assembly	12/08/2025 19:02:00	12/08/2025 19:07:20	320	Completed	FLA
	Assembly	12/09/2025 12:00:00	12/09/2025 12:19:59	1199	Completed	FLA
	Calibration	12/11/2025 23:01:00	12/11/2025 23:07:55	415	Completed	FLA
1	Inspection	12/08/2025 19:05:00	12/08/2025 19:06:15	75	Completed	FLA
	Metal Cutting	12/12/2025 20:01:00	12/12/2025 20:04:25	205	Completed	FLA
	Packaging	12/11/2025 20:02:00	12/11/2025 20:03:10	70	Error	FLA
1	Pick & Place	12/09/2025 11:00:00	12/09/2025 11:23:11	1391	Completed	FLA
1	Pick & Place	12/12/2025 10:31:00	12/12/2025 10:33:40	160	Completed	FLA
	Quality Check	12/12/2025 10:05:00	12/12/2025 10:07:45	165	Completed	FLA
1	Sorting	12/10/2025 07:55:00	12/10/2025 07:56:50	110	Error	FLA
	Welding	12/08/2025 19:01:00	12/08/2025 19:04:32	212	Completed	FLA
	Welding	12/09/2025 07:00:00	12/09/2025 08:00:00	3600	Error	FLA
1	Assembly	12/08/2025 19:02:00	12/08/2025 19:07:20	320	Completed	FLA
1	Assembly	12/09/2025 12:00:00	12/09/2025 12:19:59	1199	Completed	FLA

robot_ID	Ano	Trimestre	Mês	Dia	Joint_name	Sum of Tor
1	2025	Qtr 3	agosto	12	joint_1	10,
1	2025	Qtr 3	setembro	12	joint_1	10,
1	2025	Qtr 4	outubro	12	joint_1	11,
1	2025	Qtr 4	dezembro	12	joint_1	11,
2	2025	Qtr 3	agosto	12	joint_1	14,
2	2025	Qtr 3	setembro	12	joint_1	14,
2	2025	Qtr 4	novembro	12	joint_1	15,
2	2025	Qtr 4	dezembro	12	joint_1	14,
3	2025	Qtr 3	agosto	12	joint_1	23,
3	2025	Qtr 3	setembro	12	joint_1	22,
3	2025	Qtr 4	novembro	12	joint_1	24,
3	2025	Qtr 4	dezembro	12	joint_1	23,
1	2025	Qtr 3	agosto	12	joint_2	8,5
Total						**5.63**

Ano	Trimestre	Mês	Dia	Sum of speed_mm_s	Sum of acceleration	Sum of pos_x	Sum of pos_y	Sum of p
2025	Qtr 3	agosto	12	2.160,00	640	540,40	349,20	196,4
2025	Qtr 3	setembro	12	1.020,00	270	250,70	165,40	93,1(
2025	Qtr 4	outubro	12	2.360,00	800	601,20	370,00	211,2
2025	Qtr 4	novembro	12	2.300,00	720	582,80	364,80	204,0
2025	Qtr 4	dezembro	12	2.240,00	680	561,60	356,00	200,8
2024	Qtr 1	janeiro	10	1.510,00	370	852,40	551,70	376,7
2025	Qtr 3	agosto	12	1.080,00	246	617,70	400,20	276,3
2025	Qtr 3	setembro	12	350,00	80	200,10	130,30	90,8(
2025	Qtr 4	outubro	12	1.200,00	315	662,10	426,90	288,6
2025	Qtr 4	novembro	12	1.140,00	285	646,80	419,70	285,0
2025	Qtr 4	dezembro	12	1.110,00	264	630,60	408,30	280,2
2024	Qtr 1	janeiro	10	1.225,00	272	1.316,80	865,30	737,2
2025	Qtr 3	agosto	12	885,00	186	972,00	636,60	543,0
Total				**21.660,00**	**5818**	**11.734,60**	**7.613,70**	**5.63**