CARIMO

Plug in.

Spin it.

Load it.

Export it.

Your data. Your model. Your kit.

The CARIMO Machine Learning Kit turns real motor, current and vibration signals into datasets you can actually learn from. Plug in. Spin it. Shake it. Export it.

12
features from just 3 sensors, streamed live

6
preprocessing experiments, plus apps for classification, regression & clustering

CSV
export to MATLAB®, Python, R, Weka*



Data Analytics | Data Science | Signal Processing | Statistics | Probability

* CARIMO does not provide or support third-party platforms (MATLAB®, Python, R, Weka, KNIME, RapidMiner). Any study or analysis done in them is entirely the user's responsibility.

Bridging theory with practical learning.

The CARIMO ML Kit is a hands-on platform that turns lectures into lab work. Hardware and software together give students, researchers and professionals real-world data across the whole data-science stack.

8 SUBJECTS. ONE KIT.

- Machine Learning
- Data Analytics
- Data Science
- Deep Learning
- Time Series
- Signal Processing
- Statistics
- Probability



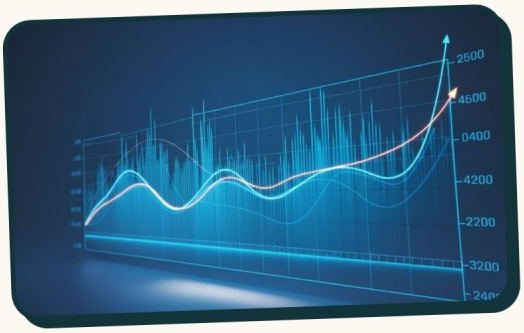
How it works

01 Plug in
USB 2.0 to your laptop. The GUI is ready to stream.

02 Mess with it
Change PWM speed, swap load disks, turn the vibration knob.

03 Watch it live
12 features from 3 sensors plot in real time. Zoom, pivot, compare.

04 Export CSV
Take it to MATLAB®, Python, R or Weka* for deeper work.



What you actually learn

- **Real data analysis** work on signals you generated yourself
- **ML model dev** classification, regression, clustering
- **Data prep** feature selection, scaling, PCA
- **Statistics** mean, variance, correlation

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Hardware that talks data.

Main motor
DC motor with quadrature encoder, speed accuracy ±8 RPM

Current sensor
Range ±3 A, real-time electrical monitoring

Vibration sensor
3-axis accelerometer, ±2 g range, 1.0 mg resolution

Load system
3 disks of different inertia, swap them on the shaft

PWM control
Set motor speed straight from the GUI

Vibration knob
PWM to the vibration motor for adjustable vibration



THE BRAIN
ARM Cortex-M4 32-bit (84 MHz), 12-bit ADCs, USB 2.0 to the PC

3 sensors. 12 features.

Speed
Encoder on the main motor

Current
Real-time electrical monitoring

Vibration
3-axis accelerometer

→

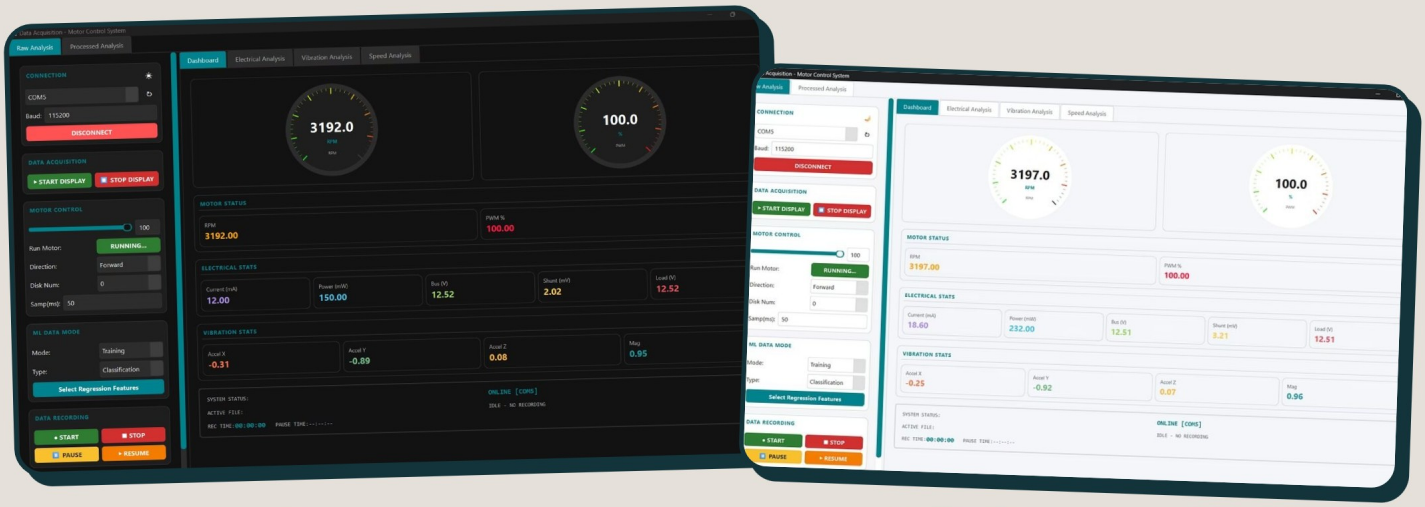
12
features, ready for ML

LOGGING
Motor signals at 50 Hz. Vibration at 500 Hz. Every run saved to CSV.

BUILD & POWER
Durable ABS enclosure. 12 V DC adapter. Windows PC software.

Start with 25. Grow to 90+

Real-time plots of 12 features from 3 sensors, adjustable controls and one-click CSV export.
Create real-world conditions by actually changing the hardware: speed, load, vibration.



Real-time visualization | CSV export | Adjustable controls | Hardware-driven real-world conditions

Included: AIMX Standard · no MATLAB® needed

Data preprocessing app
Comes with 6 experiments: table, visualize, clean, group, rank and reduce your kit data.

Classification app
Separate app. Train and score classifiers on your own runs.

Regression app
Separate app. Fit, predict and compare regression models.

Clustering app
Separate app. Find structure in unlabelled sensor data.

AIMX STANDARD — INCLUDED
25
ML models, 6 experiments, ML Kit CSV data

AIMX ADVANCED — ADD-ON
92
ML models: 42 classification, 40 regression, 10 clustering. Any CSV.

ML NOTEBOOKS — ADD-ON
68
guided experiments in 4 MATLAB® Live Scripts. Needs your MATLAB®.

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From first plot to first model.

BEGINNER

→ Data Visualization

→ Basic Statistics

→ Data Preprocessing

INTERMEDIATE

→ Feature Selection

→ Regression Modeling

→ Clustering (K-means, DBSCAN)

ADVANCED

→ Classification (Trees, SVM, k-NN)

→ Model scoring & comparison

→ Signal Processing (FFT, filters)

Fits right into your syllabus

Statistics

Mean, variance and ANOVA on your own motor data

Probability

Bayes and distributions on real sensor noise

Data Science

Import the CSV, visualize, clean and prepare

Regression

Linear, Ridge and SVR, scored with MSE and R-squared

Classification

Trees, SVMs and k-NN, scored with accuracy and F1

Signal Processing

Filters and FFT on the motor and vibration signals

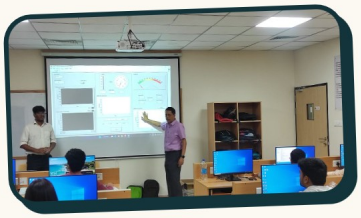
Go further with your own tools*

Export the CSV and run these in your own environment. Not provided by CARIMO.

More Classification (SVM, Trees, k-NN)

More Regression (Linear, Ridge, SVR)

Advanced PCA

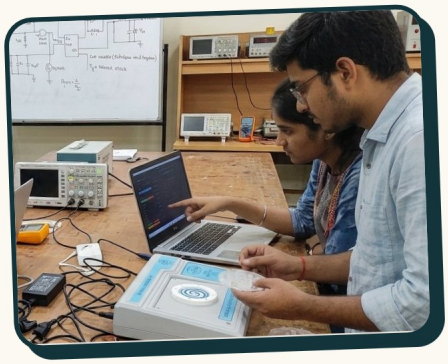


Pro tip: start with the 6 built-in experiments, then export the same CSV to your own tools and go deeper.

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Built for research too.

- Algorithm testing & development
- Advanced statistical analysis
- AI research
- Signal processing & optimization
- Time series & predictive maintenance
- Industrial data analytics
- Collaborative research
- Educational research





Used in labs for ML, data science and signal processing courses. The same kit scales from one bench to a whole class.

Why teams pick the ML Kit

Real-world data
generate your own datasets

Versatile
works across disciplines

Hands-on
experiments that stick

Tool-friendly
MATLAB®, Python, R, Weka, KNIME, RapidMiner*

AI & deep learning
from stats to neural nets

Faster R&D
prototype ideas on real signals

Collaborative
shared datasets, shared learning

Cost-effective
scales from one bench to a full lab

IN THE BOX

+ ML Kit unit
+ 12 V DC adapter
+ 3 load disks
+ USB cable
+ User manual
+ 1-year warranty

TALK TO US

CARIMO Technologies Pvt Ltd
203, Palms 1, Royal Palms Estate, Aarey Colony,
Goregaon E, Mumbai 400065
contact@carimo.tech
+91-9082397027
www.carimotech.com

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About CARIMO

An AI-based startup recognized by the Government of India (July 2024), incubated at IIT Bombay and built on 36 years of expertise in Systems and Control. Fields: Control, AI, Real-Time Systems, Implementation, Modeling and Optimization. DPIIT recognized · UDYAM MSME registered.