

Who are we?

NikOttO is a private limited company founded by alumni and research scholars of the Indian Institute of Technology Madras. We were incubated by Nirmaan under the mentorship of Prof. A. Ramesh. We are specialized in research and development of customized products & solutions to the automotive industry.

Our Vision

To create a safer, smarter and sustainable mobility ecosystem

Our Mission

To become the most preferred mobility solution partner by delivering innovative and affordable solutions.

Other Products

- MisfireGen- Real time Misfire Emulator
- LambdaGen- Lambda sensor ageing simulator
- EngineScan – Combustion Analysis System for IC Engines
- WankelScan – Combustion Analysis System for Wankel Engine
- Dyno-Ctrl'r – Eddy current Dyno Controller

REGISTERED OFFICE

No. 47/48, Balavinayagar Koil Street,
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EngineSim

Engine Signal Simulator



ENGINE Sim



About EngineSim

A device capable of **emulating signals** produced by the wide variety of **sensors** found in today's state-of-the-art engines. This device is **helpful in HIL testing of ECU and sensor/wiring harness diagnostics**. This enables testing of the control algorithms and evaluate performance for extreme sensor outputs in an ECU, in a bench top system. This HIL testing strategy prevents engine component failures and reduces engine testing time. This tool is also helpful in diagnosis and **rectification of issues** in the wiring harness and faulty sensor detection.

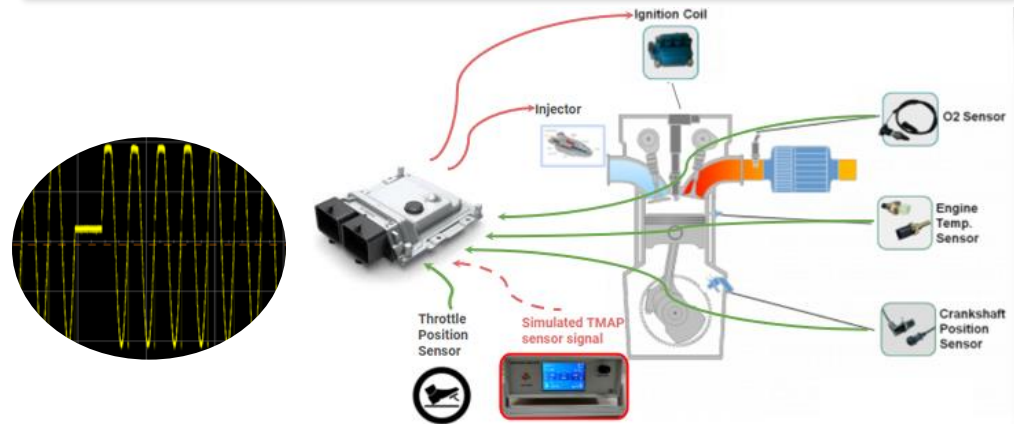
EngineSim finds its wide usage from research labs to engine test beds to in-vehicle applications.

Additionally, this product can be extended to emulate signals for electric powertrains, which can be developed on top of this existing platform. Modular architecture enables easy adaption any customer-specific requirements.

Hardware-in-loop testing of engine controllers, control algorithm validation, signal fault-insertion testing for model validation, OBD testing, and fuel injection test rigs can be done.

KEY FEATURES

- This signal emulator is capable of **producing signals in steady conditions**.
- These signals are produced with **great accuracy** and repeatability using a combination of robust hardware and reliable software developed in-house.
- Various signals included in "EngineSim" are Crank, Cam, Manifold Pressure, Intake Air Temperature, Engine Coolant Temperature, Throttle Position, Narrow and Wide Band Exhaust Gas Oxygen Sensor.
- These emulators can be used for calibrating and testing devices like PFI fuel injectors, GDI fuel pumps, GDI injectors, and spark plugs along with the ECU in this setup.
- This device simplifies the development of a new algorithm and helps in testing using the simulator before it can be validated on the actual engine. This saves a lot of time and cost.
- It also has an easy-to-use interface that allows the end user to configure the different sensors emulated and their characteristics.



SPECIFICATIONS

SENSOR	RANGE	RESOLUTION
Variable Reluctance sensor - Crank Trigger wheel	Sinusoidal with missing teeth ± 10 V	100 to 10000 rpm in step of 100
Half effect sensor - CAM	5 V Digital	Rise/Fall Timing resolution- 6 deg
Throttle Position, Manifold Air Pressure, Wideband Lambda	0 to 5 V Analog	2.5 mV
Narrow band Lambda	0 to 1 V Analog	0.1 mV
Thermistor – Coolant, Inlet Air Temperature	0 to 10 KOhm	40 ohm