# REALITY AI LOAD DETECTION

Application Example for Sensorless Three-Phase Motor Control

Does your sensorless three-phase BLDC or PMSM motor control solution know the load during startup sequence? Renesas brings awareness to those system to identify the load within the startup time, sets startup current for better performance and reduces the stress within while keeping the same hardware configuration.
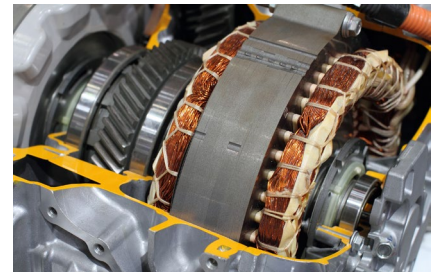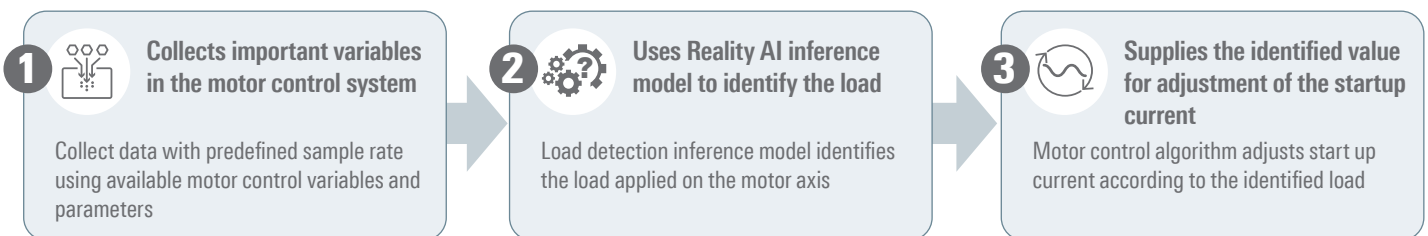
Features and Benefits

- Fully sensorless and enhanced solution
  - RealityCheck™ Motor enables estimation of the load during the beginning of the motor startup sequence to generate an AI classification model
  - Provides flawless integrated workflow using the e2 studio IDE and Reality AI Tools®
- Optimized footprint with 12.5KB Flash and 6.5KB RAM
- Identifies various possible load levels applied to motor shaft
- Enables BOM cost optimization and increased system power efficiency
- Ready-to-use demonstration package available on MCK-RA6T2

Project Workflow

Application example works in three steps.

1 Collects important variables in the motor control system

Collect data with predefined sample rate using available motor control variables and parameters

2 Uses Reality AI inference model to identify the load

Load detection inference model identifies the load applied on the motor axis

3 Supplies the identified value for adjustment of the startup current

Motor control algorithm adjusts start up current according to the identified load

Target Applications

e-bike

Washing Machine

Delivery Robots

Blender

- For more information visit renesas.com/realityai-tools
- Request a demo to see load detection in operation