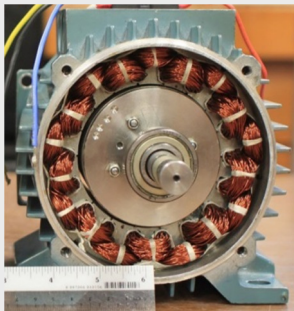




Australia's
Global
University

NEXT GENERATION motor and drive system with magnetic self-healing capability, immune to common electrical faults

Capability to continue normal operation after a failure in a semiconductor switch, an internal stator fault, or disconnection of one or more terminals.



A prototype high-speed compact IPM machine designed in our labs



Developed H-Bridge Inverter in our labs

More information

Dr Mohammad Farshadnia

Project Leader at Energy Systems Research Group

T: +61 (0) 439 302 539

E: m.farshadnia@unsw.edu.au

Fault-Tolerant Drive System with Magnetic Self-Healing Capability in the Electric Motor

Energy Systems Research Group

Competitive advantage

Next Generation Fault-Tolerant Motor and Electric Drive

- Highly suitable for safety-critical applications
- Maintains a constant post-fault speed and torque with a stable operation
- Possible three phase or multiphase system options
- High speed and high torque capability

High Efficiency at a Lower Cost and Lighter Weight

- Optimal design of the motor using in-house developed optimiser package
- Cheap manufacturing using the existing production lines

Potential applications

- Drones / Aerospace / Military Defence
- Electric Vehicles / Rail Transportation
- Marine Propulsion Systems

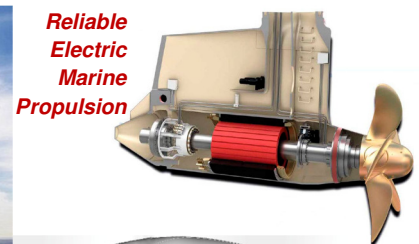
Ongoing research projects

- Development of a magnetically self-healing electric motor and drive system
- Development of three-phase and five-phase H-bridge converters
- Sensor-less state-of-the-art control for permanent magnet motors

Facilities and infrastructure

- State-of-the-art well-equipped Power Electronics and Drives Lab
- High-performance dSPACE and DSP platforms for drive systems

Safe Air taxis / Drones



Reliable Electric Marine Propulsion

Reliable Electric Vehicles with a long range travel distance



Our experts



Dr Mohammad Farshadnia



Matthew Priestley



Prof John Fletcher



Dr Rukmi Dutta