An EtherCAT Network of Raspberry Pi Computers

HACKATHON

5-6 JUNE, 2019

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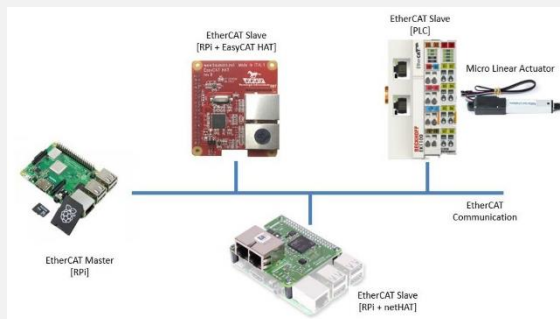# CHALLENGE

🗓 **WHEN**

June 5-6, 2019

📍 **WHERE**

University of Naples Federico II
Piazzale Tecchio
Naples, Italy

EtherCAT (Ethernet for Control Automation Technology) is an incredible fast and reliable real-time Ethernet network ideal for Internet of Things, industrial automation and other real-time applications. A single EtherCAT network supports over 65 thousand devices without placing restrictions on the topology and, since the physical layer is supported by Ethernet, needs no special cables or crossovers.

In an EtherCAT network, a master device writes a message and sends it downstream to the all the slave devices.

Since the data is processed on-the-fly, the message does not stop moving when a slave reads or adds data and, in general, there is a 1μs port-to-port delay between a received and transmitted message between slaves.

This challenge focuses on integrating low-cost computing devices, i.e. Raspberry Pi (RPi) computers, into an industrial EtherCAT network so that they can communicate with a programmable logic controller (PLC).

CHALLENGE

The competition will be divided in three incremental phases.

Phase 1: Raspberry Pi as EtherCAT Master

Phase 2: Raspberry Pi as EtherCAT Slave

Phase 3: Full EtherCAT Network

REQUIREMENTS

The competition is open to all students (high-school, bachelor, master, Ph.D.) from all-over the world, without any limitation on age or studying field.

CONTACTS

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