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TO: Whom it may Concern
Electrical Engineering Department
University of Cape Town

Completion of Workplace Experience by Kamryn Norton

We had the pleasure of hosting Kamryn Norton (a Mechatronics student who completed her 3rd year in 2022) for the period 2023-01-16 to 2023-01-27.

This was her second vacation training period at IDX and again it was a pleasure to host her.

During these two weeks she joined three other students in a very practical and hands-on assignment involving a recently developed embedded module – IDX Nexus – based on an ESP32-S3 and supporting Isolated RS232, RS485, CAN and both Bluetooth and WiFi wireless.

The four students worked both individually and in teams of two on three actual customer projects that will make use of IDX-Nexus. In addition to going through the technical design and project workflow from requirement to solution, they did the embedded coding and testing of functions for these projects.

- **Nexus-Inspecta** was a project to replace an obsolete JAVA gateway used to collect spectrum data from a tube-leak detection system for boiler steam pipes. A stream of data is continuously read on one serial port and made available in MODBUS RTU Holding Registers on a second serial port.
- **Nexus-NFORCE** was a project to emulate a diagnostic tool that interfaces via a serial port to the control system of a locomotive in such a way that it supports the same diagnostic functions and makes data available as MODBUS RTU Holding Registers on a second serial port.
- **Nexus-Laboratory** is a project where long running experiments using different combinations of instruments can be configured and the results stored in a time-series database. The student scope was to discuss the challenges and think about what relationships would exist in the database.

Kamryn was a reliable team member and interacted well with her peers.

She was always punctual, communicated well, has a wonderful work ethic and we would welcome her back anytime.

Regards



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