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## The development of a real-time Monitoring system for the ATLAS Tile Calorimeter Phase-II Upgrades

A major upgrade to the High Luminosity Large Hardon Collider (HL-LHC) will increase the instantaneous luminosity by a factor 5 compared to the LHC. A complete redesign of the electronic system is required for new radiation levels, data bandwidth as well as the clock distribution. The upgrade of this electronic system is an integration of front-end and back-end electronics to acquire physics data. However, the large computation of data requires a healthy state-of-the-art electronic system. Numerous sensors will be used to monitor the status of the ATLAS Tile Calorimeter (TileCal) electronic system. This paper presents a real-time monitoring system that will be used to read data from the sensors of the TileCal electronic system that will be used by the Detector Control System (DCS). The real-time monitoring system includes an implementation of a server on the System-on-Chip (SoC) Zynq Field Programmable Gate Array (FPGA) known as Tile Computer-on-Module (TileCoM). This server will read data and publish it to the clients of the DCS. This test bench includes an Avnet Ultra96-V2 ZYNQ UltraScale+ MPSoC evaluation board and Tile Gigabit Ethernet switch that will serve as a basis for the TileCoM mezzanine board as part of the Tile PreProcessor (TilePPr).

**Apply to be considered for a student ; award (Yes / No)?**

Yes

**Level for award;(Hons, MSc, PhD, N/A)?**

PhD

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