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Extracting and Analyzing Data from Detector Control System to investigate the behavior of High Voltage Power Supplies at the ATLAS Experiment

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Abstract. The TileCal is the hadronic calorimeter found in the central region of the ATLAS. It is a sampling calorimeter made of steel tiles as the absorber material and scintillating tiles as the active medium. The light produced as the particle crosses the scintillator tiles is transmitted by the wavelength-shifting fibres. The PMT converts the light into an analog signal and transfers it to the next stage of the signal chain. The TileCal DCS's main responsibility is to ensure the safe operation of the detector. This project aims to develop a plugin that will extract and analyze offline data for continuous analyses of the behavior of the PMT High Voltage (HV) supply in order to detect unstable channels during data taking period. The data is provided by the dedicated Detector Control System (DCS) Data Visualization tool (DDV) through convenient API and then visualized using an interactive JavaScript plotting library. The plugin will be integrated into the Tile-in-One (TiO) platform that combines all TileCal offline data quality tools.

Primary authors: Mr GUMEDE, Sanele; KUMAR, Mukesh (University of the Witwatersrand)

Presenter: Mr GUMEDE, Sanele

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