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Trigger and Data Acquisition Strategy for the LHCb Upgrade

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The LHCb experiment is making strong strides towards the exploitation of physics opportunities that may lead to the discovery and elucidation of physics beyond the Standard Model. While LHCb will be able to measure many interesting channels in the upcoming few years, an upgrade aimed at increasing its sensitivity by about a factor of 10 will broaden the discovery potential of the experiment. Two key elements of the upgrade are the ability of reading out the detector at 40 MHz and a flexible and efficient software trigger, that exploits the unique features of the signal events sought. The key elements of the data acquisition and trigger strategies will be discussed, with particular emphasis on how the tracking information is incorporated to provide an effective selection of interesting beauty and charm events.

Summary

Trigger and Data acquisition strategy for the LHCb Upgrade, with particular emphasis on how the strategy ensures fast tracking to be incorporated in a very fast and efficient software trigger.

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