



Contribution ID: 98

Type: **Oral**

The CMS DAQ pinball machine

Tuesday 5 November 2019 11:30 (15 minutes)

We present an interactive game for up to seven players that demonstrates the challenges of on-line event selection at the Compact Muon Solenoid (CMS) experiment to the public. The game - in the shape of a popular classic pinball machine - was conceived and prototyped by an interdisciplinary team of graphic designers, physicists and engineers at the CMS Create hackathon in 2016. Having won the competition, the prototype was turned into a fully working machine that is now exhibited on the CMS visitor's path. Teams of 2-7 visitors can compete with one another to collect as many interesting events as possible within a simulated LHC fill. In a fun and engaging way, the game conveys concepts such as multi-level triggering, pipelined processing, event building, the importance of purity in event selection and more subtle details such as dead time. The multi-player character of the game corresponds to the distributed nature of the actual trigger and data acquisition system of the experiment. We present the concept of the game, its design and its technical implementation centred around an Arduino micro-controller controlling 700 RGB LEDs and a sound subsystem running on a Mac mini.

Consider for promotion

Yes

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Session Classification: Track 8 –Collaboration, Education, Training and Outreach

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