BB Event Display

29/08/21
Idea / Prerequisites:

Starting with pre-existing Grinch and Hcal GUIs:

- To design a Gui containing a 2D Bar / PMT display for Grinch, Preshower, Timing Hodoscope & Shower
- Track events through spectrometer one at a time. Controlled via buttons on Gui (OR command line input)
- Display amplitude of calorimeter hits via color / size scaling
- Display estimate position of hits on hodoscope using time difference between ‘good’ hits on both pmts of a bar

*thanks to Bradley and Scott for grinch and hcal gui codes!
Inspiration: $G_E^N$ at High $Q^2$ (E02-013)

Credit: Timothy Ngo (2007 Thesis)
Bar numbers refer to N1,N2,N3,N4 bars only.

Run: 4425
Event # 1455 of 68579

P_{diff} = 0.0104708413
P_{e} = 1.19995374
P_{p} = 1.58120549
\theta_{e} = 49.0091679
\theta_{p} = 34.6471948

BigByte shower 2844.29993 MeV
First Working Version (27/8)
Changes in process:

- Command line input of run number -> loads rootfiles for runnum
- Command line control of event toggling
- Addition of opaque overlay canvas with track through detectors
TBC Features Today / This week

- Calorimeter block size scaling with amplitude of signal above some threshold.
- Addition of Gems to Display - starting with UVa UV
- Syntax upon startup for User Friendliness
- Extend run number input to each subsystem (currently loading in 3 rootfiles -> need 3 different run numbers)
Current Issues / Bugs

- Hodoscope hit marker very rough (position estimate usually falls outside of bar itself)
- GUI buttons and command line lock each other out upon use.
- Startup has started skipping first event
Requirements

- Gem, BBcal, Hodoscope, Grinch cosmic files - (eventually full sbs rootfile)
- Proper analysis code for each subsystem - currently using simple amplitude > x cuts to display examples
- Feedback / Suggestions