**Overview of *ButtonXxx* classes + *ButtonManager***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Button (base class) | ButtonAdv | ButtonBas | ButtonEnc | ButtonAna | ButtonEvt |
| ***Attributes*** |  |  |  |  |  |  |
| Tag / Name\* / Data (16 bit) | 1 | 1 | 1 | 1 | 1 | 1 |
| ***Events*** |  |  |  |  |  |  |
| Press/Release |  | x | x | x | x | x |
| Long press |  | x |  | x |  | x |
| Repeat |  | x |  |  |  | x |
| Debounce |  | x | x | x |  |  |
| ***Sources*** |  |  |  |  |  |  |
| Internal - HW Digital input | x\* | x | x |  |  |  |
| Internal - HW Analog input |  | x | x |  | x |  |
| *Hysteresis on analog input* |  | x |  |  | x |  |
| Internal - Source variable | *opt\** | *opt* | *opt* |  | *opt* |  |
| External value | x\* | x | x | x | x\*\*\* |  |
| External value from digital input vector |  | x | x | x |  |  |
| External Event flags (*ButtonStatus*) | x\* | x | x | x | x | x |
| Pin no. | x\* | x | x | x\*\* | x | x\*\* |
| ***Outputs*** |  |  |  |  |  |  |
| Mirror variable | *opt* | *opt* | *opt* | *opt* | *opt* | *opt* |

\* (support for derived classes only)

\*\* Pin/index no. only stored as tag (for callback ID), not used for input selection

\*\*\* Analog value only

Description:

* *Button* is a base class only, not instantiable.
* *ButtonAdv* is the **most feature-rich** of the generic buttons (*Adv, Bas, Ana*).
* *ButtonBas* is a version of *ButtonAdv* without its most "expensive" features in terms of memory, for **better price/performance ratio**
* *ButtonEnc* is a slightly **simpler version of *ButtonAdv/ButtonBas*** but with externally supplied, digital only inputs (aimed to encoder buttons)
* *ButtonAna* is a version of *ButtonBas* but **tailored for analog inputs only**
* *ButtonEvt* **does not process actual inputs** (in order to detect events), but it receives a set of events and basically just invokes the corresponding callbacks

An analog input is 'active' between the thresholds (with a settablehysteresis value), 'inactive' otherwise.

Possible enhancements:

* *ButtonEnc: add Debounce; Repeat (options?)*
* *ButtonAna: manage analog value steps as multi-position switches*
* *(Specific "Repeat" callback different from "Press" callback?)*