Nozzle Clean

Feature Name: Nozzle Clean

Feature Name in Annotation: NOZZLE_CLEAN_FEATURE

Source of Information
Releaselog, pull requests, commits, G-code document, ifdefs with feature annotation name

Strategy Used:
Feature is identified from the latest release log first. The release log also provides the pull request and commits linked to the feature (see the links and tables below), Ifdefs are also used for speeding up feature location.

Feature Release Version: 1.1.0 – RC7

Time took to Identify and Locate the feature: 0.5 hour
Time took to Understand the Implementation: 1 hour

Feature Description:
When enabled allows the user to send G12 to start the nozzle cleaning process, the G-Code accepts two parameters:
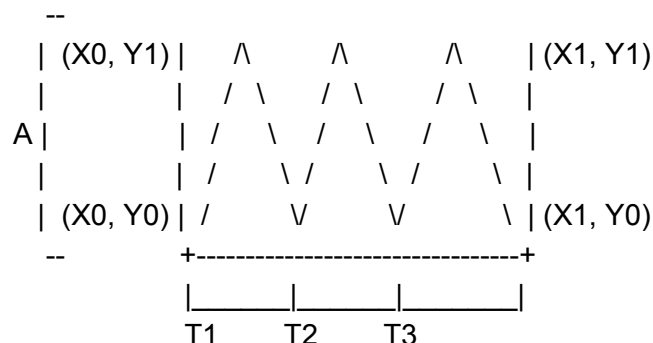 "P" for pattern selection
  "S" for defining the number of strokes/repetitions.

Available list of patterns:
  P0: This is the default pattern, this process requires a sponge type material at a fixed bed location, the cleaning process is based on "strokes" i.e. back-and-forth movements between the starting and end points.

  P1: This starts a zig-zag pattern between (X0, Y0) and (X1, Y1), "T" defines the number of zig-zag triangles to be done. "S" defines the number of strokes aka one back-and-forth movement. As an example sending "G12 P1 S1 T3" will execute:

```
        --
    | (X0, Y1) |    /\        /\         /\      | (X1, Y1)
    |          |   /  \     /  \      /  \    |
  A |          |  /    \  /    \   /    \   |
    |          | /      \/      \ /      \  |
    | (X0, Y0) | /       V        V         \ | (X1, Y0)
        --         +-------------------------------+
                   |_____|_____|_____|
                   T1      T2      T3
```

 Caveats: End point Z should use the same value as Start point Z.

Video Demo: https://www.youtube.com/embed/E2o7W0EJqO4

Feature Information and Statistics:

PR No.	Merged Time	PR	Commits	Files	Line Added	Line deleted
#4054	14 Jul 2016	Implements clean nozzle feature (Lulzbot's REWIPE)	4	27	1302	48
#4354	20 Jul 2016	NOZZLE_CLEAN _FEATURE with no dependency on HAS_BED_PRO BE	4	27	148	152

Ratios of sources (%)

RL	PR	CM	Ifdef	DK	CC	SC	GD
50	20	10	10	0	0	0	10

RL: Release Log; **PR:** Pull Request; **CM**: Commit, **Ifdef**: Ifdef Expression; **DK**: Domain Knowledge; **CC**: Code Comment; **SC**: Source Code; **GD**: G-Code Documentation.

Pull Request Links:
https://github.com/MarlinFirmware/Marlin/pull/4054/files
https://github.com/MarlinFirmware/Marlin/pull/4354/files

Feature Characteristics:

Feature Name	LoFC	NoFL	TD	Completely Wrapped by ifdef
Nozzle Clean	31	3	0	Yes

Feature's relevant historical data

Request(issue) proposed
Time: 18 Apr 2016, by: scalez
Pull Request - Introduce the reprobe and rewipe features:
https://github.com/MarlinFirmware/Marlin/pull/3553

Related pull request:
https://github.com/MarlinFirmware/Marlin/pull/5763

Comment:

However, two functions write in Marlin_Main.cpp for this feature are not wrapped by #ifdef, we still consider them as wrapped with #ifdef because the call action for these two features from file "Nozzle.h" are wrapped by #ifdef.