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USAGE

How to start the application

1. Clone Github repository by the following command:

git clone <https://github.com/natuition/histogram>

1. Open repository root folder by the following command:

cd histogram

1. Switch to dev branch (this step is required until full code testing and release):

git checkout dev

1. Make settings files from examples and set the desired mode (see “Application modes” and “Settings” sections in this document)
2. Place image to process into the ‘input’ directory (located in the root of repository), and set image name in the config/local.py settings file (see more in the settings section)
3. Run the script:

python3 histogram.py

Application modes

There are two modes now: “database” mode, when app is processing input image (from image file or camera, you can choose source in settings), makes image patterns from area or whole image for future comparison and creates database from them. The second mode is called “searching”, in this mode app loads one (for now) image or takes one from the Raspberry Pi camera, and looks for the most “unlike” part in image (called fragment) comparing to patterns in database, calculates center coordinates for that fragment, and if smoothie board control enabled (see settings) converts this coordinates into a g-code and sends to the smoothie board for execution. Also writes debug information (including image, fragment and fragment center) into the output directory (it is located in the same directory as histogram.py script).

You can set application mode in config/local.py file. Application will show message about wrong mode if there incorrect mode was set.

Settings

There are two settings files which are used by application: “local.py” and “config\_local.json”. Both are absent in repository and are ignored by version control system. This makes you to keep your own settings after updating code from Github repository and always have near examples which are defaults too. For starting first time you need to rename or copy and rename (preferred) “local - example.py” and “config\_local - example.json” files (located in the config folder), and save with names “local.py” and “config\_local.json” respectively.

APPLICATION ARCHITECTURE DESCRIPTION

Common logic and class/function diagram

Each function description (input/what and how does it works/output)