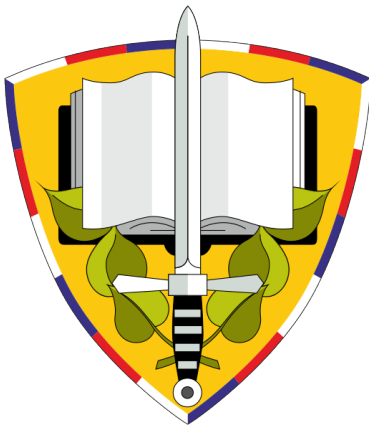# University of Defence

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HomeLESS Hit Analyzer 1.3b

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Content

1 HomeLESS

Home LASER Shooting Simulator (HomeLESS) is a multi-platform open source laser shooting simulator. Unlike expensive COTS (Commercial Off-The-Shelf) laser shooting simulators you can make this project by yourself. It is complete open-source solution. It embraces both open source hardware and open source software. No special device needed, just ordinary electro equipment and computer with installed software. HomeLESS is free software. Anybody can download the source code and improve it oneself. HomeLESS is used by several students of University of Defence for indoor shooting practice in their free time. HomeLESS is very useful for them.

HomeLESS homepage is hosted on http://homeless-eng.webnode.com/. The source code of simulator and instructions how to modify some airsoft guns are published there. There are also instructions how to create DIY (Do It Yourself) gun from scratch for HomeLESS using.

Figure 1.1 Logo of HomeLESS Project

2 Hit Analyzer

This is main program of HomeLESS project. Thank to this you need only a webcam, laser pointer or special LASER gun (LaBr-gun) and printed paper target to enjoy safe firing at your home. The main purpose of Hit Analyzer is evaluation of laser shooting in real time and providing feedback to the shooter. It uses data from common webcam and evaluating position of laser point from special weapon.
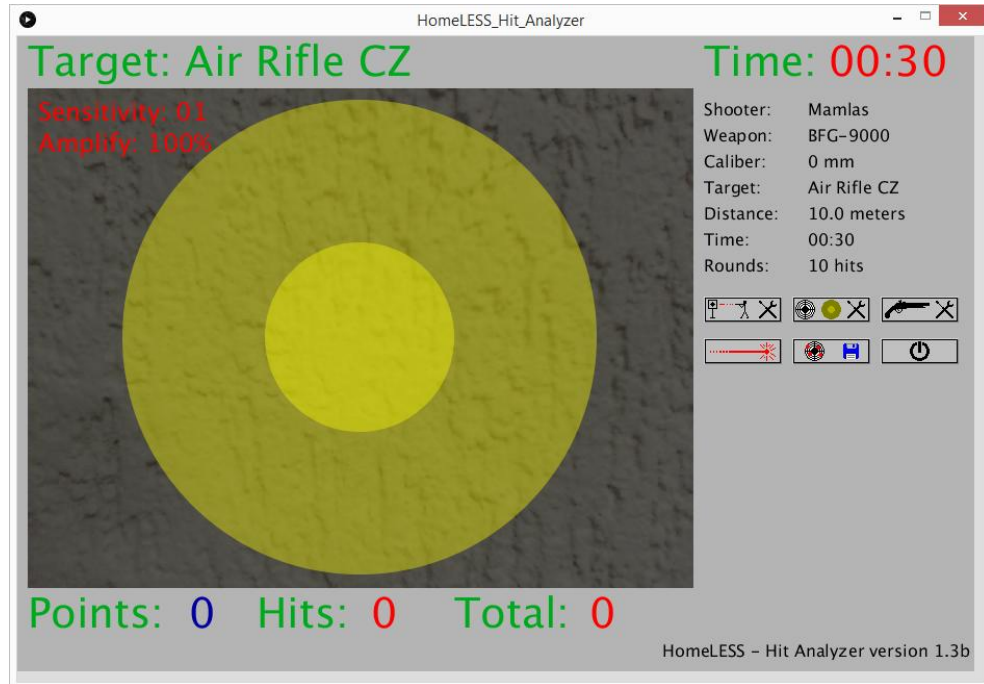

Figure 2.1 Hit Analyzer version 1.3b

The process of shooting is also recorded for later use and can be exported in special file called "shotlog" (shooting log). This file contains data about shooter and his weapon, the target and every hit and score for later analysis. The targets in Hit Analyzer are mathematically defined and stored in text files so users can easily modify and create their own targets and share them with other users. In a similar way the users can manage their weapons.

2.1 User's modification

The HomeLESS Hit Analyzer can be easily modified by user in many ways. The easiest way is modifing and creating a new extension files. The "ini" file, "tgt" files, "lng" files. and "gun" files.

New targets can be easily created, modified and added with target files. They are created with simple rules, so everbody can modify or create it. Of course there are tweaks such as language packs. Other language versions can be created easily with language pack file. User can also modify the "ini" file in the program or manually with text editor. No one need be afraid of editing these files. Because if make a

mistake, there is simple way to fix it, just delete the wrong file. If software not found these "basic" files, just creates new one (with default values).

2.2 News in version 1.3b

Here are few examples of news in program Hit Analyzer:

- Better Webcam choosing.
- Library update for newest version.
- Code cleaning.
- Migrated to the new version of Processing.

The most important new are hiden in source code. The change of video library is one of the most important new in new version. The previous library has running problems on different operation system. So with new library is easy to run Hit Analyzer.

2.3 New webcam settings

The source code for webcam handling was rebuilded to modern concept so the shooter can easily select webcam from Hit Analyzer directly. Program automatically detect all suitable devices connected to computer and show them in drop down menu. Shooter can easily select from them. This webcam changing also no need restart the program anymore.
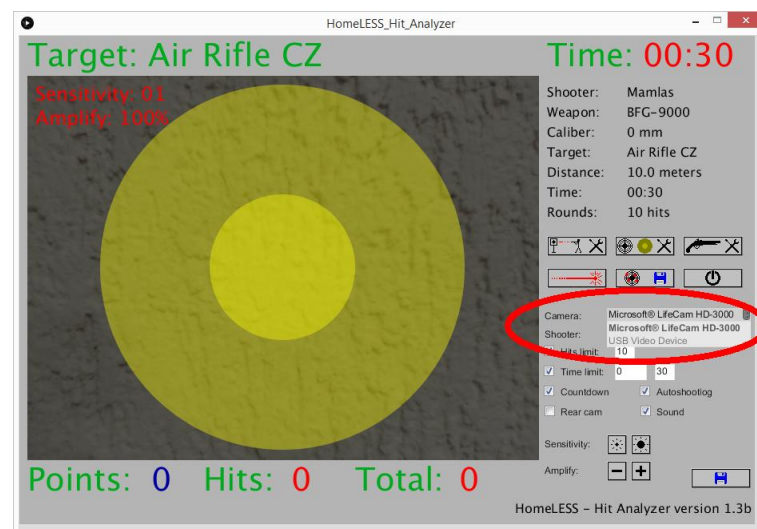

Figure 2.2 New camera selection in Hit Analyzer.

2.4 New GUI

Instead of previous version, that uses multiple windows to manage the program. This new version has all settings in main window. The settings views are shown and hidden on demand. For example, the target selection (Fig. 2.3) views and weapon selection (Fig. 2.4)shares the same place but they are not displayed at same time.
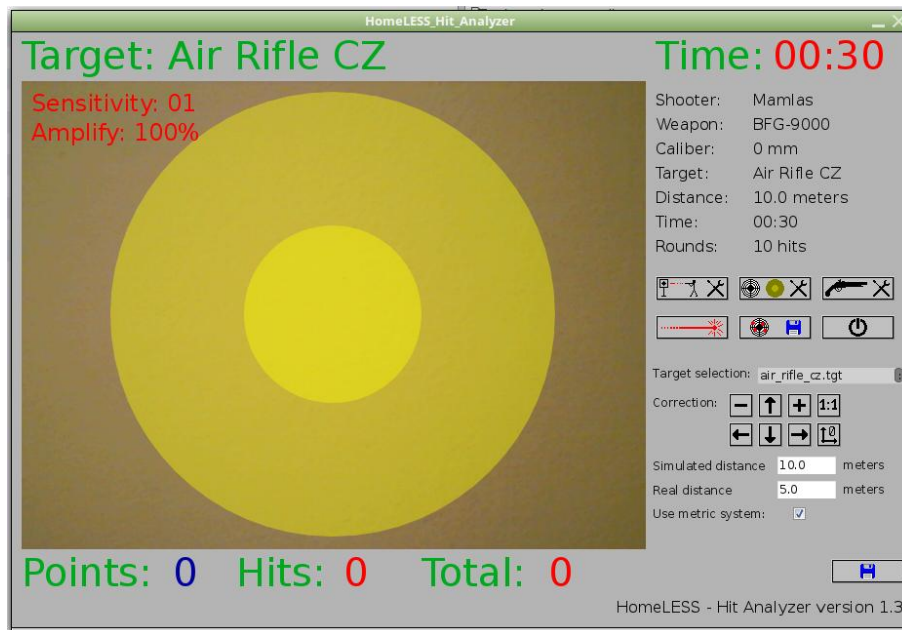
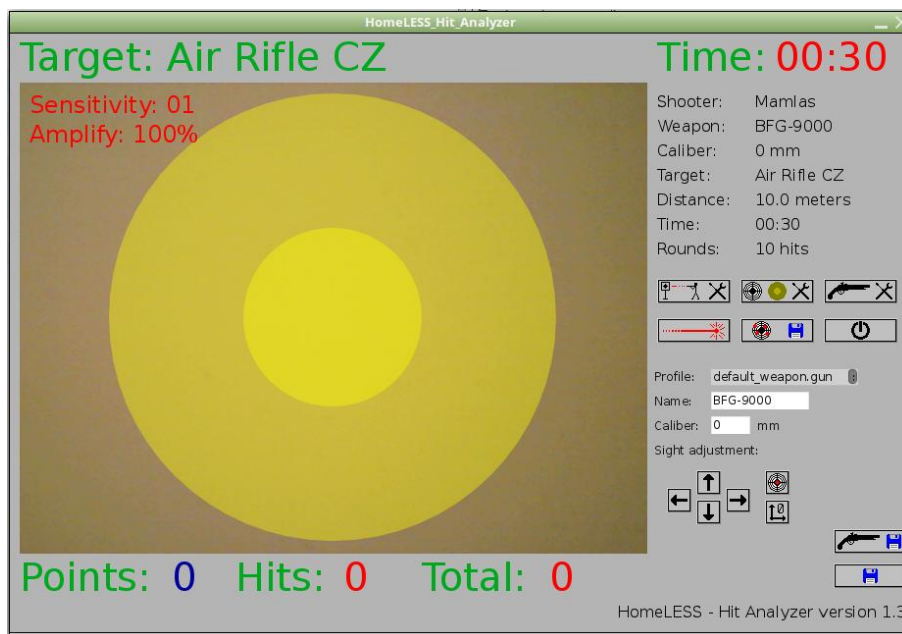**Figure 2.3** Target selection in main window.

Figure 2.4 Weapon selection in main window.

3 Conclusion

HomeLESS Hit Analyzer is slowly upgrading at the first view. But the most important changes in new version are inside. The second most important change is improvement GUI.

HomeLESS project can serve for a cheap shooting practice. It could run everywhere - for example in your living-room. Since it is open-source, everyone can make it by himself at home for free.

Read more: http://homeless-eng.webnode.com

Figure 3.1 Complet solution of HomeLESS Project