

TestFarm Virtual User

Graphic HMI Test Automation Tool

Images and Characters Recognition

- Screen capture from the Target Application (SUT) using a Frame Grabber (DVI, VGA, ARINC818), a camera (USB, GigE-Vision), or a VNC server.
- Exact or Fuzzy image recognition.
- Character recognition with text extraction using regular expressions.
- Recognition of screen areas selected by criteria of color and size.
- Detection and tracking of Fixed or Moving objects.
- Possibility to plug add-on « observers » programs allowing to format, extract and record object detection events.
- Keyboard/mouse emulation using VNC, with capture/playback feature.

TestFarm Virtual User is a powerful tool that performs graphical content analysis and verification. It is based on image and characters recognition mechanisms: detection of graphic objects, exact or with approximation, fixed or moving.

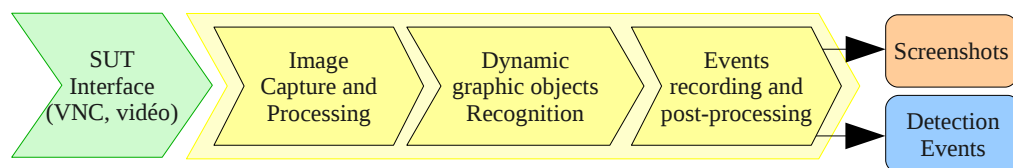


IMAGE CAPTURE AND PROCESSING

The graphical HMI to be analyzed can be captured using either a Video Capture Card (DVI, VGA or composite Frame Grabber), a camera (USB WebCam or GigE-Vision industrial camera), or a connection to a VNC server embedded in the target SUT.

- The frame refresh period can be adjusted independently of the capture device, from 66 ms (15 fps) to ∞ (frozen screen / on-demand refresh).
- Screen partitioning, allowing to define hierarchically arranged set of virtual screens.
- Possibility to apply dynamic image processing filters, allowing to extract the relevant graphic objects to be analyzed.

- Possibility to use external add-on filter programs.
- Frame recording (static or animated screenshots), allowing to generate illustrated test reports. Possibility to play-back the recorded animations in a separate TestFarm Virtual User session (for example to perform a deferred image verification).

GRAPHIC OBJECTS ANALYSIS AND RECOGNITION

- Optical Characters Recognition using external agents GOCR and Tesseract-OCR. Detection and localization of a text, selected by regular expressions in Perl format.
- Recognition and localization of graphic objects by criterion of color and size. Aggregation of the detected areas by criterion of proximity.
- Recognition and localization of reference images using exact or fuzzy matching methods, with selection criterion based on color and/or geometric quality.
- Possibility to use image search masks with arbitrary outline.

DYNAMIC OBSERVATION OF THE DISPLAYED OBJECTS

- Static or dynamic analysis (animated objects tracking), suitable for verifying complex graphic HMI (terminals, aircraft cockpits, transport equipments, medical instruments, industrial applications, ...).
- Flexible formatting of output data, allowing to generate detection events and to record data in a format which is relevant for the application under test (for example: position of a cursor or needle, detection of a fixed or blinking indicator, etc.).
- Possibility to plug external add-on “observer” programs, thus allowing to test any application-specific graphic objects.

KEYBOARD / MOUSE EMULATION

- Keyboard/mouse emulation through VNC (open-standard RFB protocol), with capture/playback feature.

OPERATING ENVIRONNEMENT

- PERL modules for direct usage within the TestFarm Core platform.
- Potentially usable from any test environment through a Perl API or a TCP/IP connection.
- Graphical User Interface for setting up the reference patterns and visualizing the SUT screens, while monitoring the capture and verification processing.

HARDWARE ENVIRONMENT

Minimum hardware configuration : Intel Dual-core 2Ghz processor, RAM 2 Go, HDD 40 Go. One PCI-slot if using a video frame-grabber. Gigabit-Ethernet or USB ports if using cameras. Ethernet port if using VNC.

Operating system : Linux (distribution *Fedora 12* or later)

Ordering Information

TestFarm Virtual User

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