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BoPunk Desktop Application Specification

Version 2.0

Introduction

This document describes the requirements for the BoPunk desktop application. The BoPunk desktop application makes it easy to identify the currently running BoPunk firmware, to upload and download firmwares to and from the BoPunk hardware and change values internal to the currently running BoPunk firmware.

Inputs & Outputs

Application to BoPunk

The application will communicate with the BoPunk hardware via its USB to Serial class device interface. This allows the application to communicate with the BoPunk hardware as if it were connected by a simple serial port and with out installing additional operating-system drivers.

The application will use the serial communication to perform the following tasks:

1. Identify the currently loaded BoPunk firmware.
2. Upload new firmwares.
3. Change parameter values internal to the BoPunk.

Application to Web

The application will also connect to the Internet and download a list of available firmwares from the BoPunk website. This list will be in RSS 1.0 format. In addition, when requested, the application will download specific firmwares from the BoPunk website for upload to the BoPunk hardware.

User Interface

The user interface will have the following features:

1. A menu bar at the top with the following structure:

    1.1.File:

a) Upload (Opens a file dialog to select a firmware from disk to load to the BoPunk)

b) Download (Opens a file dialog to select a file to save the current BoPunk firmware to.)

c) Exit (Quits the application)

1.2. Help:

a) About (Displays an about screen)

2. A tabbed pane with the following tabs:

2.1. Firmwares Tab

a) A firmware identification pane which contains the following:

- Indication the BoPunk is present or not.
- The current firmware version.
- The current firmware title.
- A refresh button which reloads this information from the BoPunk hardware.

b) A list of available firmwares which is automatically downloaded from the BoPunk website.

c) A refresh button which reloads the firmware list.

d) An HTML capable description pane on the right which, when a firmware is selected, displays the firmwares description. This pane does not have to support full HTML but should at a minimum support links, tables, images, paragraphs and font formatting. Links will open externally in the operating-system's browser.

2.2. Variables Tab

a) Any number of slider bars with min and max and current values and names. The available variables will be downloaded from the current firmware. Changes to the values via the slider bars will send a signal to the running BoPunk firmware to update these values in real-time. If all sliders do not fit on one screen a bottom scroll bar should appear.

b) A refresh button which reloads the variables tab. However, this tab should automatically be reloaded when the BoPunk is connected or its firmware is changed.

3. A status bar at the bottom which will display status information including:

3.1. A progress bar when uploading or downloading firmwares.

Upload Operation

When an firmware upload is initiated the application must first present a confirmation dialog warning the user that the upload operation must not be interrupted and may render the BoPunk inoperable.

Installation

The BoPunk application will be packaged for installation on all supported operating systems. The

package size must be small. I.e. no more than 25MB. The packages should support installation with a minimum of clicks. All requirements must be included in the installation packages.

Operating System Support

The following operating systems will be supported:

- Ubuntu 8.04
- Fedora 9
- Windows XP and Vista
- Mac OSX

Language

The application should be written in portable Python compatible with version 2.5 using the QT GUI library and Qt Designer.

Source Code

The application will be Open-Source and provided to the public under the GNU Public License. The source code will be regularly committed to a public Subversion source repository.

The source code must be documented with at a minimum a description of each function and class using Python comments compatible with pydoc.