Fingerprint Recognition Software Development Kit(SDK) for Linux

Linux USB driver

The Linux SDK doesn't use a kernel mode driver for Futronic FS80 USB2.0 fingerprint scanner, but works with a well-known multi-platform library libusb.so. “libusb” is a library to allow userspace application access to USB devices. We recommend using the latest version 0.1.12 with FS80 USB fingerprint scanner.

Please check the “libusb” official site http://libusb.sourceforge.net

Basics about fingerprint recognition

- A fingerprint must be registered in a system before it can be used for authentication.
- During registration, the fingerprint image is captured by using a fingerprint scanner. Then the system will extract the fingerprint’s characteristics(minutiae) from the captured image and create a fingerprint registration template which is stored in any non-volatile memory space.
- To do user authentication, fingerprint is captured again and the system will create an accessing fingerprint template using the same method as creating a registration template. Then it will compare the accessing template with the registration template to determine if there is a "match" or "no match".
- If an user ID is provided, the system will compare the accessing template to the registration template of this particular user ID. This is called verification (1-to-1 matching).
- If a user ID is not provided, the system will compare the accessing template to all the registration templates stored in the system. This is called identification (1-to-many matching).

Introduction

Futronic Linux Fingerprint Recognition Software Development Kit(SDK) is an excellent tool for users to develop Linux based fingerprint recognition application software. It works seamlessly with the Futronic FS80 USB2.0 fingerprint scanner. With the SDK, you can make use of Futronic proprietary fingerprint recognition algorithm without knowing the details of a purely mathematical process. So fingerprint recognition can be integrated into any application program to *REPLACE* the users’ Logon password by a touch of finger to make your system more secure and user administration easier

Major SDK features

The Linux SDK has exactly the same function as the Futronic Windows SDK. It includes header file that define API, libraries, and sample code for GNU C/C++ on x86 based hardware platform. There are two libraries:

1. libScanAPI.so is responsible for the fingerprint image capturing, it works with the libusb.so.
2. ftrapi.so is responsible for the fingerprint processing and recognition.

The Linux SDK has the following major features:

- Capturing fingerprint image from Futronic FS80 USB2.0 fingerprint scanner
- Extracting fingerprint characteristics(minutiae) from the captured image and creating a template which can be used:
  - For registration, the template will be stored in the database
  - For authentication, the template will be matched to pre-registered template
- Matching fingerprint templates can be done in 1-to-1 or 1-to-many manner
- Recognition accuracy, FAR & FRR, can be adjusted to suit security requirement of different application.
- Support Live Finger Detection(LFD) when using together with Futronic FS80 USB2.0 Fingerprint Scanner

Tested Linux platforms

Futronic Linux SDK should works on all Linux platforms with kernel 2.4 or after. And it has been tested on Redhat, OenSuse, Debian, Fedora Core, Knoppix and Ubuntu on x86 based hardware.

Who is the SDK for?

Application software developers who want to add secure but convenient fingerprint authentication into any Linux based application software for easy user management and more secure logon control. The SDK can be used to make application programs for both standalone PC and many PCs connected in any networking environment.

Standard Linux SDK package includes sample program with source code to illustrate how to use the SDK. Please download the “gtk-ftrapidemo” sample program from www.futronic-tech.com to try and contact Futronic for more

Futronic Technology Co. Ltd.