CS 572 – HW2

Teensy Firmware, Linux Device Driver and Test Application Demo

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Yahoo!

Objectives

- Download demo code via git repo
- Compile Demo HID USB Firmware
- Download to Teensy
- Linux Device Driver and devfs
- Userland application

Git'r'done

- Git Repo
  - github.com/seanbruno/CS572_Demo_Firmware
- Clone your own copy
  - Don't worry, I have backups :-)

Demo Firmware Part I

- “make”
  - teensy_loader_cli
- Identify Your Teensy
  - atmega32u4 | at90usb162 | at90usb646 | at90usb1286
- Verify with blinky
  - ./teensy_loader_cli -w -v blinky_fast.hex
  - Press button on teensy!

Demo Firmware, Part II

- usb_rawhid
  - Modify Makefile with your teensy model
- GCC-AVR extensions
  - Avr-gcc, avr-binutils, avr-libc
- Build
  - Output file is example.hex
- Download to teensy via downloader
- Verify that it worked with “lsusb”

USB Device Driver “lighty”

- Building the module
  - Hopefully, this is easy
  - “make”
- Udev rules
  - /etc/udev/rules.d/99-lighty.rules
- “magic”
  - Or insmod, your choice

USB Device Driver “lighty” cont

- Helful notes are in the README
  - SRSLY, always have a README
  - I will hate you forever if you don’t and I have to deal with your code.
  - Did I mention make a README file?

Userland Test Program

- Test program not build by default
  - “make test”
  - Needs to have root perms to access the lighty device
- Syntax is primitive
  - “1=r” blink led 1, red
  - “2=b” blink led 2, blue
  - “q” well, I think you know what this does.