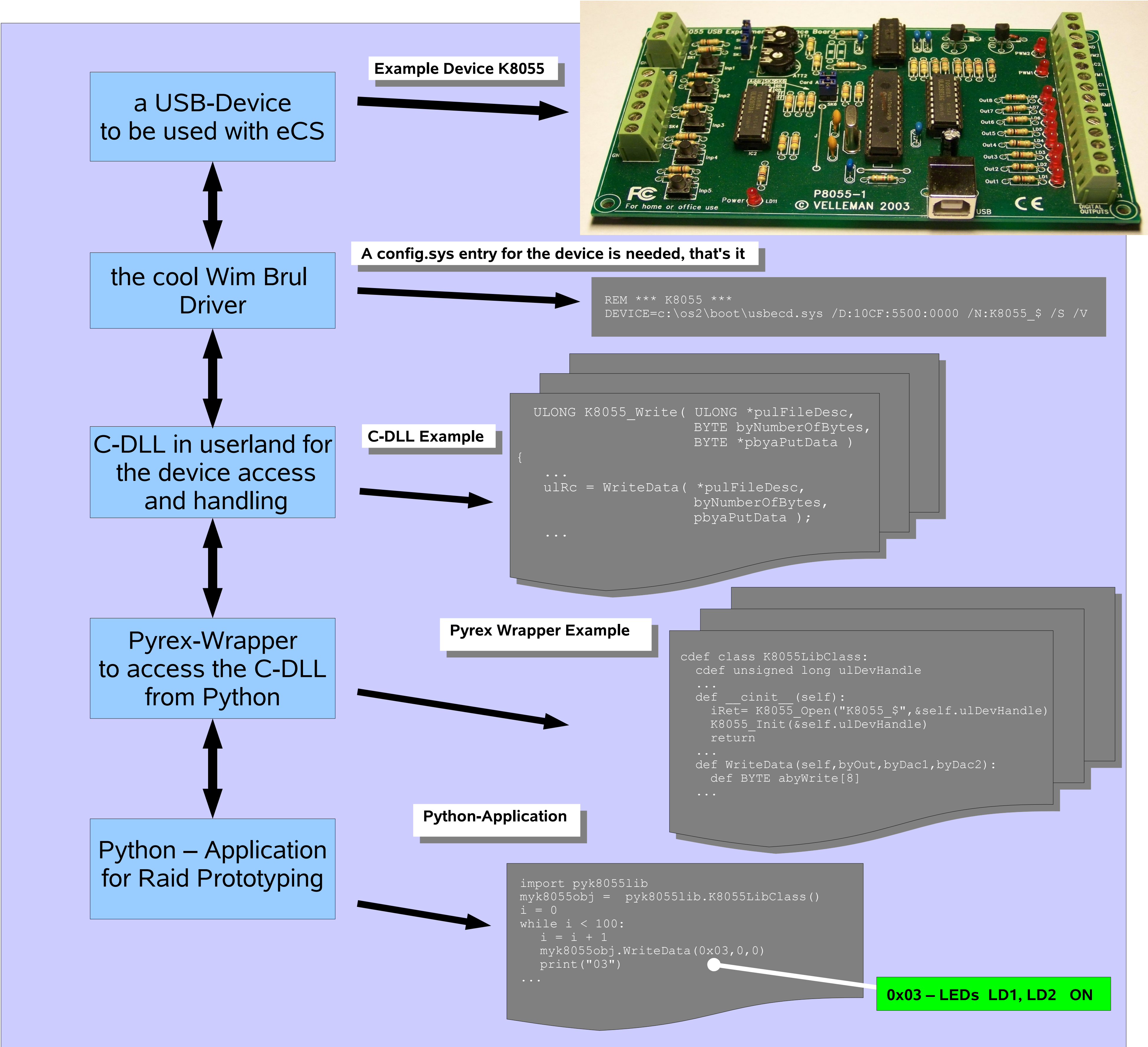# Easy Access to USB-Devices from eCS Userland

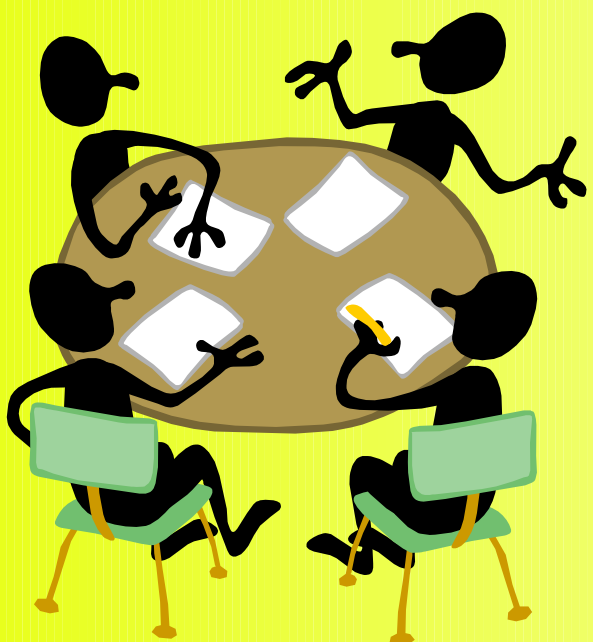by Björn Hennig and Uwe Hinz

Motivation

There is a lot of USB-Devices on the market or under development. They will never have any driver for eCS. It's a bad situation. This poster will show a way to get out of that deficiency. Here is a possible method:

1st A generic USB-Driver that works with eCS has to be found (Wim Brul's driver 'usbecd.sys' is appropriate) ,

2nd A DLL is to be progammed, that interfaces the generic driver and the particular USB-Device ,

3rd In order to make work with a high level programming language effective, a suitable Wrapper is needed !

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a USB-Device to be used with eCS

Example Device K8055

the cool Wim Brul Driver

A config.sys entry for the device is needed, that's it

```
REM *** K8055 ***
DEVICE=c:\os2\boot\usbecd.sys /D:10CF:5500:0000 /N:K8055_$ /S /V
```

C-DLL in userland for the device access and handling

C-DLL Example

```
ULONG K8055_Write( ULONG *pulFileDesc,
                   BYTE byNumberOfBytes,
                   BYTE *pbyaPutData )
{
    ...
    ulRc = WriteData( *pulFileDesc,
                      byNumberOfBytes,
                      pbyaPutData );
    ...
```

Pyrex-Wrapper to access the C-DLL from Python

Pyrex Wrapper Example

```
cdef class K8055LibClass:
  cdef unsigned long ulDevHandle
  ...
  def __cinit__(self):
    iRet= K8055_Open("K8055_$",&self.ulDevHandle)
    K8055_Init(&self.ulDevHandle)
    return
  ...
  def WriteData(self,byOut,byDac1,byDac2):
    def BYTE abyWrite[8]
  ...
```

Python – Application for Raid Prototyping

Python-Application

```
import pyk8055lib
myk8055obj = pyk8055lib.K8055LibClass()
i = 0
while i < 100:
    i = i + 1
    myk8055obj.WriteData(0x03,0,0)
    print("03")
...
```

0x03 – LEDs LD1, LD2 ON

Outlook

As soon as Python is used to create applications, programming becomes easy. Easier than today! A nice GUI with Qt4, wxWidgets or wxPython will look modern. Users who could not benefit from their USB devices in the past, can create their own software solutions under eCS in future.

And what is hot right now ?

New Devices on the workbench:

- meM-PIO → Work started
- Meilhaus RedLab → Device purchased
- TinyCAN → Already soldered
- Octopus USB

Just an idea