Library - iTead Joystick Shield

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Introduction

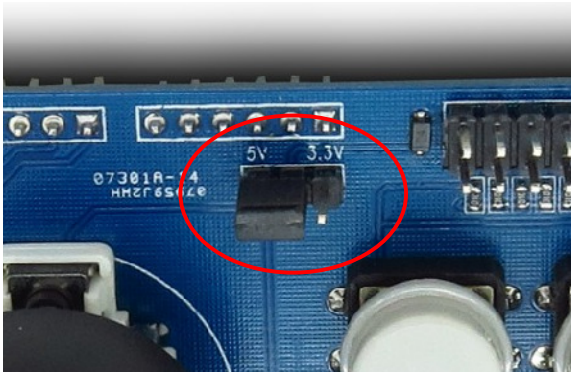
A joystick shield can be useful in some applications, for example to drive a small robot. iMall proposes an interesting and cheap joystick shield with several buttons as shown on the following photo.

This shield is available on http://imall.iteadstudio.com/im120417014.html.

This document presents the iTead Joystick Shield library developed by MyFreescaleWebPage on TheUno. It is compatible with BigBrother and BigBrother-USB with some few software modifications.

1 Schematic

The schematic of the shield is provided by iMall. The selection jumper B3 must be connected on the 5 volts power supply has shown below.



Finally note that the AREF pin needs to be connected to the 5 volts power supply in this application. This is not done by default on TheUno V2.0 (done on TheUno V2.1 and all the hardware revisions of BigBrother and BigBrother-USB). Connecting the AREF pin to the 5 volts power supply on TheUno V2.0 can be done using a simple wire fixed on the PCB or using an additional protoshield.

2 Software

2.1 iTead Joystick Shield library

The library is made up of the files "itead_joystick_shield.c" and "itead_joystick_shield.h".

It contains only two functions:
- JOYSTICKSHIELD_Init() to initialize the iTead Joystick Shield;
- JOYSTICKSHIELD_GetStatus() to read the joystick and buttons positions.

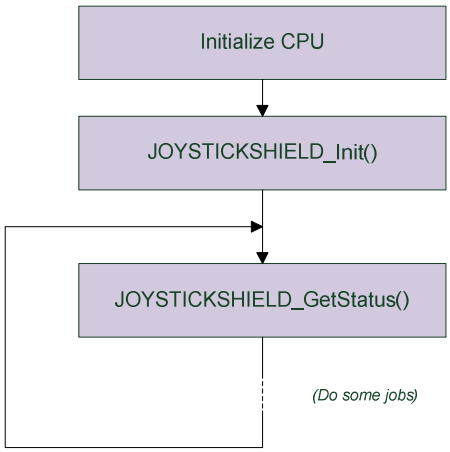
Those functions can be modified to match the hardware requirements on BigBrother and BigBrother-USB.

2.2 User application

The file "itead_joystick_shield.h" need to be included in the source code of the application to get the functions definitions:

```
#include "itead_joystick_shield.h"
```

The application initializes the library once by calling JOYSTICKSHIELD_Init() on startup. After that, it is possible to read the shield status by calling JOYSTICKSHIELD_GetStatus().



A sample application is attached to this document.

Conclusion

This library provides very simple functions to use the iTead Joystick Shield. It will be easily integrated in your own applications.

Note that the library can be improved, for example by reading the joystick position on startup to make the tare of the X and Y axis. It supposes that the joystick is in neutral position on startup. It is also possible to use thresholds to detect the neutral position.