chipKIT™ JSTK Library Reference Manual

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Overview

The JSTK library provides an interface to a joystick. The joystick uses an ADC that converts the voltage across the potentiometer attached to each axis to give the position. The targeted joystick, the PmodJSTK, has two buttons and two LEDs.

The joystick device communicates via SPI. The driver reads five bytes at a time to retrieve the necessary information for every function call and discards any unwanted information. To get all the information it is more efficient, but not necessary, to use the getAll() function.

Library Operation

Library Interface

The header file JSTK.h defines the interfaces to the JSTK library. The library is accessed via the methods and constants defined for the JSTK object class. To instantiate a JSTK object, simply include the library and instantiate a JSTK object (e.g. myJSTK, or whatever name you want).

JSTK Initialization

The joystick device is accessed by the SPI interface. Before making calls to any other library functions, JSTK.begin() must be called in order to set up SPI.

JSTK Library Functions

Display Management Functions

void begin(void)

Parameters:
None

Initializes the SPI port.

void end(void)

Parameters:
None

Return Value:
"False" for failure and "True" for success

Turns SPI port off.

void setLeds(uint8_t ledSt)

Parameters:

ledSt	Sets the LEDs on the joystick with the following parameters. These parameters can be or'd together in order to turn both LEDs on. JSTK_LED1 JSTK_LED2

Turns on the specified LEDs.

uint16_t getX(void)

Parameters:
None

Return Value:
16-bit value representing the x-axis orientation

Retrieves the upper and lower bytes for the x-axis and merges them into a 16-bit value.

uint16_t getY(void)

Parameters:
None

Return Value:
16-bit value representing the y-axis orientation

Retrieves the upper and lower bytes for the y-axis and merges them into a 16-bit value.

uint8_t getBtn(void)

Parameters:
None

Return Value:
8-bit value representing the button states orientation in the format of 0b00000TOJ.

bit T	state of BTN2
bit O	state of BTN1
bit J	state of Joystick button

Retrieves the state of the on-board buttons.

void getAll(uint8_t ledSt, uint8_t *recv)

Parameters:

ledSt	Sets the LEDs on the joystick with the following parameters. These parameters can be or'd together in order to turn both LEDs on. JSTK_LED1 JSTK_LED2
*recv	Pointer to array with a minimal size of five bytes. The five bytes read from the ATtiny24 will be stored to this location. Recv[0] : XL Recv[1] : XH Recv[2] : YL Recv[3] : YH Recv[4] : Btn

Retrieves all five bytes from the joystick.