Holoseat - Bug # 276: Sensors are 5v logic feeding into 3.3v inputs on the controller

Status:	Resolved	**Priority:**	Normal
Author:	J. Simmons	**Category:**	
Created:	02/06/2017	**Assignee:**	Bryan Christian
Updated:	04/22/2017	**Due date:**	
Subject:	Sensors are 5v logic feeding into 3.3v inputs on the controller		

Description

We have somehow managed to get away feeding the 5v logic from the Hall Effect sensors into our 3.3v logic controllers (both the v0.3 controller and the in development v0.4 controller). We need to step the 5v logic down to 3.3v logic for the final design in v0.4.

History

02/14/2017 07:33 pm - J. Simmons

- Assignee set to Bryan Christian

Bryan has researched this issue and has a proposed solution (originally posted on Discord):

SparkFun Logic Level Converter - Bi-Directional

Sparkfun's bidirectional logic level converter for stepping up/down, connect your 5V side to high, your 3V side to low. 2.95 per unit, plus they have the circuit schematic available and it's only a very small total cost in components.

- <0.21 per unit on the MOSFET and a pair of resistors
- each stepper is 1 BSS138 MOSFET from Fairchild and two 10k resistors

PBI DEV-03 covers addressing this issue. Assigning to Bryan since he has done the research.

03/10/2017 01:20 pm - J. Simmons

- File SparkFunLogicLevelConverter.jpg added

Bryan has ordered and received the logic level converter from SparkFun (shown below next to a CHIP Pro dev board for scale). Next up is to test out that it works with Holoseat.

!SparkFunLogicLevelConverter.jpg!

04/22/2017 09:22 am - Bryan Christian

Was able to confirm proper voltage drop using the board. We do need to provide both 5V and 3.3V to the board, which I did not do during the test. VBUS to HV on the Sparkfun board, VCC3.3 to LV on board. Sensors go on the 5V side, 3.3V for the board side. The ground is routed through the ground pins on the matching side.

04/22/2017 09:25 am - J. Simmons

- Status changed from New to Resolved

Files

SparkFunLogicLevelConverter.jpg	311.6 kB	03/10/2017	J. Simmons