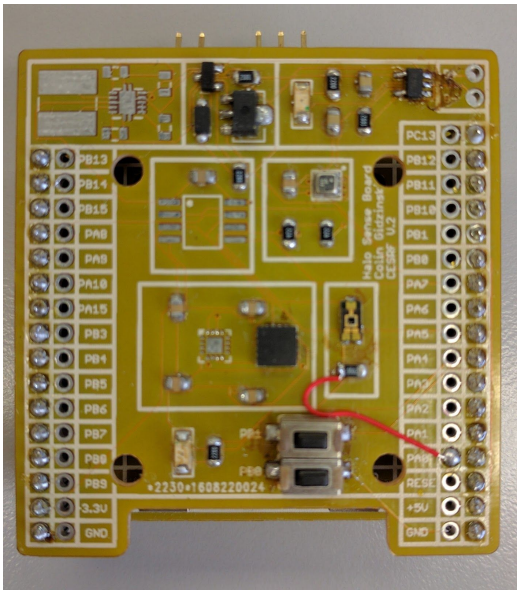
Halo Sense V.2

September 14, 2016

Product Overview

Halo Sense is a multi-sensor shield created for the Halo Main boards. It contains a plethora of sensors and storage peripherals



Hardware

- PTH Sensor
- Accelerometer
- Light sensor
- Onboard Flash Storage
- Status Led
- 2 Buttons
- Lipo Management circuit
- Multiple Configuration Power

Details

- Board can be power through 3 different methods:
    - Low current 3.3V
    - High efficiency Buck/Boost regulator for lipo operation
    - Halo Main board power regulator
- Lipo Battery Power charging
- Auto Power switching from usb to Lipo
- All Pins brought out from Halo Main
- 2 Accelerometers sizes to choose from
- Nor Flash location for low power data storage

Board and Schematic Repo

- https://github.com/cgidzinski/CesrfBoard

WARNING

Only use 1 Power regulation method:

- Halo Main Regulator with NO Halo Sense regulator
- No Halo Main Regulator with Low power regulator
- No Halo Main Regulator with Buck/Boost regulator

Parts List

Part	Value	Package	Description
C1	0.1uf	0805	Capacitor
C2	0.1uf	0805	Capacitor
C3	0.1uf	0805	Capacitor
C4	0.1uf	0805	Capacitor
C5	10uf	0805	Capacitor
C6	0.1uf	0805	Capacitor
C8	0.1uf	0805	Capacitor
C13	10uf	0805	Capacitor
C15	10uf	0805	Capacitor
C18	10uf	0805	Capacitor
C19	0.1uf	0805	Capacitor
C20	10uf	0805	Capacitor
D1	1n4148	SOD-123	Diode
D2	PA4	LED-1206	LEDs
D3	Battery	LED-1206	LEDs

- IC2 TPS6300 PVSON-N10 HIGH EFFICIENT SINGLE INDUCTOR BUCK-BOOST

- J6 Header 1X02 Header 2
- J_LEFT Header 1X16 Header 16
- J_LEFT1 Header 1X16 Header 16
- J_RIGHT Header 1X16 Header 16
- J_RIGHT1 Header 1X16 Header 16
- L2 1.5uH SRN6045 Inductors (SRN5020-1R5Y)
- Q1 DMP1045 SOT23-3 PMOSFET
- R1 10k 0805 Resistor
- R2 4.7K 0805 Resistor
- R3 4.7K 0805 Resistor
- R4 10k 0805 Resistor
- R5 220 0805 Resistor
- R6 10k 0805 Resistor
- R7 220 0805 Resistor
- R8 22 0805 Resistor
- S1 S1 SMD NO switch
- S2 S2 SMD NO switch
- U$1 MCP73831 SOT23-5 Li-Polymer Charge Management Controllers
- U$2 ADXL377 LFCSP_LQ-16 Triple Axis Accelerometer **OR**
- U$3 ADXL330 LFCSP-16 Triple Axis Accelerometer **OR**
- U1 TEMT6000 TEMT6000-SEN Ambient Light Sensor
- U2 IS25LQ SO08-JB EEPROM - X Mbit Serial Flash
- U3 XC6206P302PR SOT-89 Lower Power Regulator
- U7 BME280 BME280_LGA PTH Sensor

Notes

Only Choose ONE Power Regulation Method!

Errata

- Light sensor is not connected and can be fixed by running a bodge wire between PA0 and the left pad of the light sensor’s resistor (Can be seen of first page).