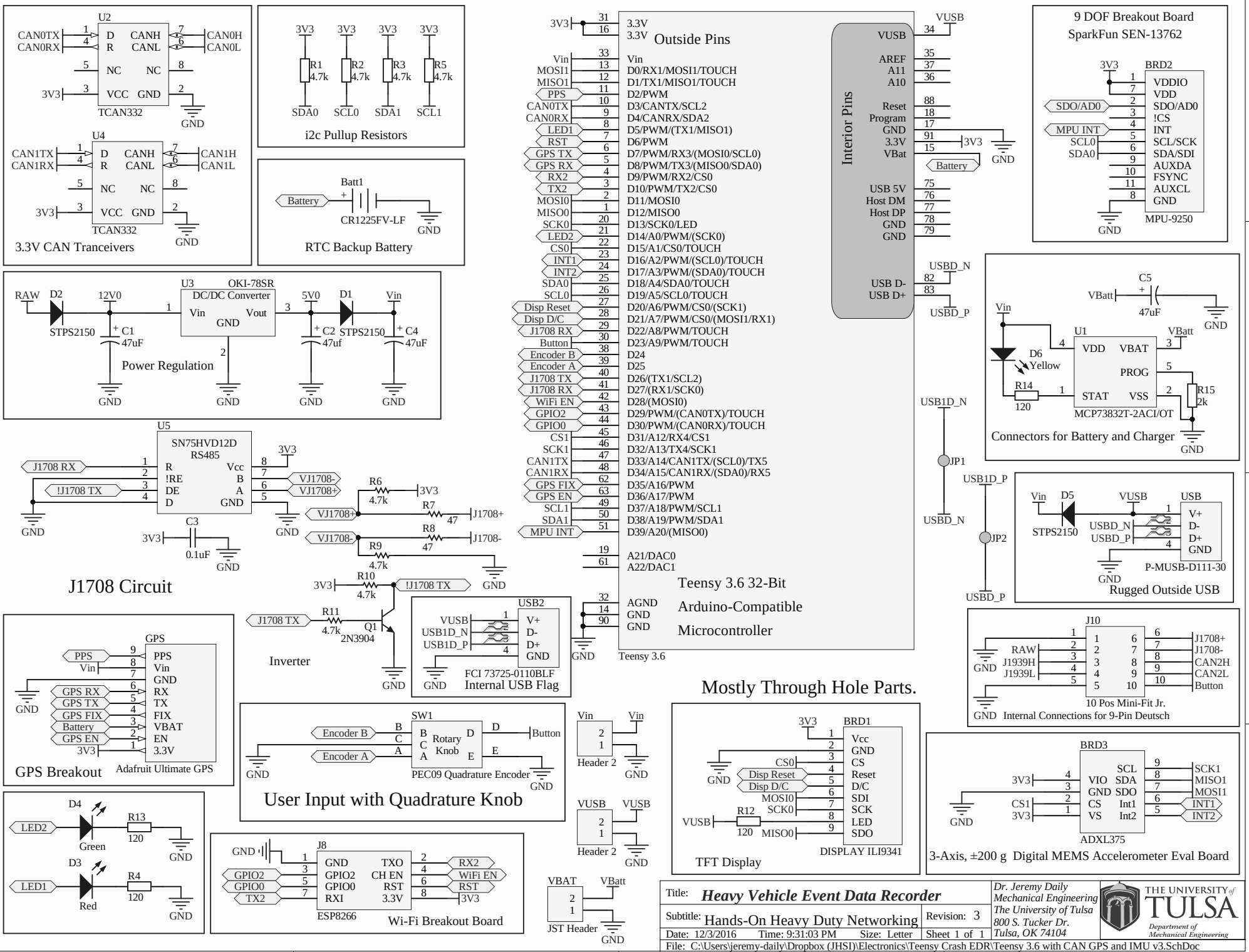
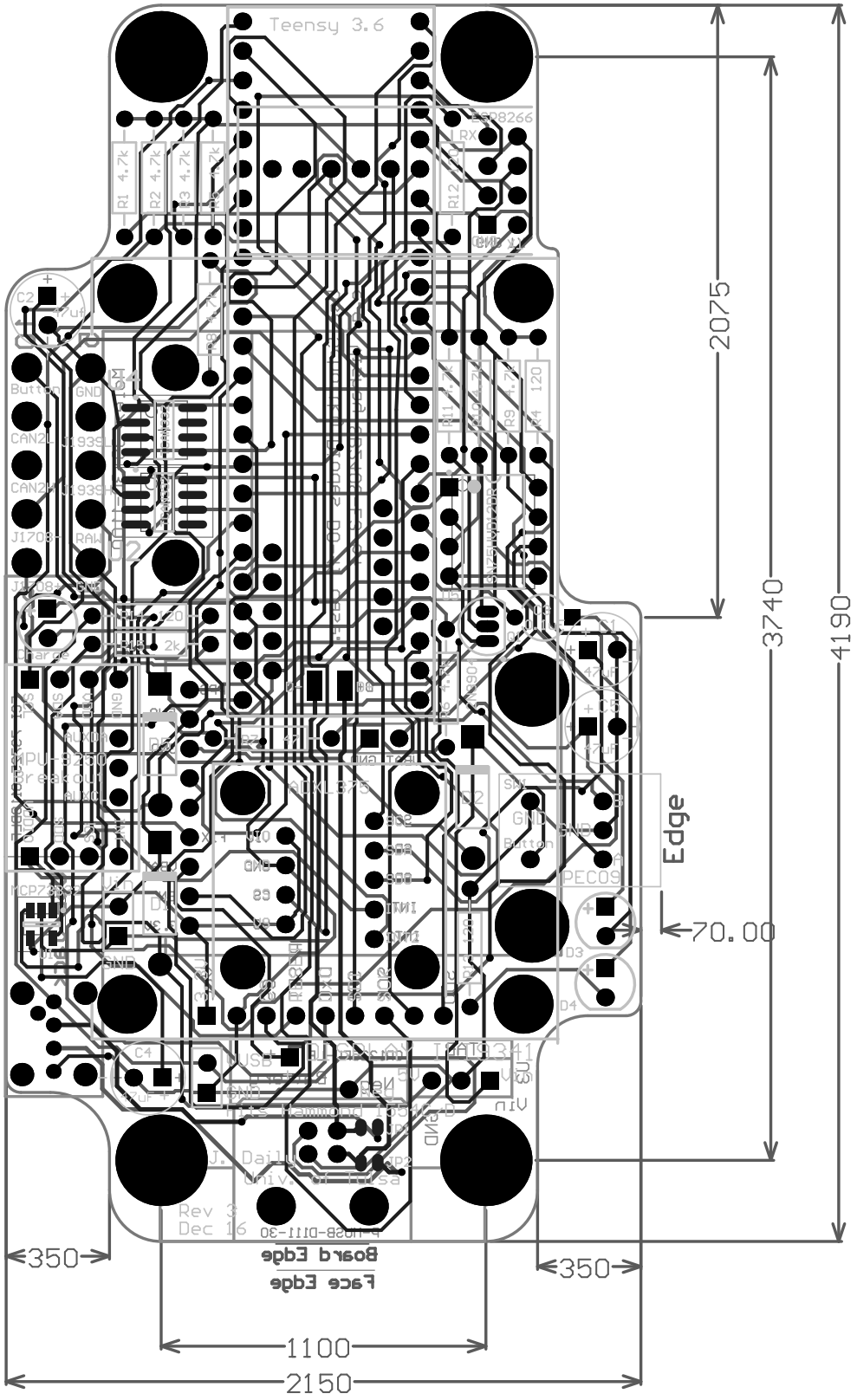

3.3V CAN Tranceivers
TCAN332
i2c Pullup Resistors
RTC Backup Battery
CR1225FV-LF
Power Regulation
OKI-78SR
DC/DC Converter
STPS2150
J1708 Circuit
SN75HVD12D
RS485
Inverter
2N3904
Outside Pins
Interior Pins
Teensy 3.6 32-Bit
Arduino-Compatible
Microcontroller
Teensy 3.6
Mostly Through Hole Parts.
9 DOF Breakout Board
SparkFun SEN-13762
MPU-9250
Connectors for Battery and Charger
MCP73832T-2ACI/OT
Rugged Outside USB
P-MUSB-D111-30
FCI 73725-0110BLF
Internal USB Flag
10 Pos Mini-Fit Jr.
Internal Connections for 9-Pin Deutsch
GPS Breakout
Adafruit Ultimate GPS
User Input with Quadrature Knob
PEC09 Quadrature Encoder
Header 2
TFT Display
DISPLAY ILI9341
3-Axis, ±200 g Digital MEMS Accelerometer Eval Board
ADXL375
Wi-Fi Breakout Board
ESP8266
JST Header
Title: Heavy Vehicle Event Data Recorder
Subtitle: Hands-On Heavy Duty Networking
Revision: 3
Date: 12/3/2016 Time: 9:31:03 PM Size: Letter
Sheet 1 of 1
File: C:\Users\jeremy-daily\Dropbox (JHSI)\Electronics\Teensy Crash EDR\Teensy 3.6 with CAN GPS and IMU v3.SchDoc
Dr. Jeremy Daily
Mechanical Engineering
The University of Tulsa
800 S. Tucker Dr.
Tulsa, OK 74104
THE UNIVERSITY of TULSA
Department of Mechanical Engineering


Teensy 3.6
ESP8266
2075
3740
4190
Edge
70.00
350
350
1100
2150
Board Edge
Face Edge
Rev 3
Dec 16

Comment	Description	Designator	Footprint	LibRef	Quantity	Manufacturer 1	Manufacturer Part Number 1	Supplier 1	Supplier Currency 1	Supplier Order Qty 1	Supplier Part Number 1	Supplier Stock 1	Supplier Subtotal 1	Supplier Unit Price 1
CR1225FV-LF	Coin Cell Battery 3V 2-PIN VERT 48mAh 12.5 x 2.5mm	Batt1	Coin Cell with Tabs	CR2032 Battery Holder	1	Loading...	Loading...	Mouser	Loading...		614-CR1225FV-LF			
DISPLAY ILI9341	Color 320x240 Display, 2.2 inch, ILI9341 Controller https://www.pjrc.com/store/display_ili9341.html	BRD1	Display ILI9341	Display	1									
MPU-9250	SparkFun IMU Breakout - MPU-9250 SEN-13762	BRD2	Sparkfun MPU-9250	MPU-9250 Breakout	1									
ADXL375	Analog Devices EVAL-ADXL375Z	BRD3	ADXL375 Eval	ADXL375 Eval	1	Analog Devices Inc.	EVAL-ADXL375Z	Digi-Key	USD	1	EVAL-ADXL375Z-ND	52	37.5	37.5
47uF	CAP ALUM 100UF 20% 63V RADIAL	C1, C2, C4, C5	Elec. Cap 2.5 x 6.3mm	Electrolytic Cap	4			Digi-Key	Loading...		P13464-ND	0		
0.1uF	CAP CER 0.1UF 50V 10% X7R 0603	C3	CAPR5-4X5	Cap	1	Murata Electronics North America	GRM188R71H104KA93D	Digi-Key	USD	1	490-1519-1-ND	9501034	0.1	0.1
STPS2150	Schottky Diodes & Rectifiers 2.0 Amp 150 Volt	D1, D2, D5	DO-41	Diode 1N4003	3	Loading...	Loading...	Mouser	Loading...		511-STPS2150			
Red	LED RED DIFFUSED 0805 SMD	D3	5mm Rad LED	LED - SMD	1	OSRAM Opto Semiconductors Inc.	LS R976-NR-1	Digi-Key	USD	1	475-1278-1-ND	0	0.27	0.27
Green	LED RED DIFFUSED 0805 SMD	D4	5mm Rad LED	LED - SMD	1	OSRAM Opto Semiconductors Inc.	LS R976-NR-1	Digi-Key	USD	1	475-1278-1-ND	0	0.27	0.27
Yellow	LED RED DIFFUSED 0805 SMD	D6	5mm Rad LED	LED - SMD	1	OSRAM Opto Semiconductors Inc.	LS R976-NR-1	Digi-Key	USD	1	475-1278-1-ND	0	0.27	0.27
Adafruit Ultimate GPS	Adafruit Ultimate GPS	GPS	GPS	GPS - Adafruit	1	Adafruit Industries LLC	746	Digi-Key	USD	1	1528-1153-ND	232	39.95	39.95
ESP8266	Sparkfun ESP8266 Module (WRL-13678)	J8	ESP8266	ESP8266	1	SparkFun Electronics	WRL-13678	Digi-Key	USD	1	1568-1235-ND	399	6.95	6.95
10 Pos Mini-Fit Jr.		J10	10 pos Mini-Fit Jr. R/A Header	10 Pos Header	1	Molex, LLC	39301100	Digi-Key	USD	1	WM1355-ND	1100	1.4	1.4
Solder Jumper		JP1, JP2	Solder Jumper	Solder Jumper	2			Digi-Key						
2N3904	NPN General Purpose Amplifier	Q1	TO-92A	2N3904	1									
4.7k	RES 4.7K OHM 1/4W 5% CARBON FILM, RES 4.7K OHM 1/4W 5% CARBON FILM, RES 4.7K OHM 1/4W 5% CARBON FILM, RES 4.7K OHM 1/4W 5% CARBON FILM, RES SMD 4.7K OHM 1% 1/10W 0603, RES SMD 4.7K OHM 1% 1/10W 0603, RES SMD 4.7K OHM 1% 1/10W 0603, RES SMD 4.7K OHM 1% 1/10W 0603	R1, R2, R3, R5, R6, R9, R10, R11	AXIAL-0.4	Res2, Res2, Res2, Res2, Chip Resistor, Chip Resistor, Chip Resistor, Chip Resistor	8	Stackpole Electronics Inc., Stackpole Electronics Inc., Stackpole Electronics Inc., Stackpole Electronics Inc., Panasonic Electronic Components, Panasonic Electronic Components, Panasonic Electronic Components, Panasonic Electronic Components	CF14JT4K70, CF14JT4K70, CF14JT4K70, CF14JT4K70, ERJ-3EKF4701V, ERJ-3EKF4701V, ERJ-3EKF4701V, ERJ-3EKF4701V	Digi-Key	USD	8	CF14JT4K70TR-ND, CF14JT4K70TR-ND, CF14JT4K70TR-ND, CF14JT4K70TR-ND, P4.70KHCT-ND, P4.70KHCT-ND, P4.70KHCT-ND, P4.70KHCT-ND			
120	RES 4.7K OHM 1/4W 5% CARBON FILM	R4, R12, R13, R14	AXIAL-0.4	Res2	4	Stackpole Electronics Inc.	CF14JT4K70	Digi-Key	USD	4	CF14JT4K70TR-ND	505000		
47	RES SMD 47 OHM 1% 1/4W 0603	R7, R8	Axial-0.4	Chip Resistor	2	Panasonic Electronic Components	ERJ-PA3F47R0V	Digi-Key	USD	2	P47.00BYCT-ND	13757	0.32	0.16
2k	RES 4.7K OHM 1/4W 5% CARBON FILM	R15	AXIAL-0.4	Res2	1	Stackpole Electronics Inc.	CF14JT4K70	Digi-Key	USD	1	CF14JT4K70TR-ND	505000		
PEC09 Quadrature Encoder	ENCODER INCREMENTAL W/SWITCH 9MM	SW1	PEC09 Series Encoder	Quadrature PEC09	1	Bourns Inc.	PEC09-2220F-S0012	Digi-Key	USD	1	PEC09-2220F-S0012-ND	1817	3.36	3.36
Teensy 3.6 Through Hole	32 Bit Arduino-Compatible Microcontroller	Teensy 3.6	Teensy 3.6 Through Hole - No Labels	Teensy 3.6 Through Hole	1	Supplier disabled	Supplier disabled	Sparkfun	Supplier disabled		DEV-13736			
MCP73832T-2ACI/OT	Miniature Single-Cell, Fully Integrated Li-Ion, Li-Polymer Charge Management Controller, 4.2V, 5-Pin SOT-23, Industrial Temperature, Tape and Reel	U1	SOT-23-OT5_M	MCP73832T-2ACI/OT	1	Microchip Technology	MCP73832T-2ACI/OT	Digi-Key	USD	1	MCP73832T-2ACI/OTTR-ND	0		
TCAN332	3.3 V Can Transceiver, 17 mA, -40 to 85 degC, 8-pin SOIC (D), Green (RoHS & no Sb/Br)	U2, U4	D8_M	SN65HVD232DRG4	2	Texas Instruments	SN65HVD232DRG4	Digi-Key	USD	2	SN65HVD232DRG4ND	0		
OKI-78SR	5V DC/DC Converter (7805 replacement)	U3	78xx	7805	1	Murata Power Solutions Inc.	OKI-78SR-5/1.5-W36-C	Digi-Key	USD	1	811-2196-5-ND	18887	4.31	4.31
SN75HVD12DR	IC 3.3V DIFF TXRX 8-SOIC	U5	PDIP300-P8	SN75HVD12D (3.3v RS485)	1	Texas Instruments	SN65HVD12P	Digi-Key	USD	1	296-13862-5-ND	78	4.24	4.24
P-MUSB-D111-30	USB Commercial B Receptacle	USB	MUSB	USB-Rugged	1			Digi-Key						
FCI 73725-0110BLF	USB Commercial B Receptacle	USB2	USB Flag	USB-Rugged	1	Amphenol FCI	73725-0110BLF	Digi-Key	USD	1	609-1041-ND	32585	0.84	0.84
JST Header	Header, 2-Pin	VBAT	HDR1X2	Header 2	1									
Header 2	Header, 2-Pin	Vin, VUSB	HDR1X2	Header 2	2									