Sheet: Power_Management

File: F20_Power_Management.sch

Sheet: RIM

File: F20_RIM.sch

Sheet: Powertrain

File: F20_Powertrain.sch

Sheet: Shifter

File: F20_Shifter.sch

Sheet: Driver_Display

File: F20_Driver_Display.sch

Sheet: Steering_Wheel

File: F20_Steering.sch

Sheet: Brakes

File: F20_Brakes.sch

Sheet: XBEE

File: F20_XBEE.sch

Sheet: Transponder

File: F20_Transponder.sch

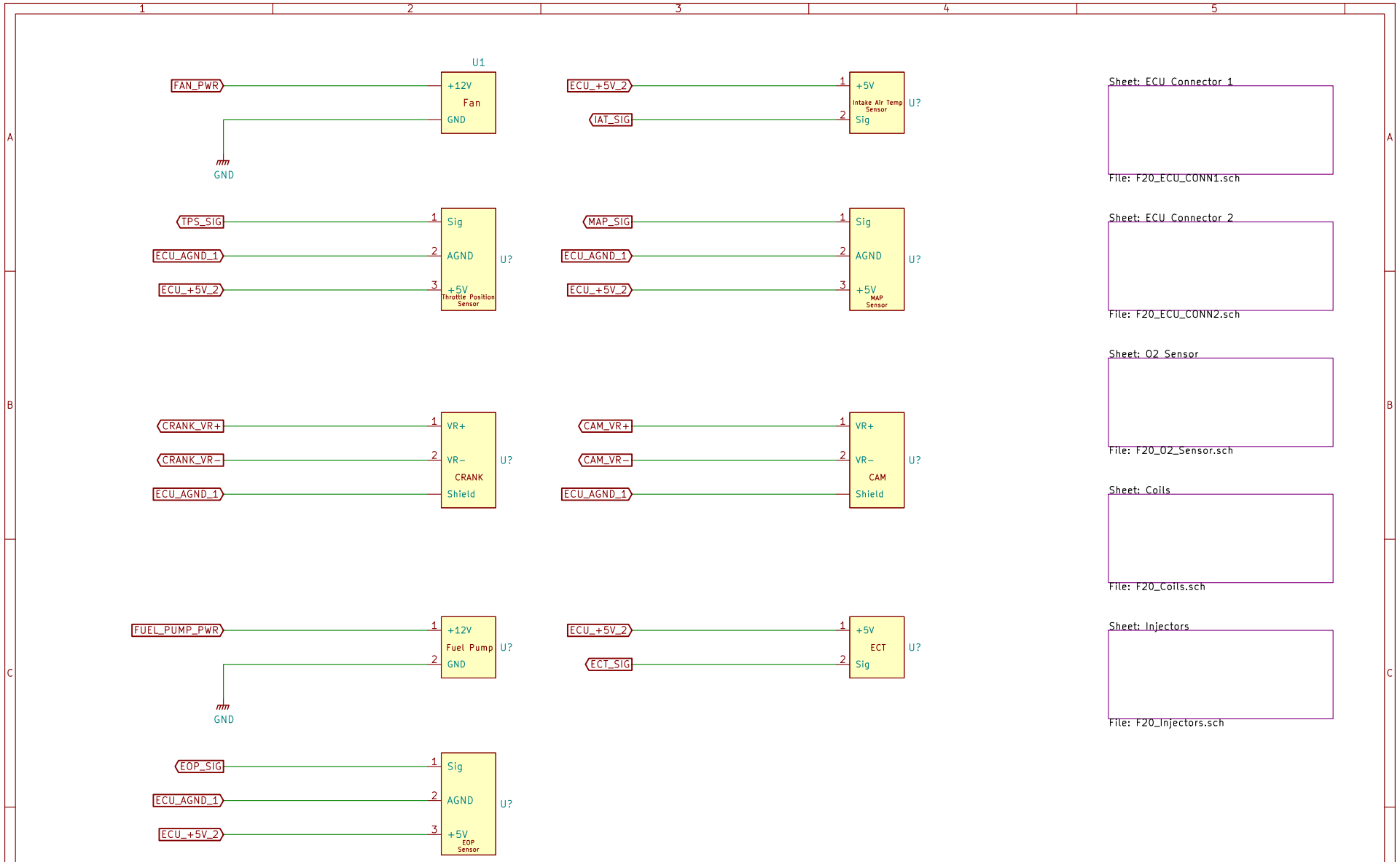
Sheet: Accelerometer

File: F20_Accelerometer.sch

Sheet: Tire_Temperature_Sensors

File: F20_Tire_Temp_Sensors.sch

Apprvd By:		UIC Formula SAE
Drawn By: Cristian Valadez		
Model: F20		
Sheet: /		
File: F20_ROOT.sch		
Title: Root Index		
Size: A4	Date:	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 1/18



IAT : Intake Air Temperature
TPS : Throttle Position Sensor
MAP : Manifold Air Pressure

NOTE: CAM and CRANK wiring should be shielded. Shield needs to be grounded.

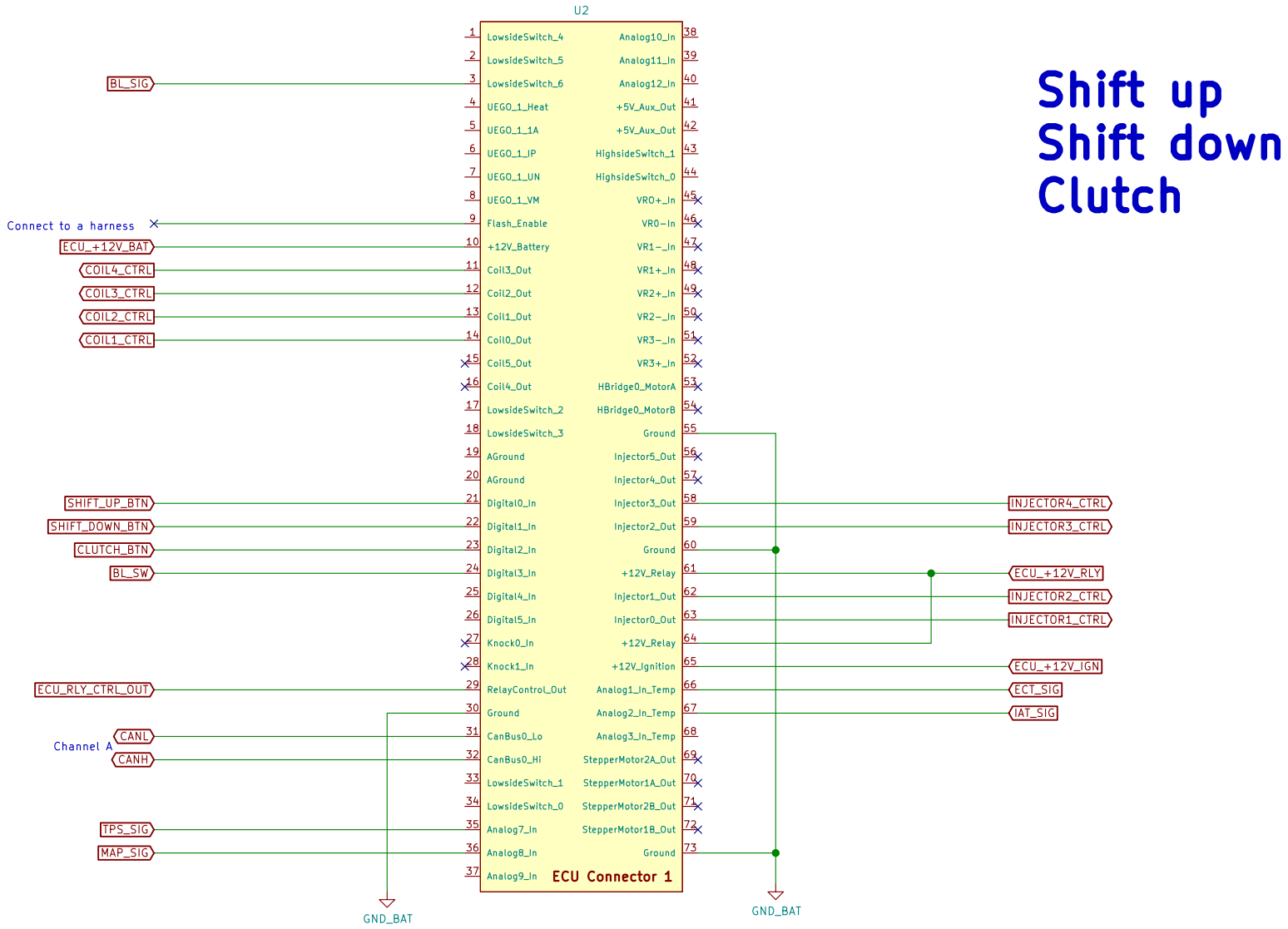
Apprvd By:
Drawn By: Cristian Valadez, Alex Domagala
Model: F20

UIC
Formula SAE

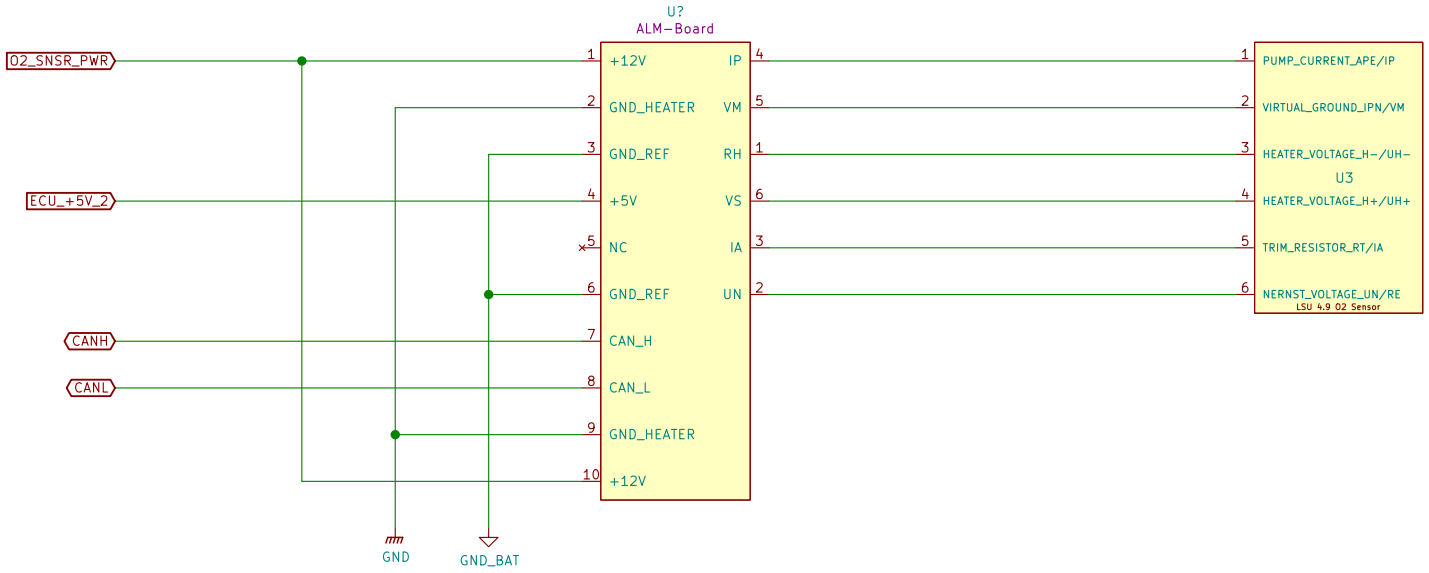
Sheet: /Powertrain/
File: F20_Powertrain.sch

Title: Engine

Size: A	Date: 2020-03-03	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 2/18

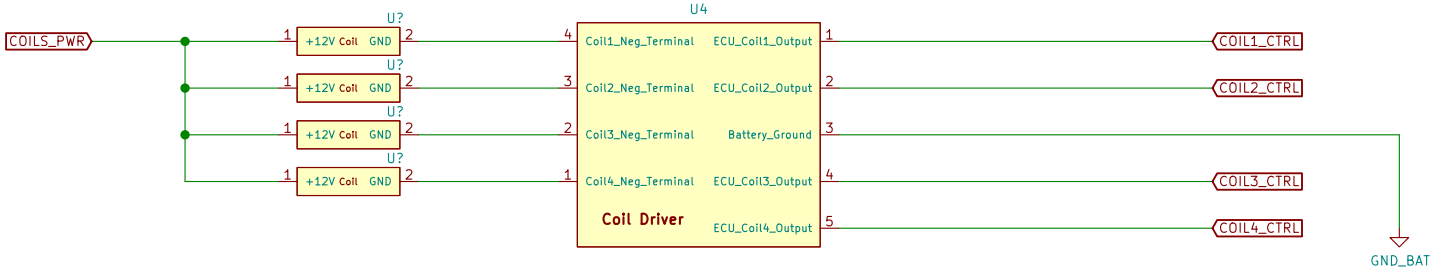


Apprvd By:	UIC Formula SAE
Drawn By: Cristian Valadez	
Model: F20	
Sheet: /Powertrain/ECU Connector 1/	
File: F20_ECU_CONN1.sch	
Title: ECU Connector 1	
Size: A | Date:	**Rev:**
KiCad E.D.A. kicad 5.1.5+dfsg1−2build2	Id: 3/18



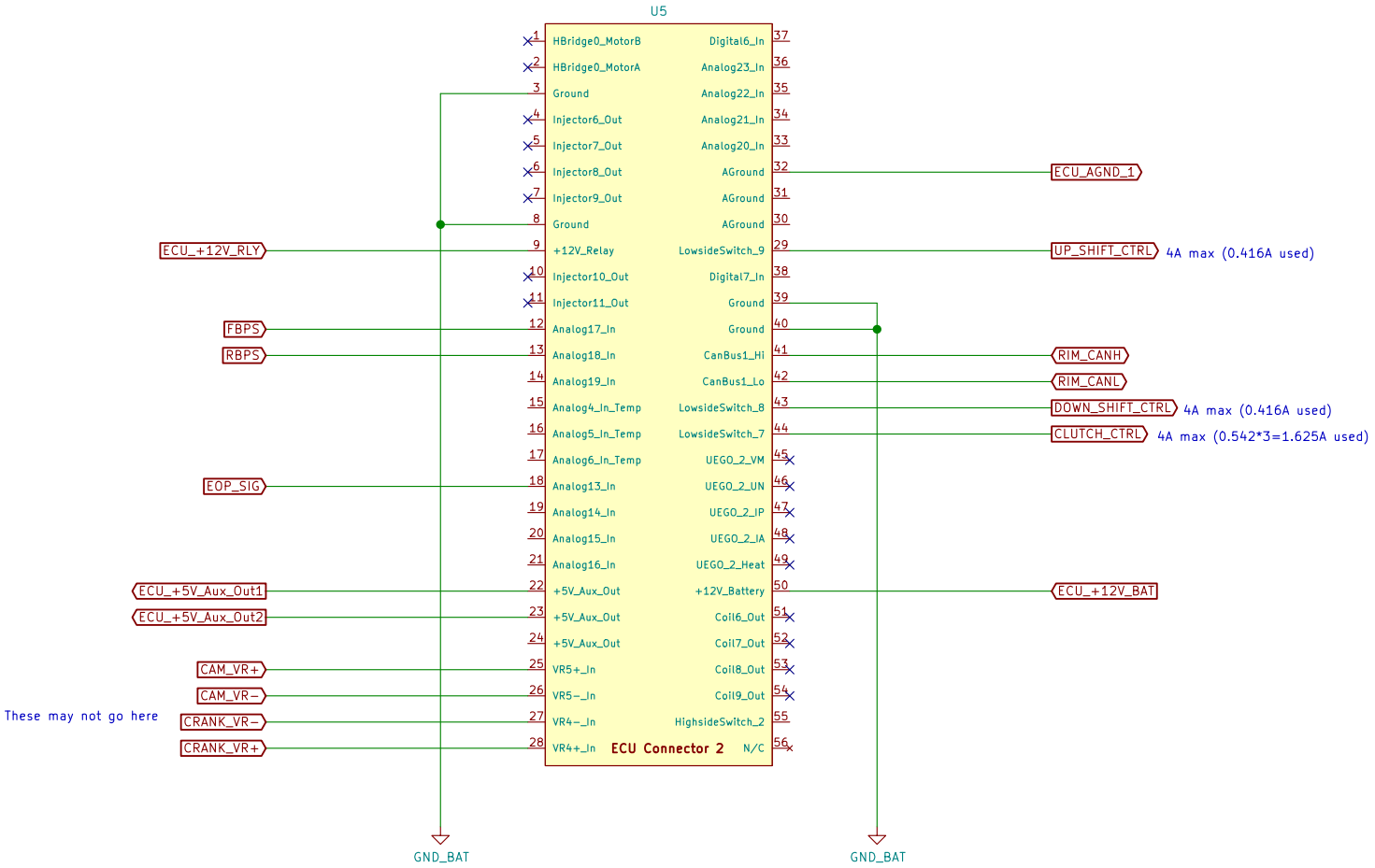
Heater 1A typical (1.7A max)
ALM board 60mA

Apprvd By:	UIC Formula SAE
Drawn By: Alex Domagala	
Model: F20	
Sheet: /Powertrain/O2 Sensor/	
File: F20_O2_Sensor.sch	
Title: O2 Sensor	
Size: A | Date: 2020-02-03	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2	Id: 4/18



25mA max source current per coil
100mA total

Apprvd By:	**UIC** Formula SAE
Drawn By: Cristian Valadez	
Model: F20	
Sheet: /Powertrain/Coils/	
File: F20_Coils.sch	
Title: Coil	
Size: A | Date: 2020-02-04	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2	Id: 5/18



LowsideSwitch7/8/9_Out supports max 4A and have flyback diodes

BL : Brake Light
RIM : Remote Input Module
FBPS : Front Brake Pressure Sensor
RBPS : Rear Brake Pressure Sensor
TPS : Throttle Position Sensor
MAP : Manifold Air Pressure
IAT : Intake Air Temperature

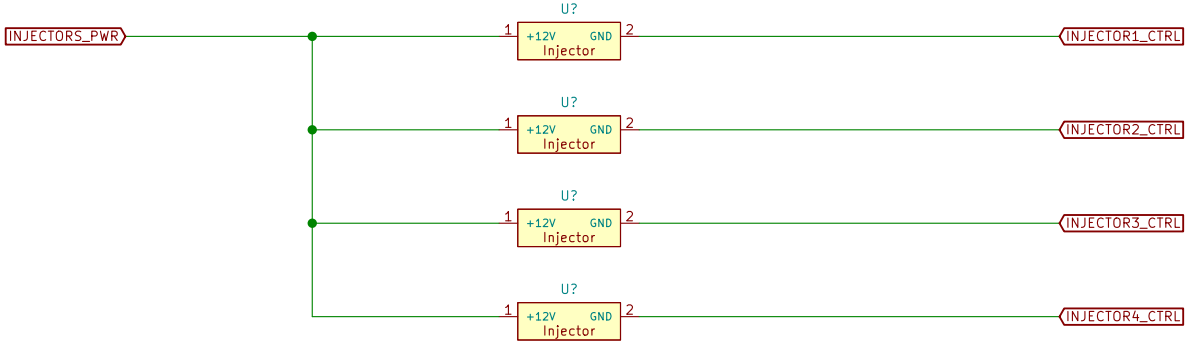
Apprvd By:
Drawn By: Cristian Valadez
Model: F20

UIC Formula SAE

Sheet: /Powertrain/ECU Connector 2/
File: F20_ECU_CONN2.sch

Title: ECU Connector 2

Size: A	Date: 2020-03-03	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 6/18



3A continous max per injector
12A total

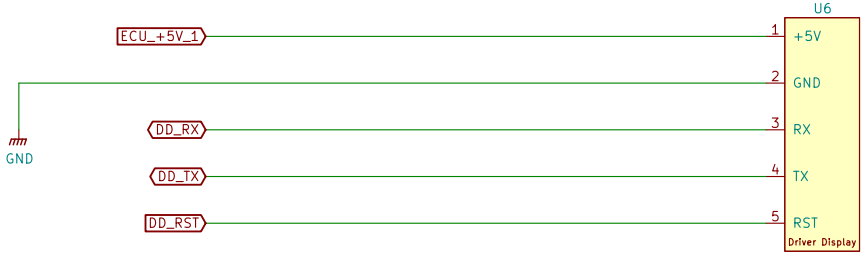
Apprvd By:
Drawn By: Cristian Valadez
Model: F20

UIC
Formula SAE

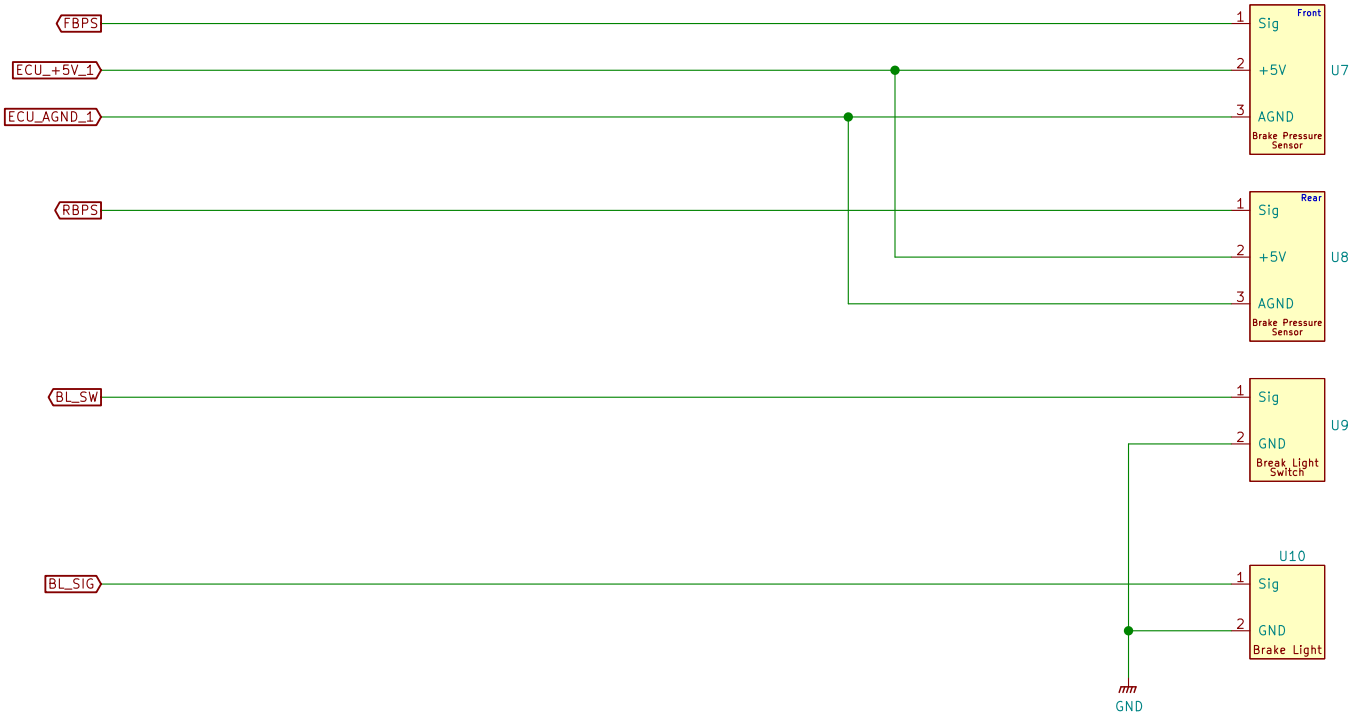
Sheet: /Powertrain/Injectors/
File: F20_Injectors.sch

Title: Injectors

Size: A	Date: 2020-02-24	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 7/18



Apprvd By: Cristian Valadez Drawn By: Alex Domagala **Model: F20**		**UIC** Formula SAE
Sheet: /Driver Display/ File: F20_Driver_Display.sch		
Title: FSAE		
Size: A	Date: 2020-02-03	**Rev: B**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 8/18



BL : Brake Light
FBPS : Front Brake Pressure Sensor
RBPS : Rear Brake Pressure Sensor

Apprvd By: Cristian Valadez
Drawn By: Alex Domagala
Model: F20

UIC
Formula SAE

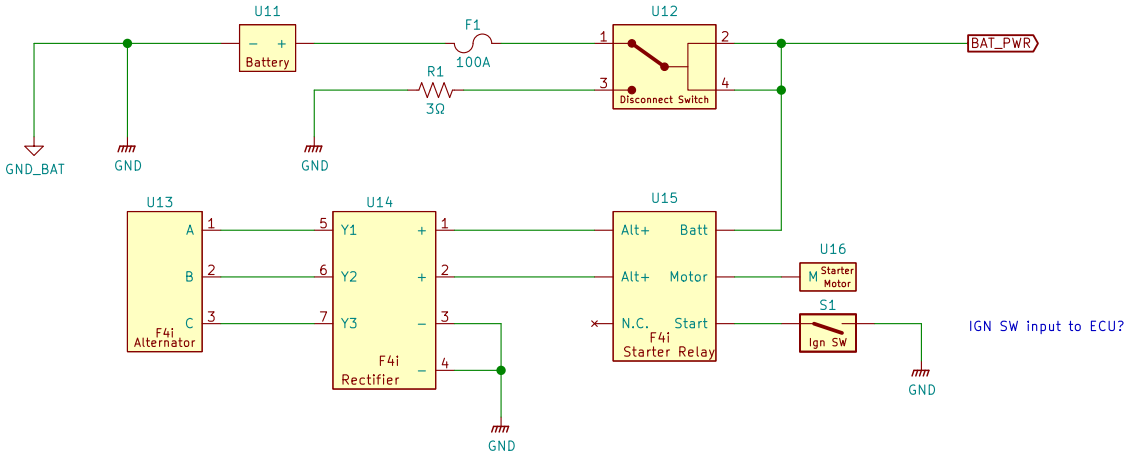
Sheet: /Brakes/
File: F20_Brakes.sch

Title: Brakes

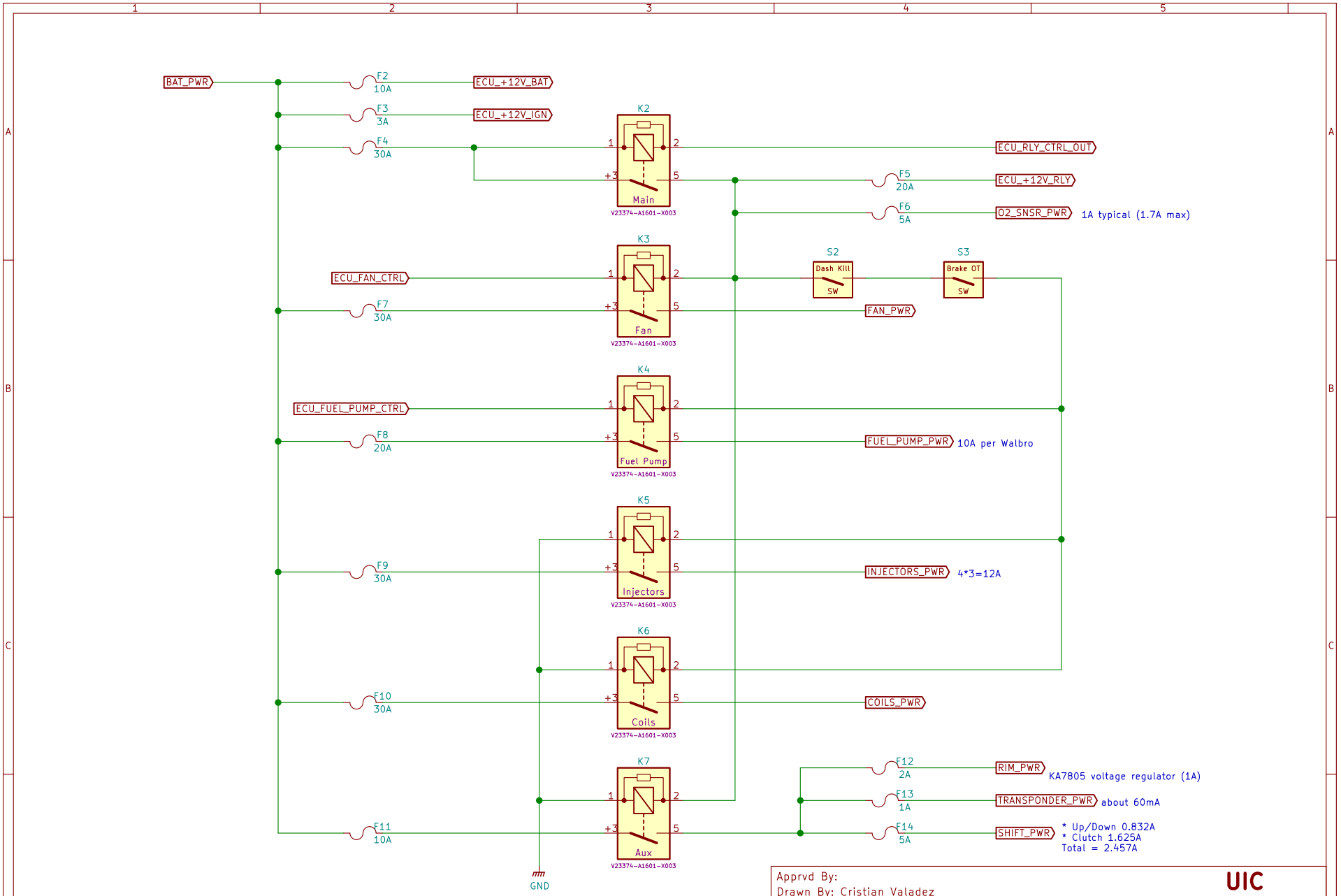
Size: A	Date: 2020-02-03	**Rev: B**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 9/18

Sheet: Relays and Fuses

File: F20_Relays_Fuses.sch



Apprvd By: Drawn By: Cristian Valadez **Model: F20**		**UIC** Formula SAE
Sheet: /Power Management/ File: F20_Power_Management.sch		
Title: Fuses and Relays		
Size: A	Date: 2020-01-28	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 10/18



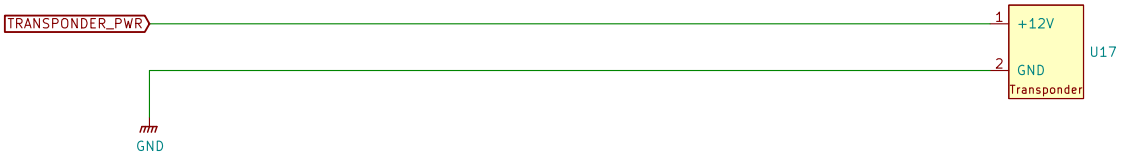
Apprvd By:
Drawn By: Cristian Valadez
Model: F20

UIC
Formula SAE

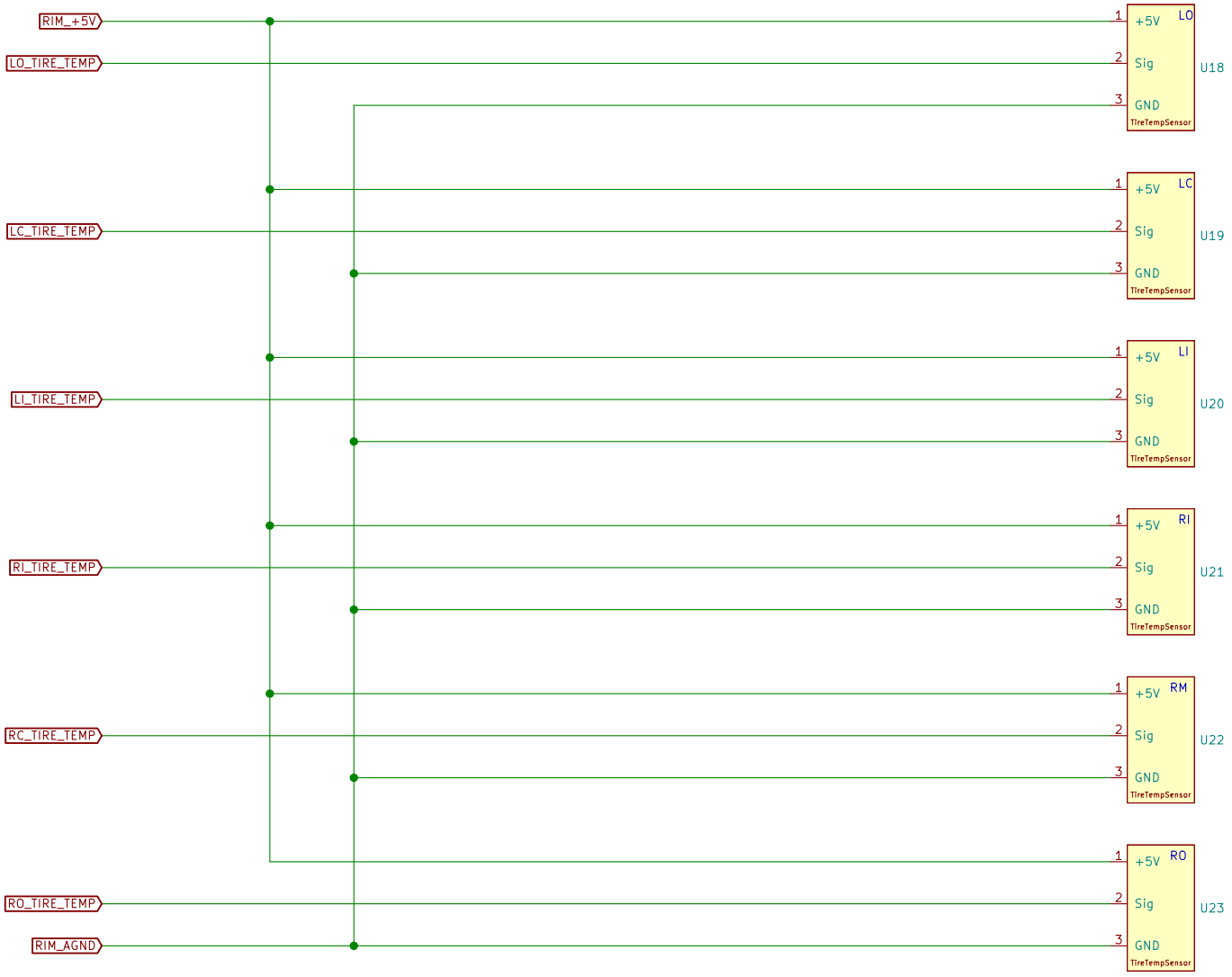
Sheet: /Power Management/Relays and Fuses/
File: F20_Relays_Fuses.sch

Title: Relays and Fuses

Size: A	Date: 2020-03-04	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 11/18



Apprvd By: Cristian Valadez Drawn By: Alex Domagala **Model: F20**		**UIC** Formula SAE
Sheet: /Transponder/ File: F20_Transponder.sch		
Title: Transponder		
Size: A	Date: 2020-02-03	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 12/18



LO : Left Outer
LC : Left Center
LI : Left Inner
RO : Right Outer
RC : Right Center
RI : Right Inner
RIM : Remote Input Module

About 2mA each
18mA total

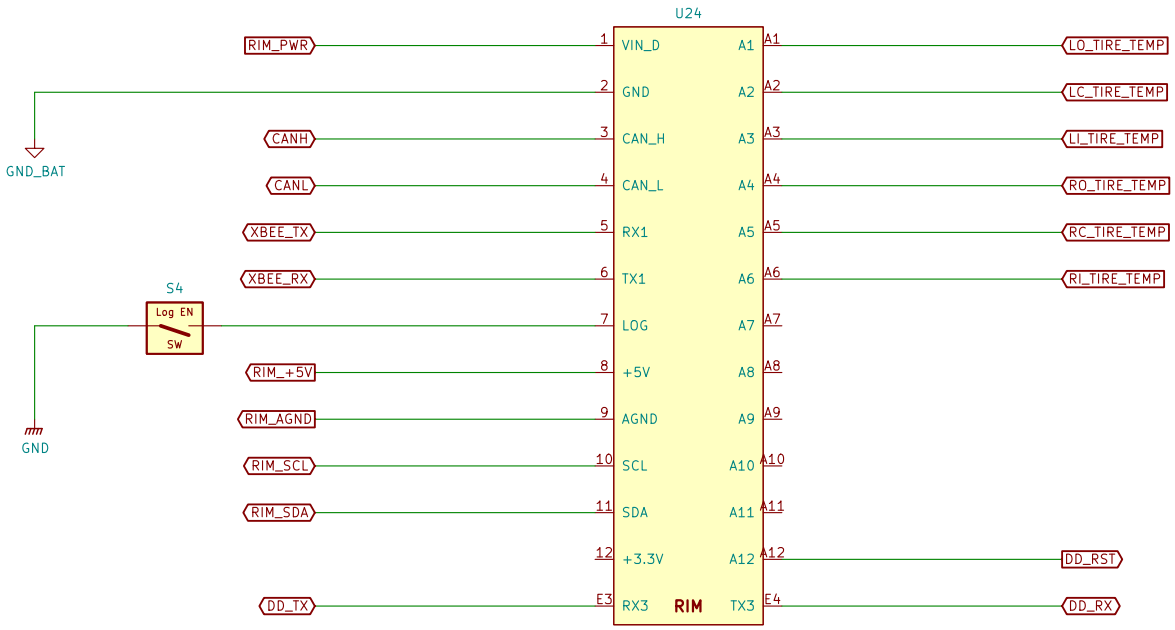
Apprvd By: Cristian Valadez
Drawn By: Alex Domagala
Model: F20

UIC
Formula SAE

Sheet: /Tire Temperature Sensors/
File: F20_Tire_Temp_Sensors.sch

Title: Tire Temperature Sensors

Size: A	Date: 2020-03-03	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 13/18



+5V Power Consumption
18mA for Tire Temp Sensors

LO : Left Outer
LC : Left Center
LI : Left Inner
RO : Right Outer
RC : Right Center
RI : Right Inner

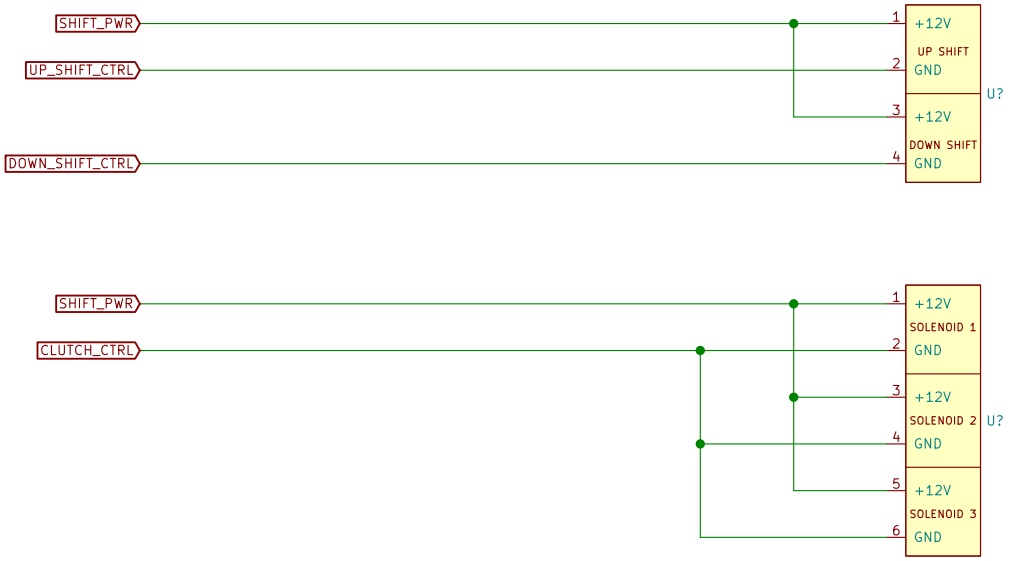
Apprvd By:
Drawn By: Cristian Valadez
Model: F20

UIC
Formula SAE

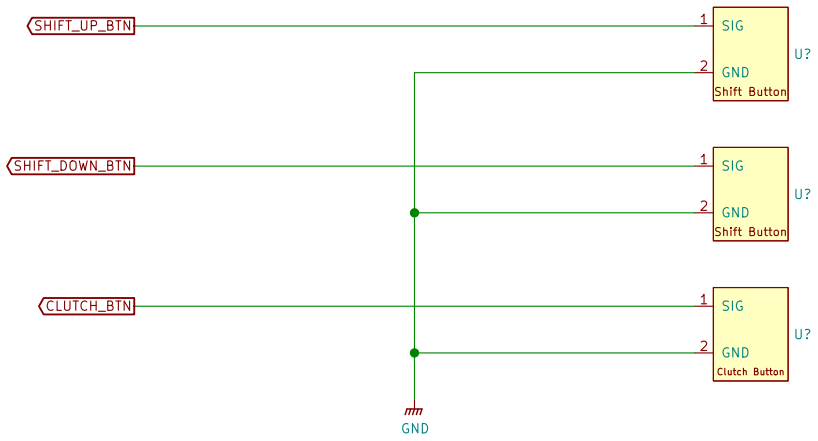
Sheet: /RIM/
File: F20_RIM.sch

Title: RIM

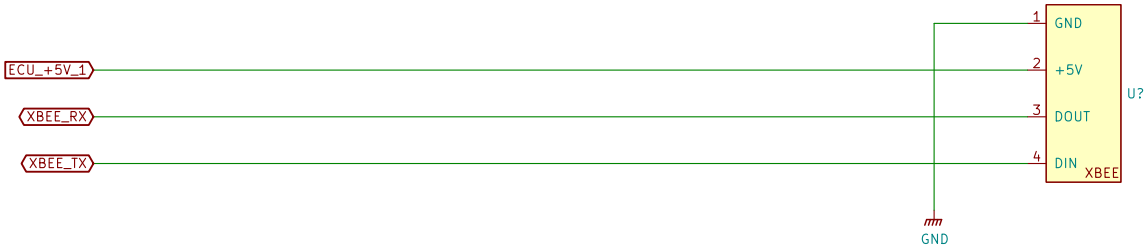
Size: A	Date: 2020-02-18	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 14/18



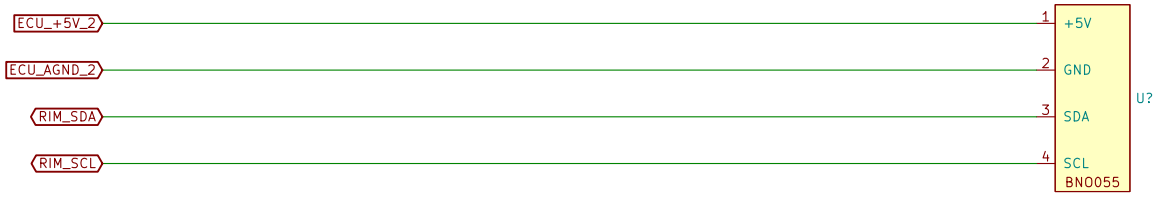
Apprvd By:	**UIC** Formula SAE
Drawn By: Cristian Valadez	
Model: F20	
Sheet: /Shifter/	
File: F20_Shifter.sch	
Title: Shifter	
Size: A | Date: 2020-03-04	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2	Id: 15/18



Apprvd By: Drawn By: Alex Domagala **Model: F20**		**UIC** Formula SAE
Sheet: /Steering Wheel/ File: F20_Steering.sch		
Title: Steering Wheel		
Size: A	Date: 2020-03-10	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 16/18



Apprvd By: Drawn By: Cristian Valadez **Model: F20**		**UIC** Formula SAE
Sheet: /XBEE/ File: F20_XBEE.sch		
Title: XBEE		
Size: A	Date: 2020-03-12	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 17/18



Apprvd By: Drawn By: Cristian Valadez **Model: F20**		**UIC** Formula SAE
Sheet: /Accelerometer/ File: F20_Accelerometer.sch		
Title: Accelerometer		
Size: A	Date: 2020-03-12	**Rev: A**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 18/18