

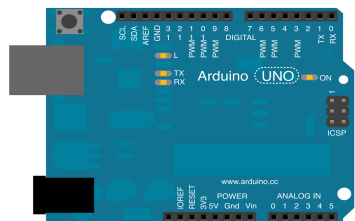
### SOFTWARE DESIGN

- Arduino UNO as the central controller
- Runs all tasks simultaneously using *millis()* function
- Integrates with sensors including coolant flow meter, thermistor and fan tachometer
- Integrates with control units including push buttons and switches to enable users to change temperature threshold/fan speed percentage during run time
- Uses a SerLCD display to show crucial sensors' data during run time

```
FlowFreq: AFlowFreq:
20          U20
TempFlowR: TTempFlowR:
21.37      021.37
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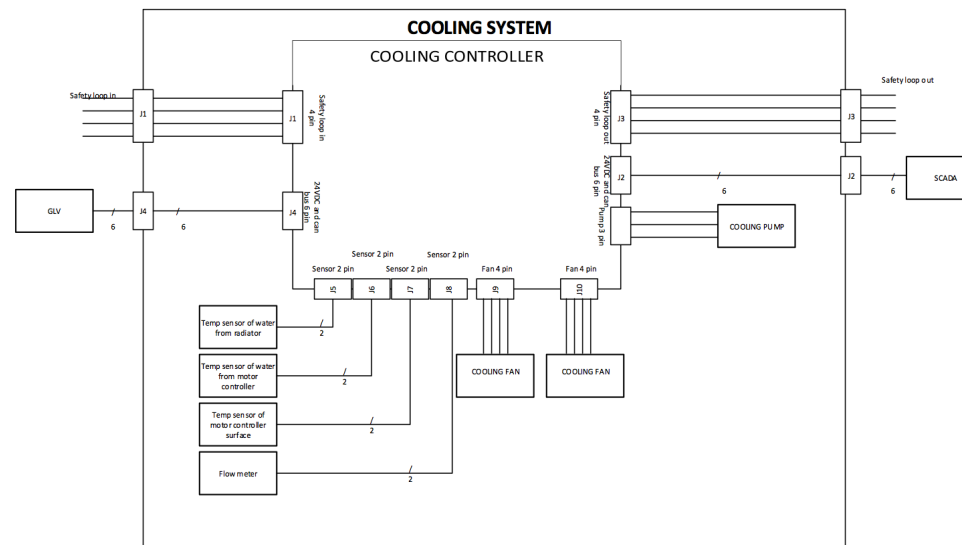
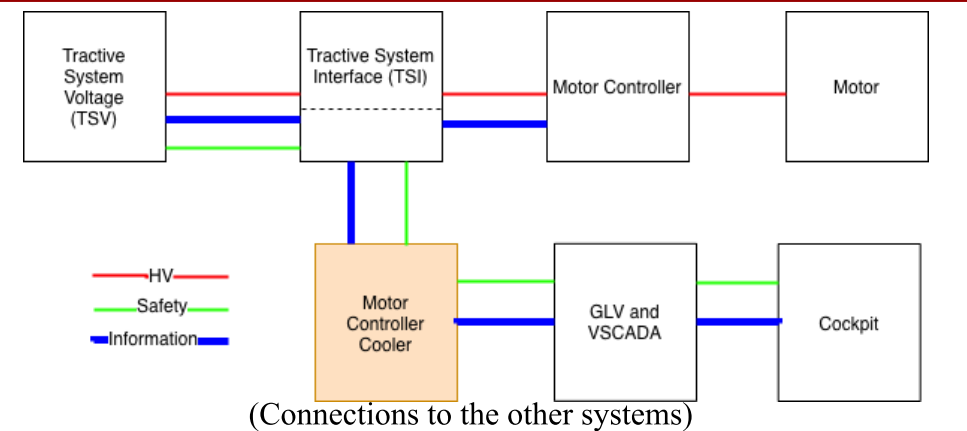
(Mockup view of LCD display)

- Interfaces with two 5V relays to switch pump power between 12V/24V and to shut down the 24V GLV safety loop
- Uses MCP2515 CAN Bus controller to transfer sensors' data to SCADA



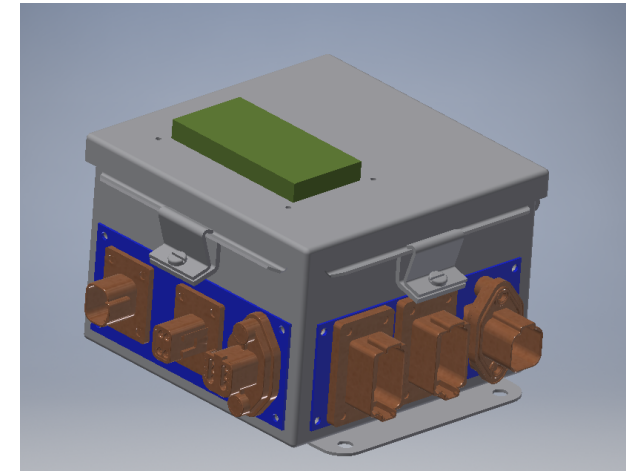
### OVERVIEW

- Runs on universal 24V
- Provide sufficient cooling to the motor controller
- Automatically/manually controls fan/pump speed
- Sensor integration
- CAN Bus communication to SCADA
- GLV safety loop interface

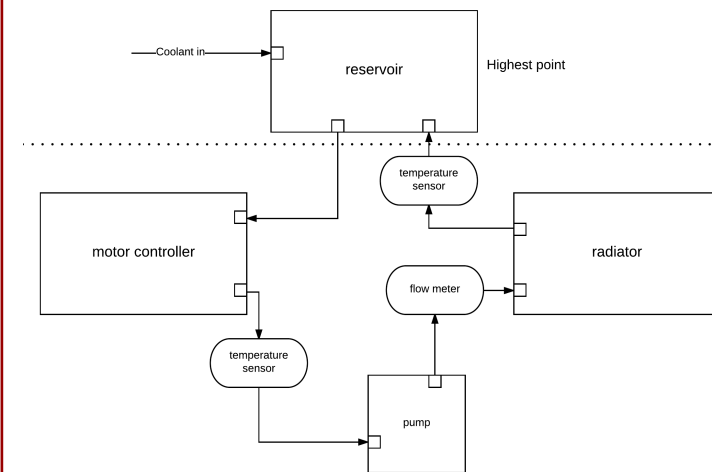


(Arduino pins usage)

### PHYSICAL DESIGN



(The overall physical box design)



(Coolant flow diagram within the cooling system)

