Inputs:

- enable switch (2)
- BPS reset switch (2)
- hazards switch (2)
- running lights switch (2)
- forward/reverse switch (2)
- regen switch (2)
- kill switch (2)
- brakes (2)
- accelerator pedal (analog)
- horn switch (2)
- turn signal switch (3)
- BPS data stream (CAN)
- BPS contactor signalling (?) — need to research
- motor controller (CAN)
- MPPTs (CAN)
- rear camera (composite)

Outputs:

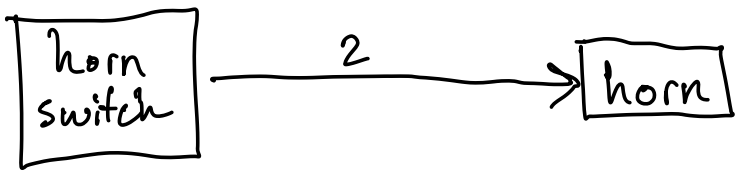
- motor controller (120° square wave)
- running lights (2)
- turn signals (2)
- hazards (2)
- brake lights (2)
- horn (2)
- RF transmitter (radio)
- driver display (screen display)
- left turn driver LED (2)
- right turn driver LED (2)
- battery contactors (2)
  - positive, negative, precharge

( ) = type of signal

2 = two states (on/off)

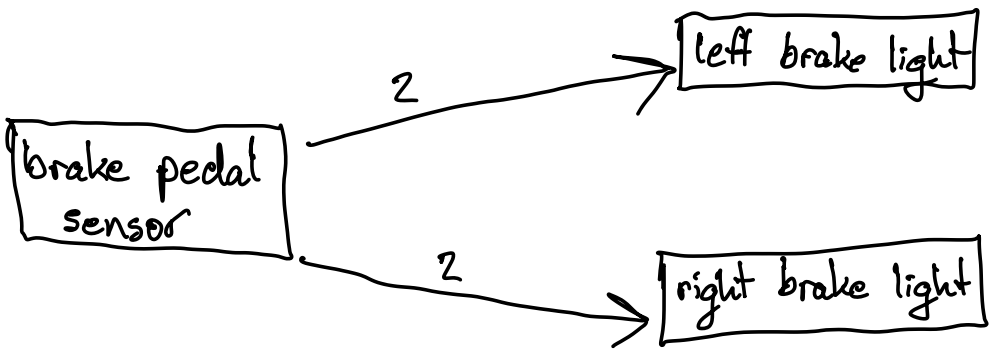
3 = three states

Horn Subsystem:



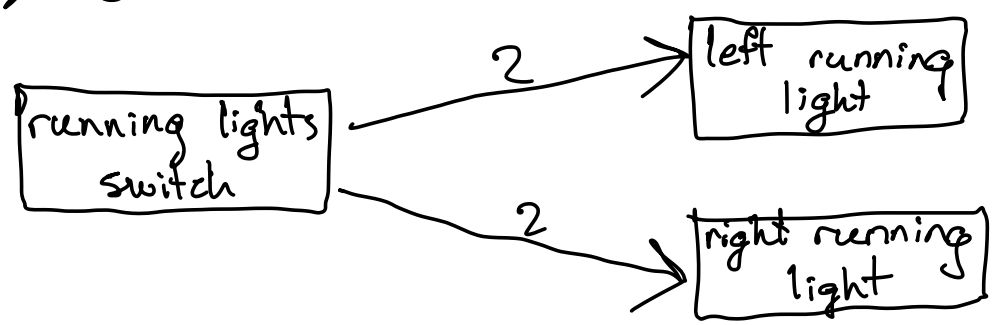
- horn sounds IF horn switch is ON

Brake Lights Subsystem:

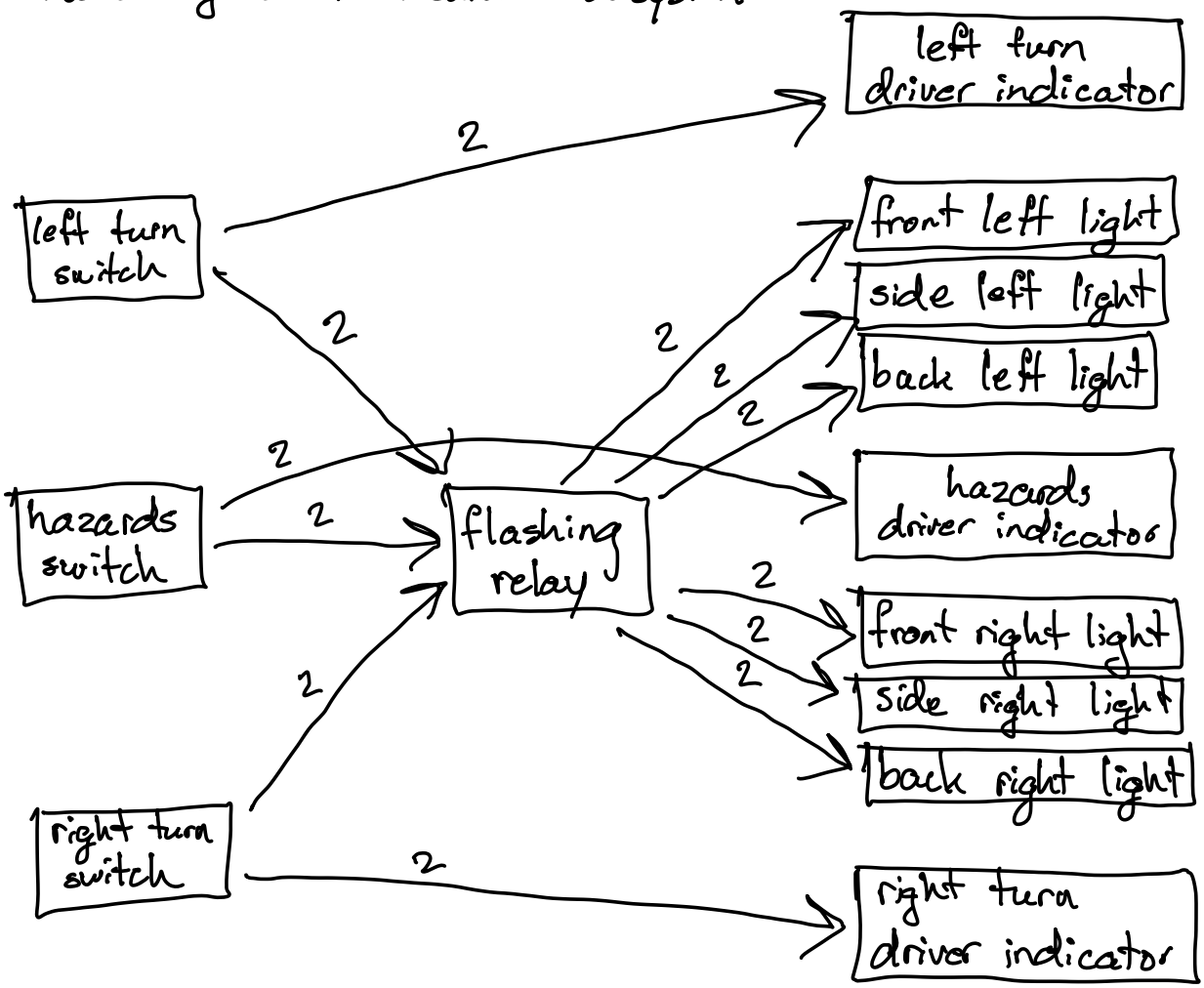


- both brake lights turn ON IF brake pedal is pressed by any amount

Running Lights Subsystem:

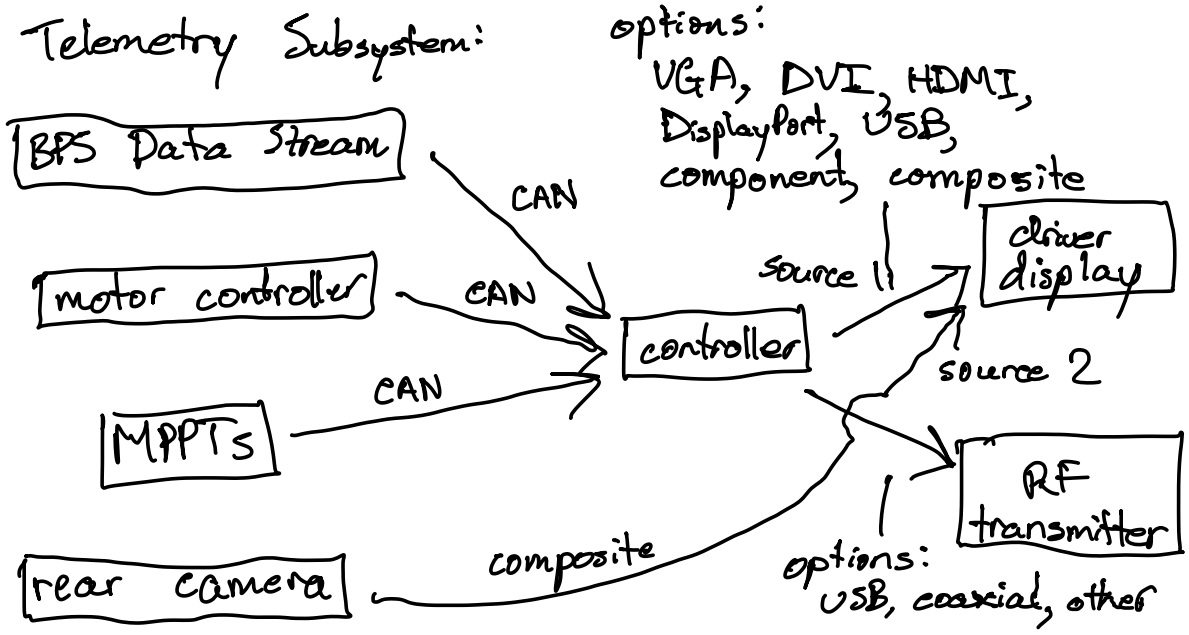


Turn Signals & Hazards Subsystem:



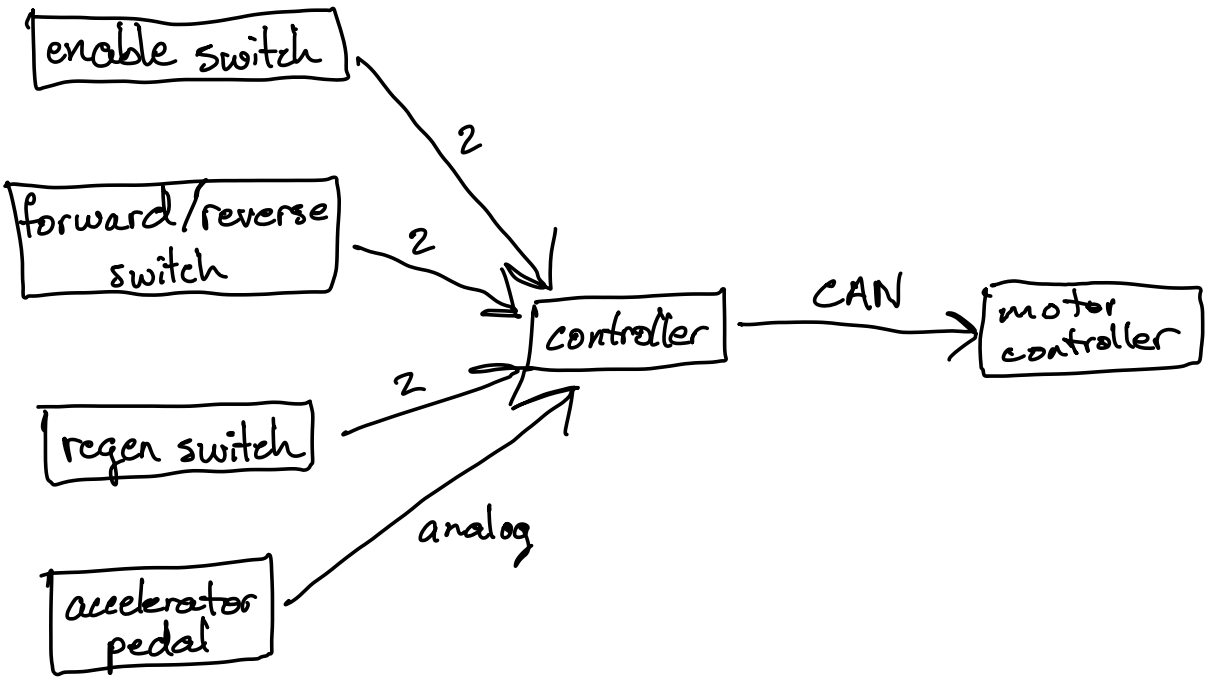
- If left turn switch is ON, left turn indicator turns on & left lights blink
  - same for right
- If hazards switch is ON, hazards indicator turns on & all lights blink
- flashing relay needed to convert DC signal to square wave signal

Telemetry Subsystem:



- screen will display battery voltage, battery charge, battery temperature, battery current, array voltage, array current, tachiometer, & spedometer on source 1
  - same info will be transmitted to mission control
- screen will display rear camera footage on source 2
- controller needed to collect telemetry data, process camera feed, program driver display, & run RF transmitter

Motor Controller Subsystem:



- motor will not run IF enable switch is OFF
- motor does not run IF regen switch is ON & lets current flow from motor
- motor will run in forward direction IF forward/reverse switch is FORWARD and will run in opposite direction IF REVERSE
- motor frequency increases in proportion to amount accelerator pedal is pushed
- controller needed to read analog signal from accelerator pedal & communicate with motor controller