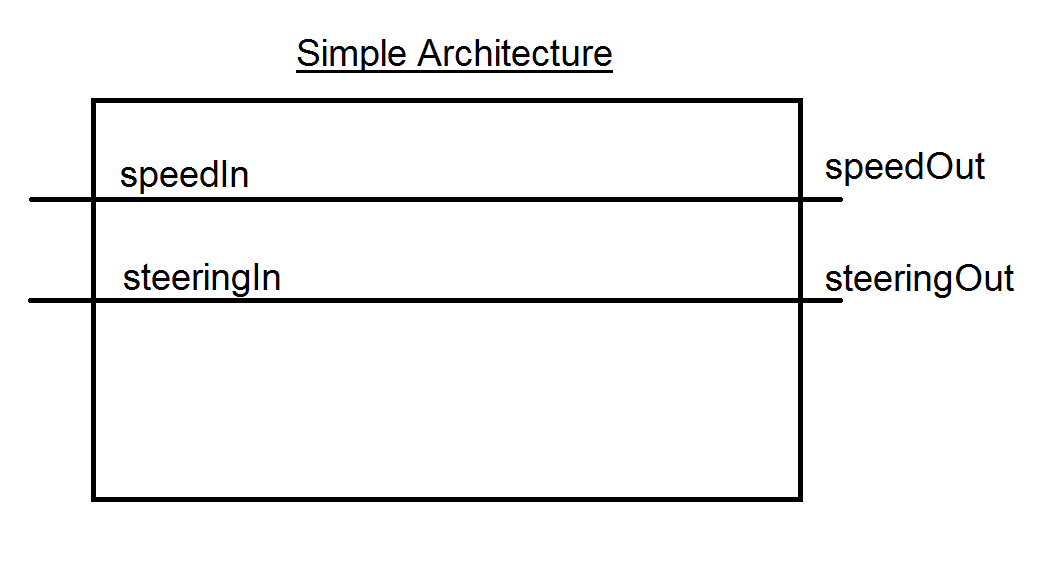
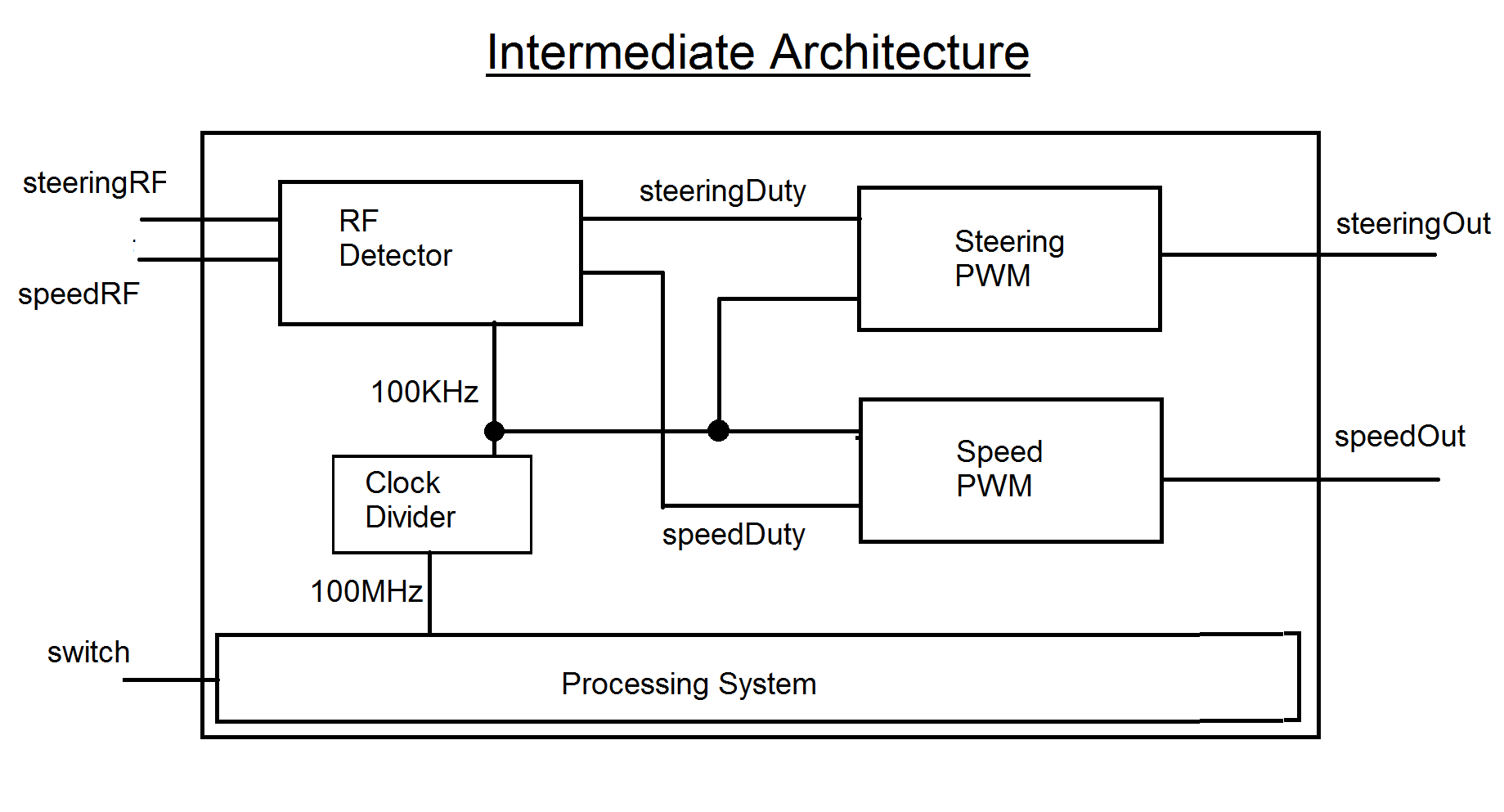
**RF route recorder**

**Architectures:**



The simple architecture represents how to control the RazorCar without trying to save the data for replication.



The intermediate architecture ..

**Components:**

1. RF Detector- Reads input from remote to determine the steering and speed duty cycle, outputs 2 integers for the duty cycles
2. Clock Divider- Takes in a 100MHz clock and outputs a 100KHz clock
3. Steering PWM- Takes in a 100KHz clock and an integer and outputs a PWM output to control the steering
4. Speed PWM- Takes in a 100KHz clock and an integer and outputs a PWM output to control the speed
5. Processing System - xc7z020clg484-2

**Tasks to complete:**

1. Setup – Due: 11/13/17

* Create project
* Create PS with proper AXI GPIO buses
* Create VHDL files for PWMs, Clock Divider, RF Detector, and Top level
* Begin researching how remote works to create a RF Detector that outputs the proper integer to the PWM to correlate with direction and strength of remote

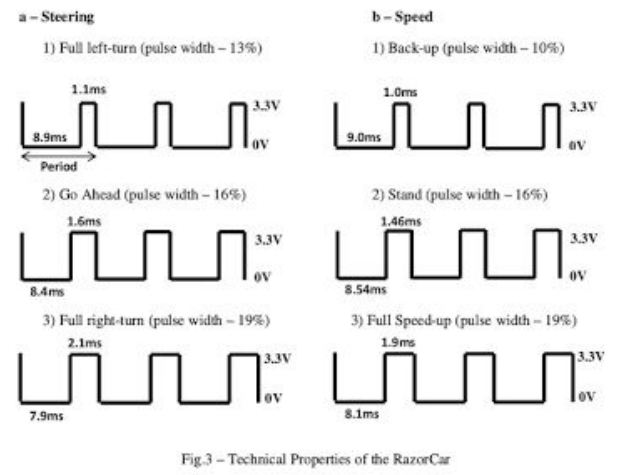
1. Drive car using remote – Due: 11/20/15

* Receive input from RF remote
* Process input to control car
* PWMs to control speed and steering
* Clock divider for PWM

1. Save path and replicate – Due: 11/27/15

* Research how to store values to memory for later use
* Modify architecture
* Store commands
* Signal to place car in standby mode while it is being moved
* Read stored commands
* Execute commands

**PWM:**



Steering: 110 – full left turn, 160 – straight ahead, 210 – full right turn

Speed: 100 – full speed reverse, 146 – neutral, 190 – full speed forward

**Pins:**

RC ­ Input NET

* “razorcar\_hardware\_0\_steeringIn\_pin" LOC = AA18 IOSTANDARD = LVCMOS33
* “razorcar\_hardware\_0\_speedIn\_pin" LOC = F17 IOSTANDARD = LVCMOS33

Actuators

* "razorcar\_hardware\_0\_steeringPwmOut\_pin" LOC = Y18 IOSTANDARD = LVCMOS33
* "razorcar\_hardware\_0\_speedPwmOut\_pin" LOC = T4 IOSTANDARD = LVCMOS33

SWITCH 1

* Switch\_pin <0> LOC = AA19 IOSTANDARD = LVCMOS33
* Switch\_pin <1> LOC = AB16 IOSTANDARD = LVCMOS33
* Switch\_pin <2> LOC = U11 IOSTANDARD = LVCMOS33
* Switch\_pin <3> LOC = AB21 IOSTANDARD = LVCMOS33