



Cruise Controller/Machine vision

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Background:

- Fully Autonomous Vehicles are the next big break through to come out of both the automobile industry and the field of Deep Learning.
- To completely take advantage of the benefits that come with having an autonomous roadway a large percentage of the U.S. vehicle fleet will need to have these intelligent systems.
- By making these cars accessible to the public, the transition to self driving cars will occur much faster.

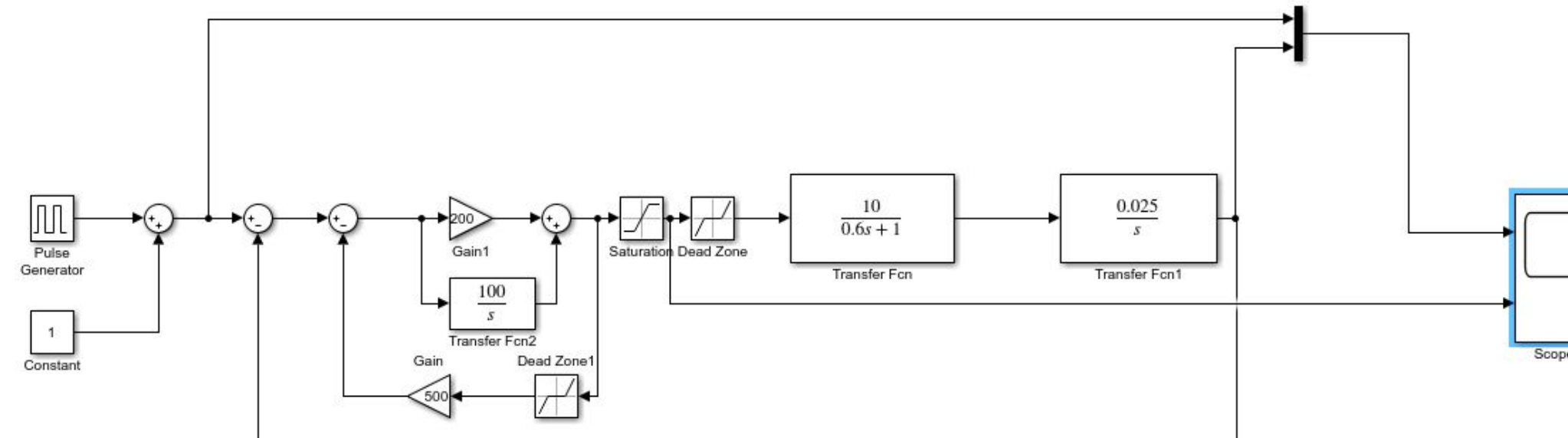
Objective:

- Create a fully autonomous vehicle that is affordable for median income households by implementing the equivalent technology that would be used in a full sized sedan onto a small RC car.

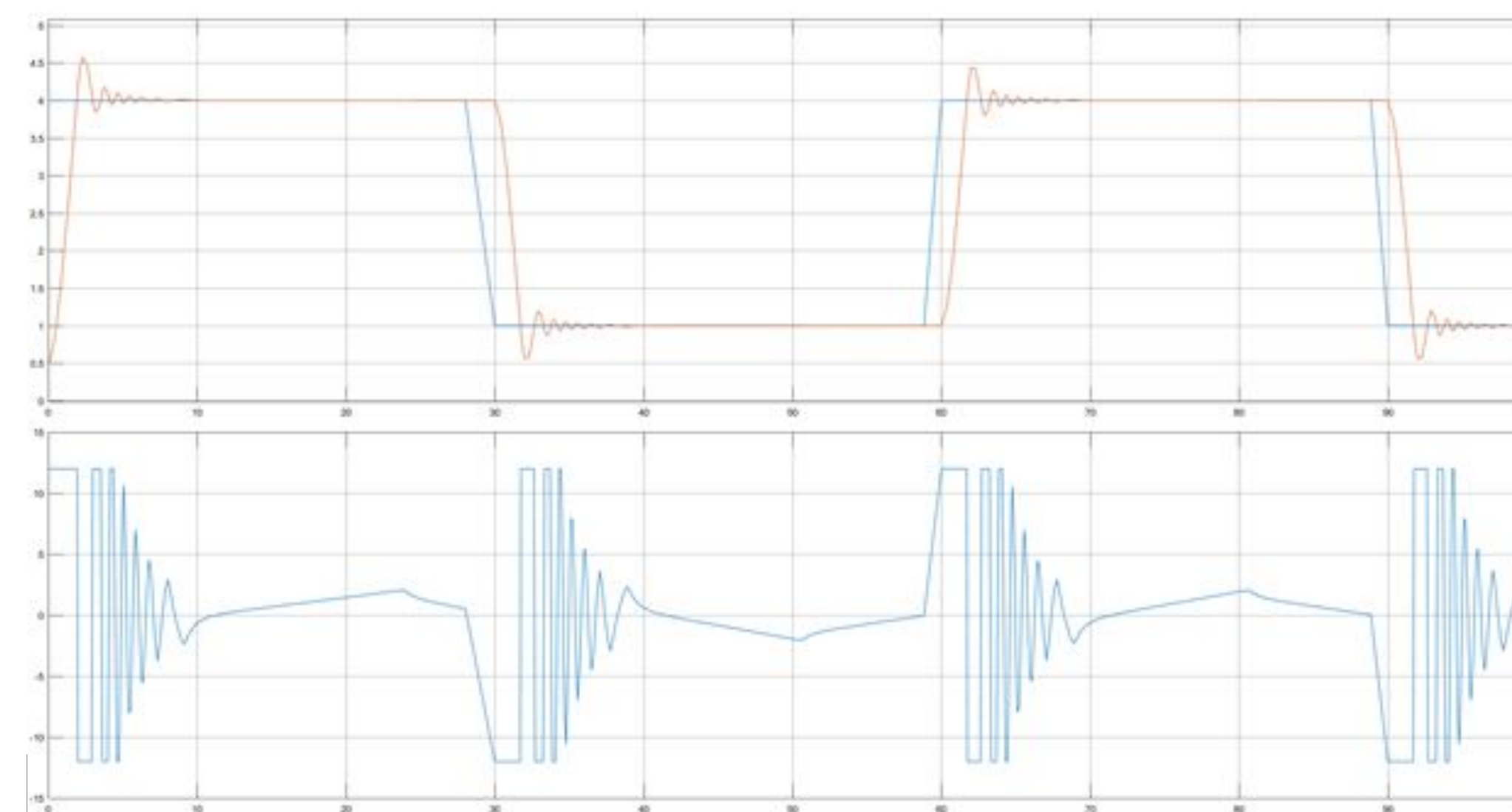
Goals:

- Achieve a test validation accuracy above 95% for the steering model
- Create low latency server controller for RC vehicle

Implementing for cruise controller



block diagram of driver, motor and potentiometer having a feedback of potentiometer with a PI controller



waveforms of reference signal, potentiometer voltage and output of PI controller

Implementing

self driving features by building a neural network for both steering, and classifying objects. The diagram below shows the flow of controls between the vehicle and offsite computer.

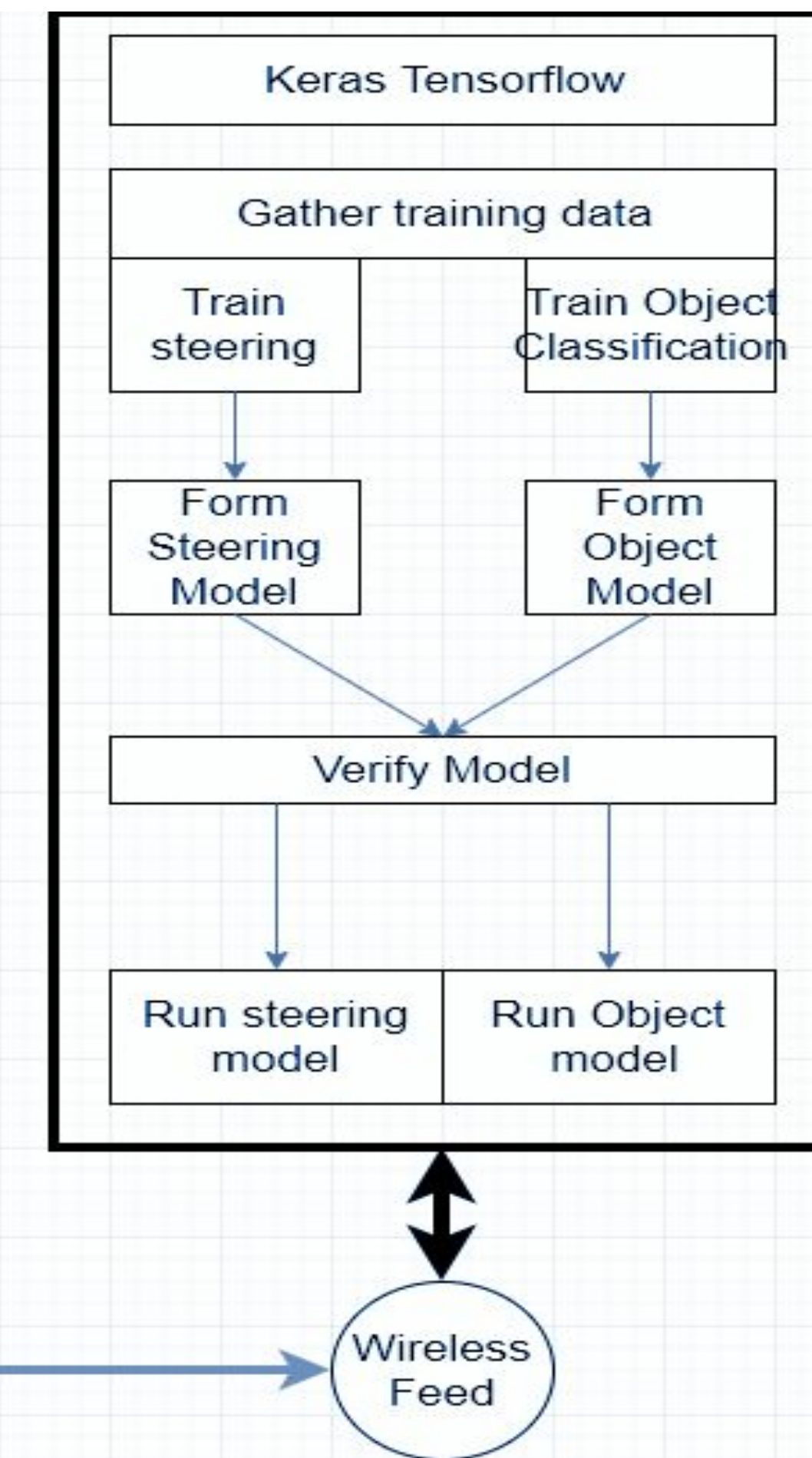


Fig 1. NN Model Organization

Progress

- Training process for the steering model is in optimization phase
- The TCP video stream server is complete, and work on server controller is underway
- Created necessary transfer functions to mathematically model the car

