ASSIGNMENT 3

SYSTEM ARCHITECTURE

1/11/2022

CYBER ATTACK DECTION OF ELECTRIC VEHICLES USING PHYSICS GUIDED MACHINE LEARNING

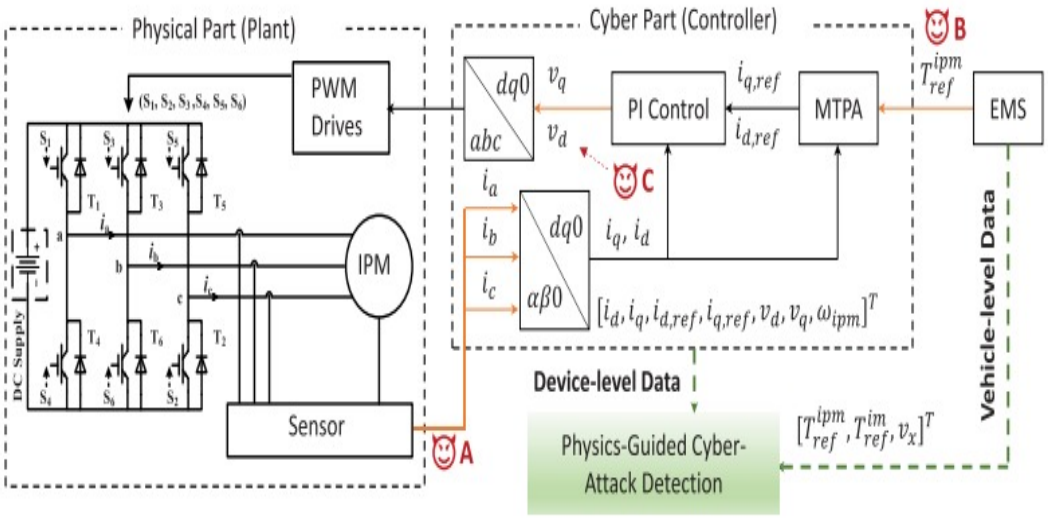

Figure 1: Schematic of the IPMSM drive and the signals that are potentially affected by a malicious attacker

The control variable of the PID is the total required torque.As the focus of this article is to identify cyberattacks on the electric drives, the EMS is designed by a simple methodology such that torque makes an equal basis to all machine .It contains of two parts physical and cyber part in which data is sensed from sensory device then the controller goes to hacker to malaciously attack on the vehicles.

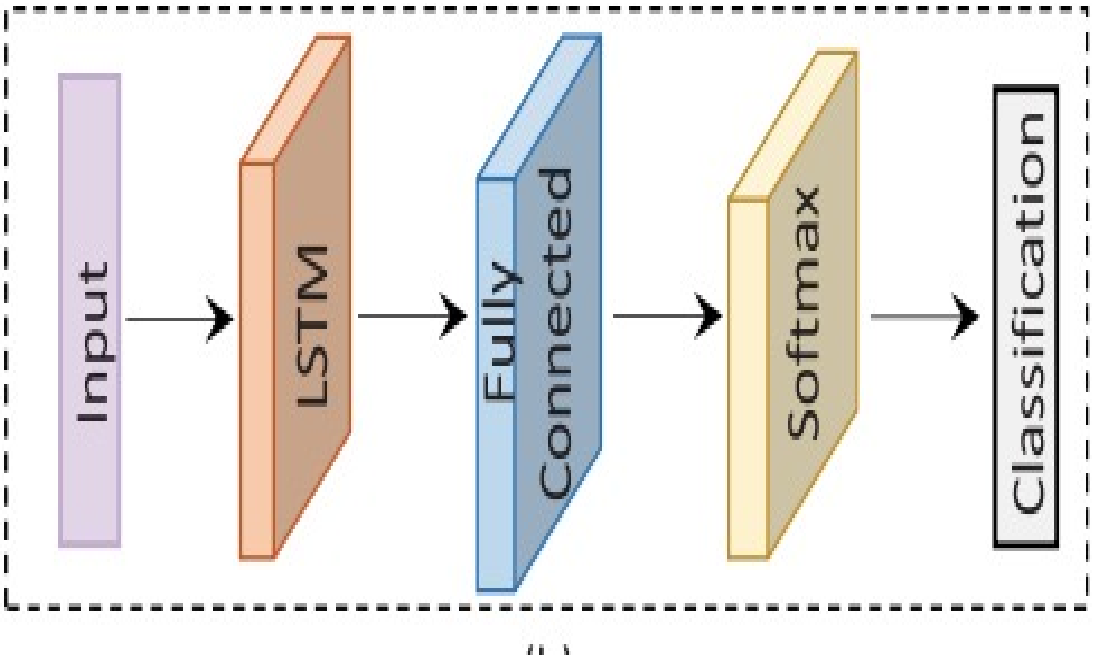

Figure 2: LSTM memory cell [1]

Architecture of an LSTM memory cell is illustrated in the figure, It consist of forget, input, and output gates are used to solve the issue of vanishing gradients in a recurrent neural network. Specially, given an input x1 and the previous timestamp output h1 , at each time step, an LSTM first generates a candidate cell state ct with ht and xt , as ct = tanh(Wch ht1 + Wcx xt), and calculates the forget gate, input gate, and output gate

Guide,
Prof. D. M. Padulkar
Dept. of AI & DS

Student,
Yashraj Devrat
TE(AI & DS) Roll No. 2237031