***No collisions***

**Talking Tractors:**

Protocols for Connected Vehicle Communication

Communication in vehicles has primarily focused on the occupants by serving them consumable content from remote servers. Communication in connected vehicles can be from the sender and receiver like Vehicle-to-Environment (V2E). Vehicle to Environment (V2E) consists of communication between the connected tractors and its dynamically changing environment (which includes other vehicles, and bales).

### **Connected vehicles and safety**

Self-driving tractors are an innovation of growing importance because of their purported ability to minimize accidents.

An important classification of communication is needed here: Line-of-sight (LOS) and Non Line-of-Sight (NLOS) communications. Self-driving tractors tend to focus more on the LOS communications. Each self-driving vehicles prototype is equipped with a combination of cameras, radars, and LIDARs, all of which rely on LOS communication to comprehend the environment and make decisions that ensure a safe driving experience.

In spite of these, an object that suddenly appears in the view of a self-driving tractors or a car approaching an unmanned intersection “unseen” by a self-driving car can potentially lead to a collision. For such situations, NLOS communication provides a necessary and a useful redundant layer of safety for the car. V2E falls in the class of NLOS communications that can potentially enhance the safety of self-driving cars. Therefore, for an autonomous car to augment its LOS safety capabilities, it becomes necessary for it to also have V2E communication capability.