

MODULE 5 LESSON 4

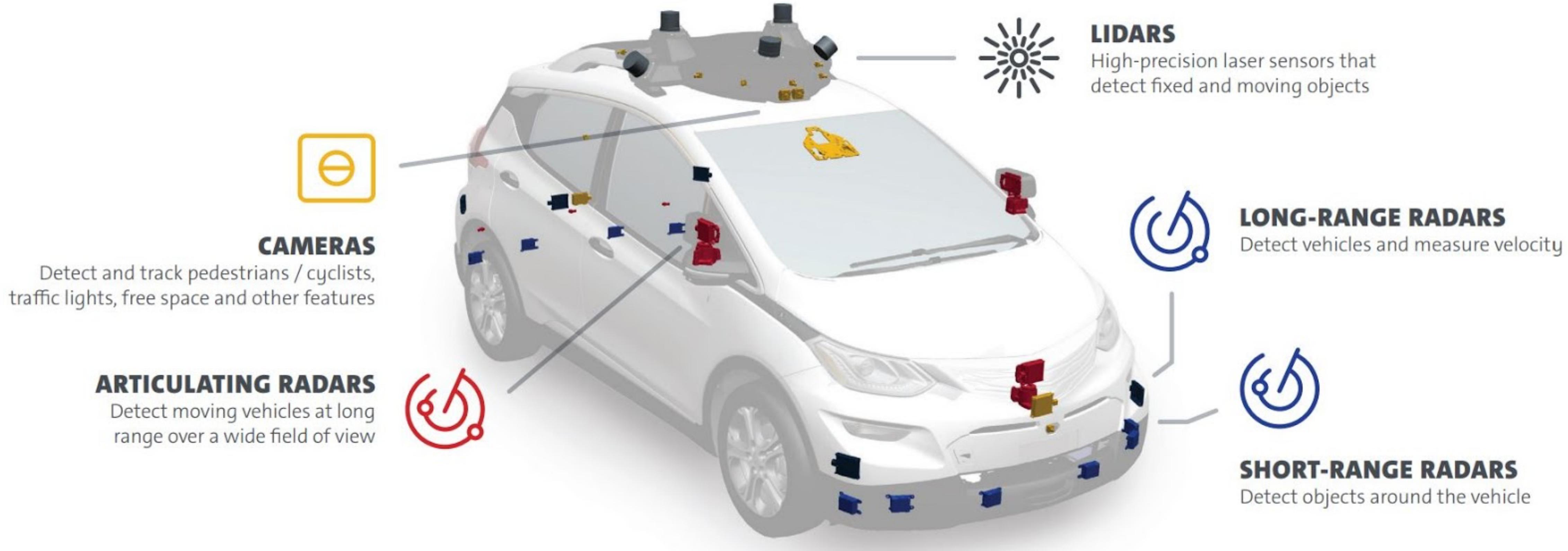
LOSS OF ONE OR MORE SENSORS

Loss of One or More Sensors

By the end of this video, you will be able to...

- Examine the importance of sensor redundancy for robust localization
- Explore several examples of sensor failures in localization

Multiple Sensors are Essential



Source: GM/Cruise Safety Report

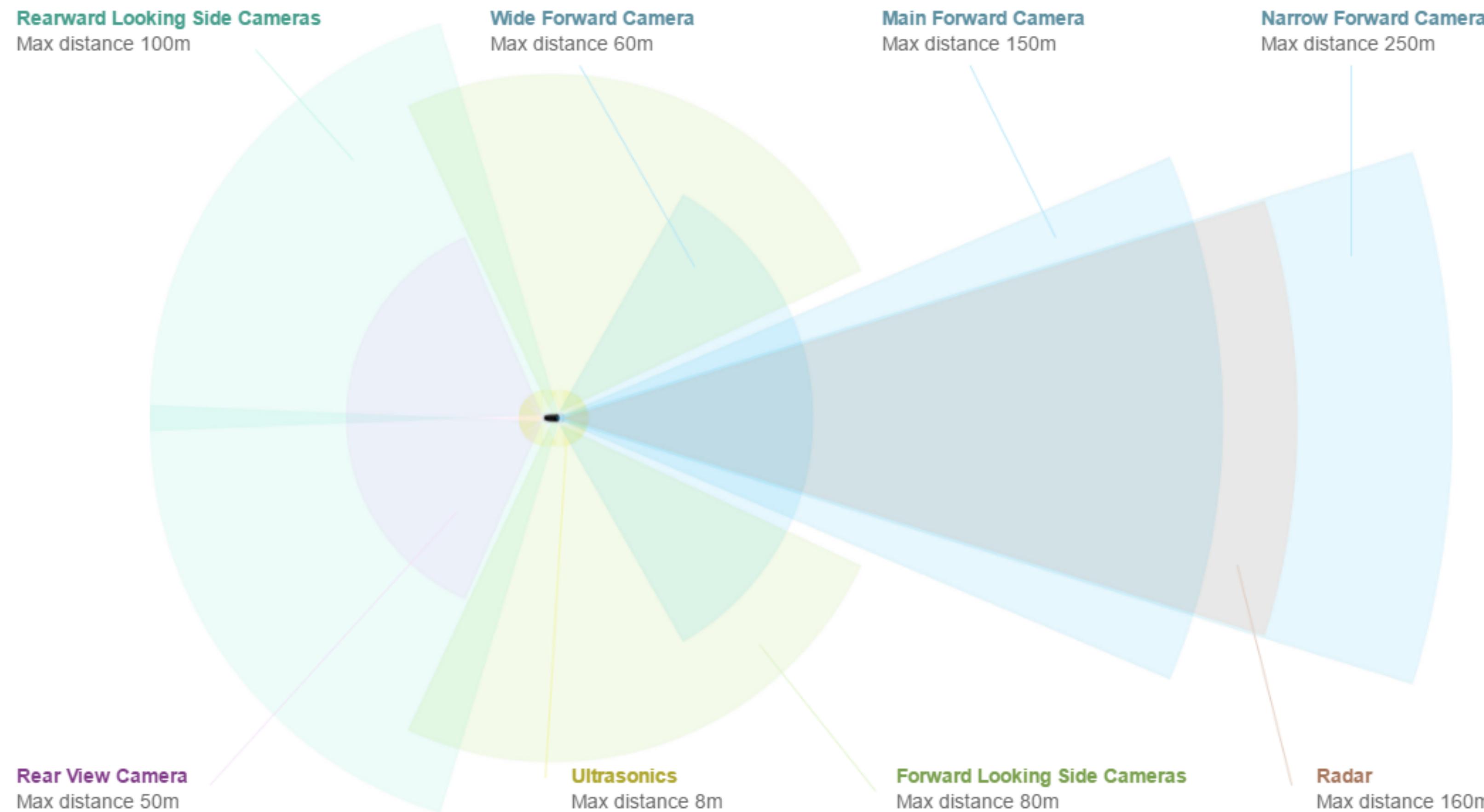
Sensing Failures



*not working
in tunnel* GNSS and other external sensors can fail as a result of the environment, or weather.

Sensors Measurement Ranges

2016 Tesla Model S Autopilot Sensors



Source: electrek.co

Redundant Systems: 777 PFC

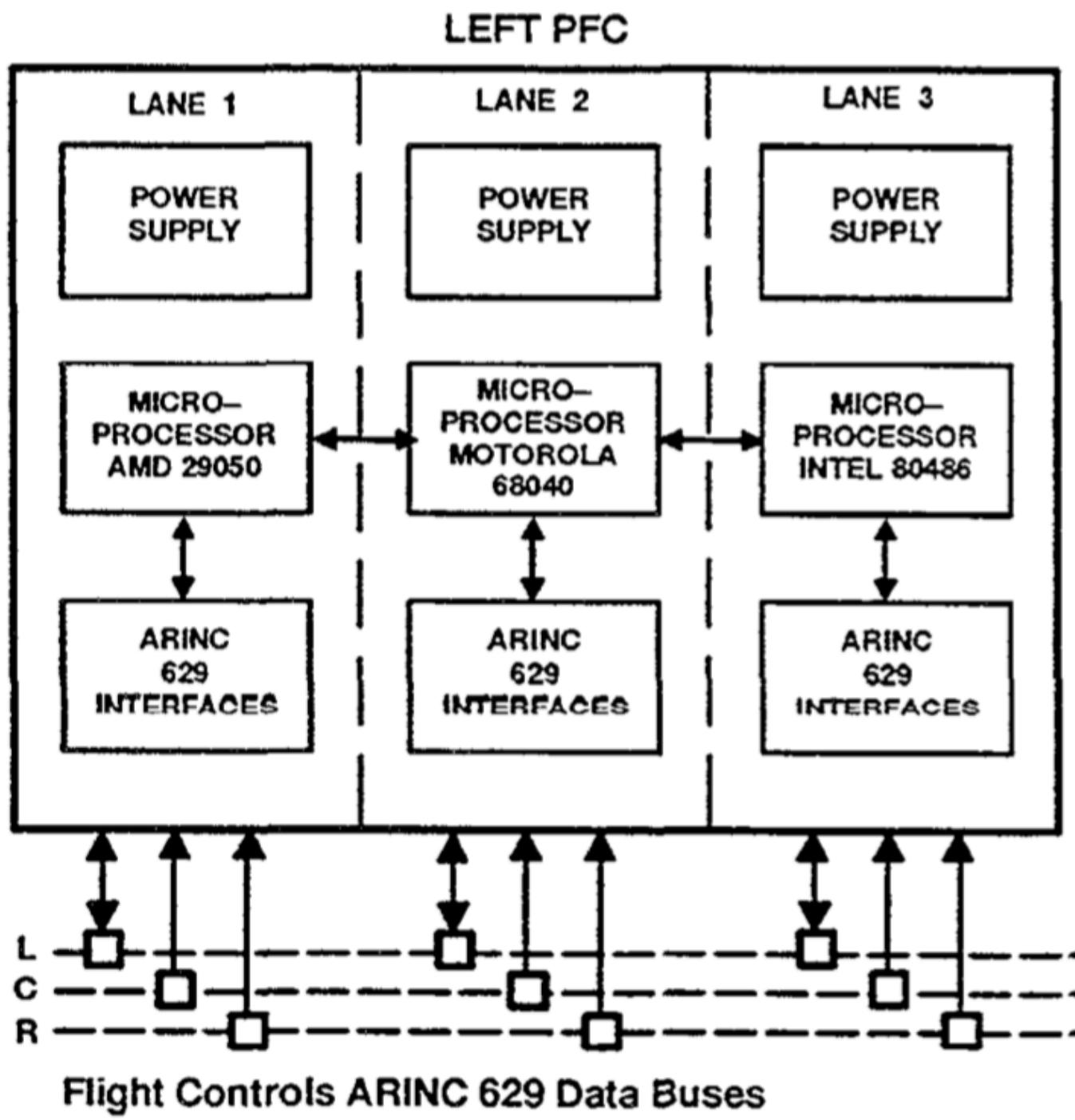


Figure 5 Primary Flight Computer Channel Architecture

Redundancy is Crucial | Obstacle avoidance (I)



2007 DARPA
Urban Challenge

Team MIT and
Cornell collide

https://www.youtube.com/watch?v=HacG_FWWPOw

Redundancy is Crucial | Obstacle avoidance (II)



<https://www.youtube.com/watch?v=G6gz344tt6U>

Redundancy is Crucial | Lane keeping



<https://www.youtube.com/watch?v=6QCF8tVqM3I>

Summary | Loss of One or More Sensors

- Multiple sensors are crucial to robust localization in varied environments