The driverless car revolution: *Myth or misleading*

Christian Wolmar

Driverless cars are coming to a street near you


USA TODAY MONEY

USA TODAY - BURLINGTON FREE PRESS | THURSDAY, JULY 5, 2018

"Humans are not perfect at driving," said Daniel Work, associate professor of civil and environmental engineering at Vanderbilt, who led the study. "Small mistakes by one driver get amplified by the drivers behind them." THINKSTOCK

Self-driving cars could put end to traffic jams

A National Science Foundation study reveals that having a single self-driving car on the road reduce congestion by i encing the traffic flow least 20 human-contr

Dalvin Brown
USA TODAY

planation.

Well, just in time for road trip sea-son, a National Science Foundation

fessor of civil and environmental en-gineering at Vanderbilt, who led the study. "When traffic gets dense


HALLOWEEN, Oct. 31, 2018

No. 1 in Palo Alto and the Mid-Peninsula

Daily Post

Locally owned, independent

Mom says attack at school left son with a concussion

BY ALLISON LEVITSKY
Daily Post Staff Writer

The mother of a JLS Middle School student has sued the Palo Alto school district claiming that violence at school left her son with a concussion and post-concussion syndrome.

According to the Aug. 22 suit, the boy was attacked by one or more classmates several times starting around Sept. 3, 2017.

The attacks led to severe and pervasive phys-

[See ATTACK, page 26]

518 PATROL ROAD, WOODSIDE
OPEN SUNDAY 1:00–4:00

ERIKA DEMMA
650.740.2970
edemma@cbnorcal.com

Waymo gets OK for robot cars

Testing will take place on local streets

Waymo, the robotic car company created by Google, received permission from the DMV yesterday to operate fully autonomous cars without a human on hand to take control in emergencies.

The company plans to initially test self-driving cars in Mountain View, Palo Alto, Los Altos, Los Altos Hills and Sunnyvale before rolling them out statewide.

Waymo is the first among dozens of self-driving car companies to persuade the DMV that its technology is safe enough to permit them on the roads without a safety driver in them. An engineer still must monitor the fully autonomous cars from a remote location and be able to steer and stop the vehicles if something goes wrong.

California, however, won't be the first state to have Waymo's fully autonomous cars on its streets. Waymo has been giving rides to a group of volunteer passengers in Arizona in

[See WAYMO, page 26]

vehicles like this one.

for old tree

TECH Evening Standard

Autonomous technology will change London in 10 years'

By Amelia Heathman


AUTOCAR

ELECTRIC NATION

The future of motoring, pioneered in the UK

SELF-DRIVEN TO SUCCEED

A British autonomous robotics maker already doing very well but itself, but you probably haven't heard of it. Jim Holder pays a visit

WE'RE ON A JOURNEY, BUT OUR SUCCESS TO DATE IS THE RESULT OF BEING REALISTIC AND UNRELENTING


GARDEN LEAF BLOWER WAS £50 FOR £29.99

SUNDAY EXPRESS

FREE ROYAL MINT COIN FOR EVERY READER

NOW 40p

The Queen and Prince Philip 70th anniversary photograph:

DRIVERLESS CARS BY 2021

Budget pledge to spend millions on making UK roads fit for the future

EU must give us deal or go bust

Claimed benefits

AVs will be

+ Safer

+ Cheaper

+ Increase road capacity

+ Reduce congestion

+ Allow suburban roads to be greened over

+ Enable people to boost their mobility

-- but is any of this realistic???

Ludicrous claims

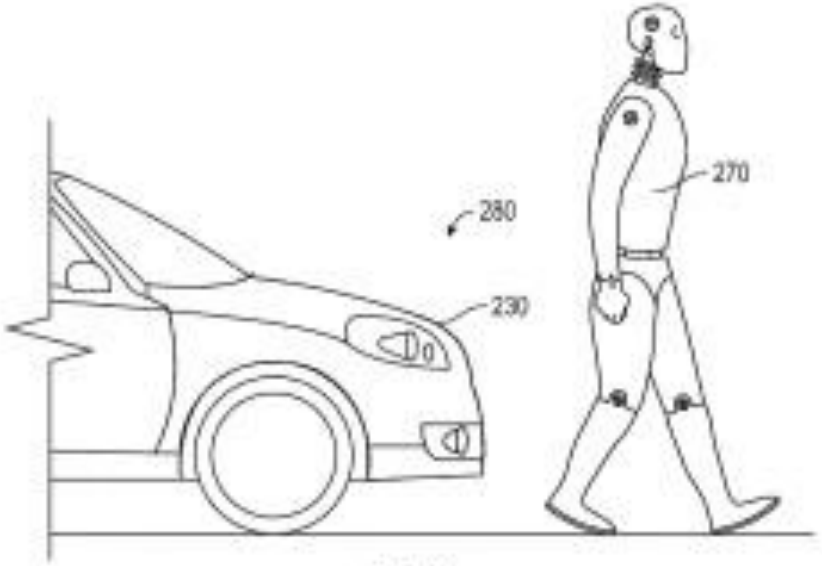


FIG. 6A

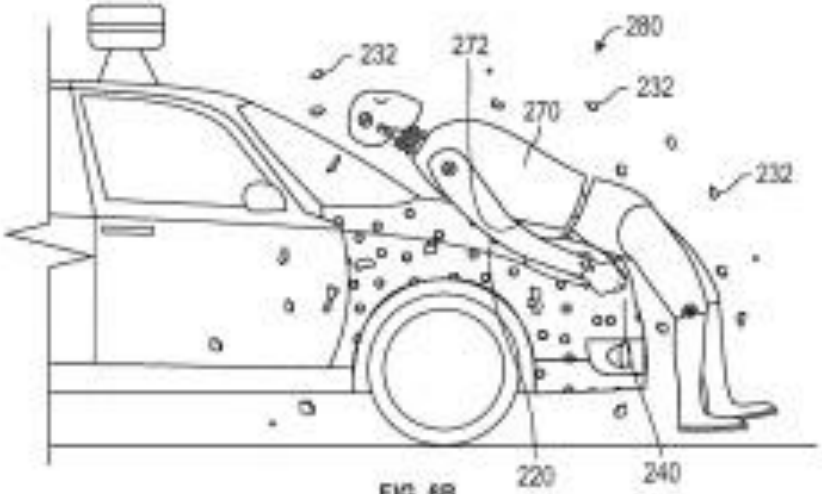


FIG. 6B

Claimed benefits

AVs will be

+ Safer

+ Cheaper

+ Increase road capacity

+ Reduce congestion

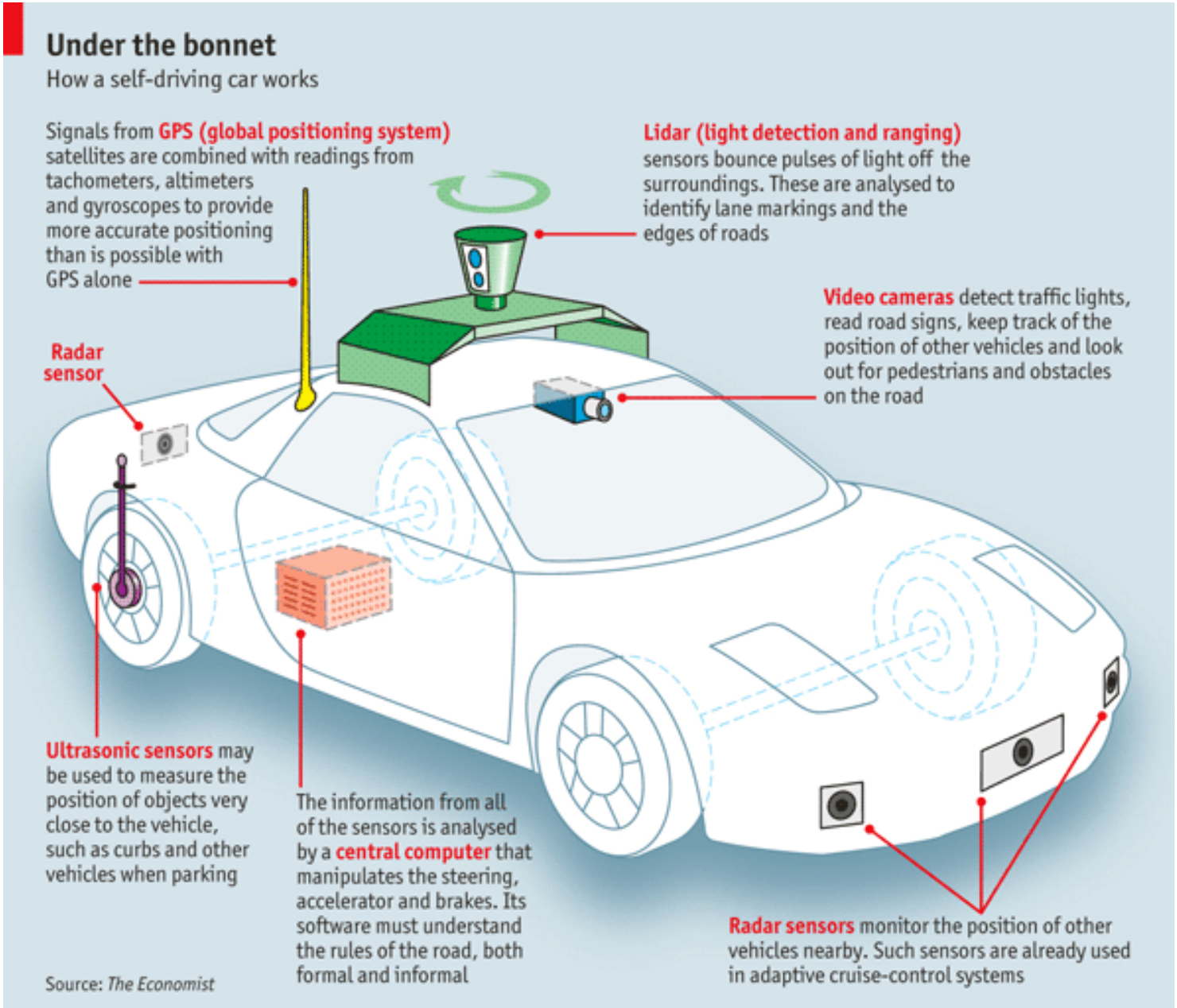
+ Allow suburban roads to be greened over

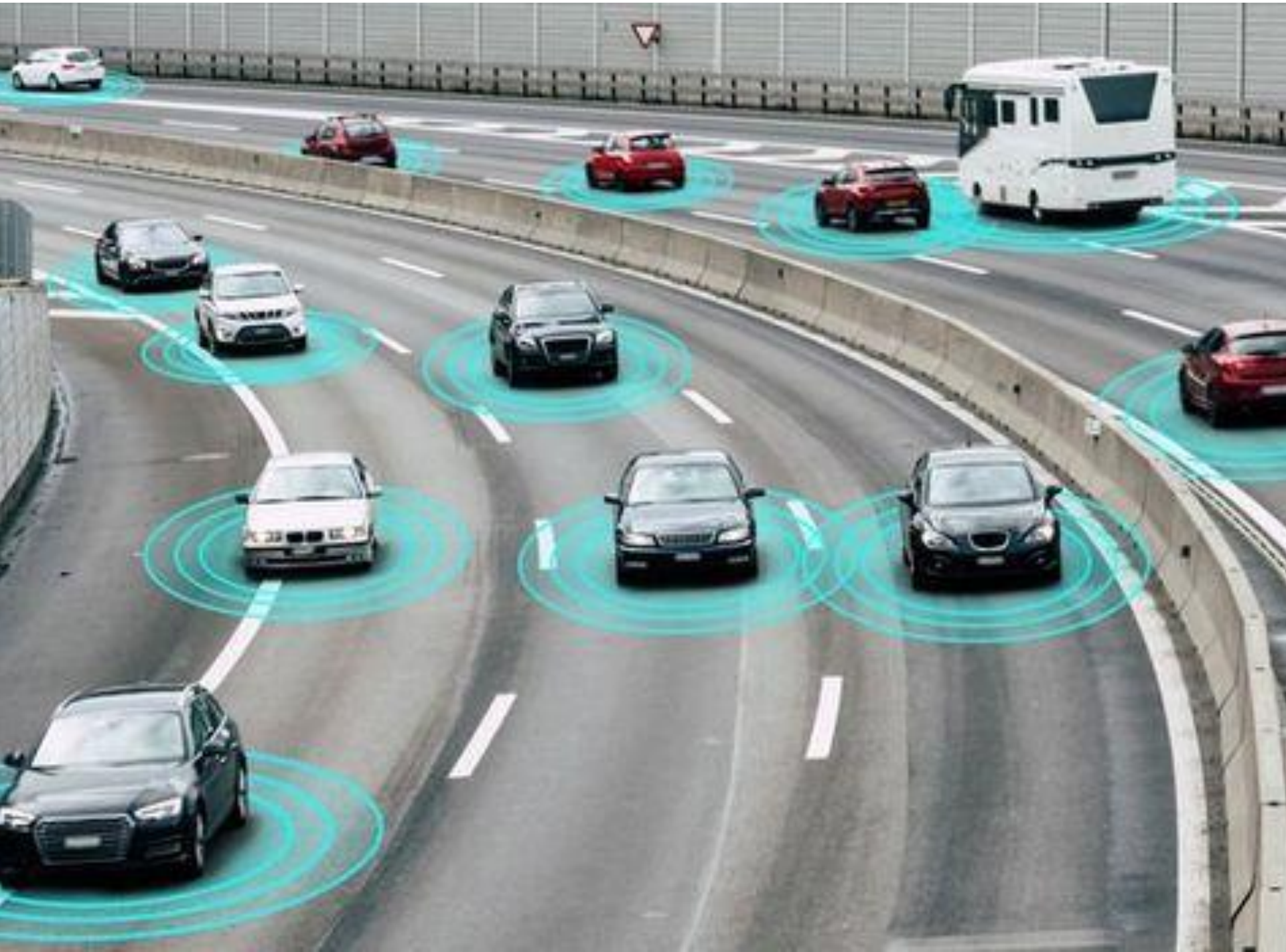
+ Enable people to boost their mobility

Nirvana

- Electric
- Driverless
- Shared use

How do Avs work?





Levels of automation

- Level 0 No automation
- Level 1 automation some small steering or acceleration tasks are performed by the car without human intervention, but everything else is fully under human control
- Level 2 automation is like advance cruise control or original autopilot system on some Tesla vehicles, the car can automatically take safety actions but the driver needs to stay alert at the wheel
- Level 3 automation still requires a human driver, but the human is able to put some “safety-critical functions” to the vehicle, under certain traffic or environmental conditions. This poses some potential dangers as humans pass the major tasks of driving to or from the car itself, which is why some car companies (Ford included) are interested in jumping directly to level 4
- Level 4 automation is a car that can drive itself almost all the time without any human input, but might be programmed not to drive in unmapped areas or during severe weather. There are still controls like brake and steering wheel.
- Level 5 automation means full automation in all conditions. No human intervention is possible, except possibly an emergency stop button

Tesla predictions

- (2015) ‘I’m confident level 5 autonomy will happen quickly’
- (2016) ‘We are probably less than two years away from self driving’.
- (2019) By mid of 2020, drivers will not have to pay attention to the road.
- (2019) ‘We will have more than one million robotaxis on the road a year from now’ Level 5
- (2020) ‘We are very close to full self-driving’
- (Sept 2020) ‘Full self driving Autopilot is coming soon’

Tesla autopilot – the reality

New report: Due to major transportation disruption, 95% of U.S. car miles will be traveled in self-driving, electric, shared vehicles by 2030

TECHNOLOGY, NEW BUSINESS MODEL AND ECONOMICS DRIVE CHANGE

Automotive and energy sectors face massive changes

The Asimov robot rule problem

- A robot may not injure a human being or, through inaction, allow a human being to come to harm.
- A robot must obey orders given it by human beings except where such orders would conflict with the First Law.
- A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

The Holborn Problem

Level 3 problem

‘Handover cannot be made safe no matter what monitoring and notification system is used. That is because enough time cannot be provided to regain proper situational awareness in critical scenarios.’ Michael deKort

Waymo boss John Krafcik

‘It’ll be decades before autonomous cars are widespread on the roads — and even then, they won’t be able to drive themselves in certain conditions.’

Why have hundreds of billions of dollars have been spent?

1) Footlose capital of the tech firms who have no idea what to do with their superprofits

2) Desperation of the auto manufacturers, worried about missing out on the latest technological developments

3) The search by politicians and policymakers for The Solution to congestion and the other problems caused by transport.

Best prediction?

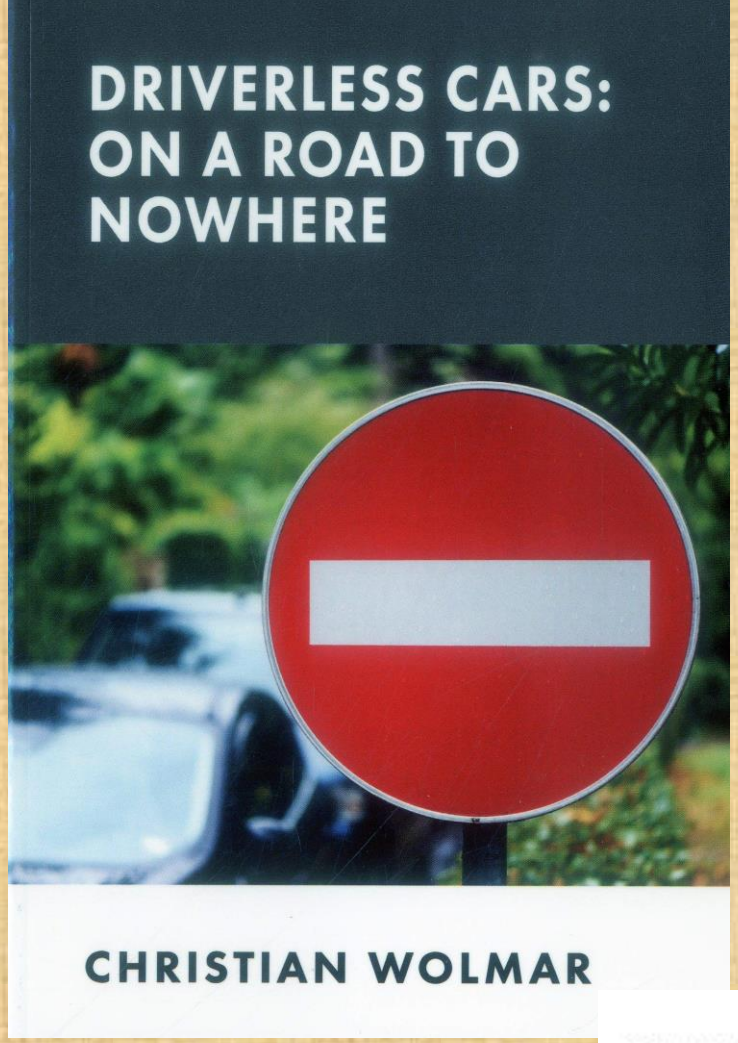
'The 20–30-year time period [for the introduction of driverless cars] isn't remotely close. The real answer is that they will never get remotely close to finishing. Not much farther than the first base they are on now.'- Michael deKort

Automated Vehicles Bill

- Lots of delegated powers
- Many key decisions yet to be made
- Ensures AVs have to obey laws
- Sets out clear rules on self drive features
- Need for safety cases
- Lots of obstacles

Current state

- Collapse of Apple initiative at a cost of $100bn
- Cruise retreating
- Waymo main player
- UK spending insignificant
- Government efforts unrealistic


DRIVERLESS CARS:
ON A ROAD TO
NOWHERE
CHRISTIAN WOLMAR


Lidar (light detection and ranging)
GPS (global positioning system)
Rear Camera
Video cameras