

Effectiveness of Driver Monitoring Systems

For Mitigating Level 2 System Misuse



Can driver monitoring systems mitigate driver distraction?

- AAA's research approach
- Key findings
- Recommendations



Why are driver monitoring systems important?

- Consumer confusion over system capabilities
- Significant gaps in vehicle performance
- Greater system availability = greater distraction risk
- Driver monitoring goal: constant driver engagement



Monitoring via camera versus steering wheel

- Cameras detect head placement, eye gaze
- Steering wheel systems monitor use via touch sensors

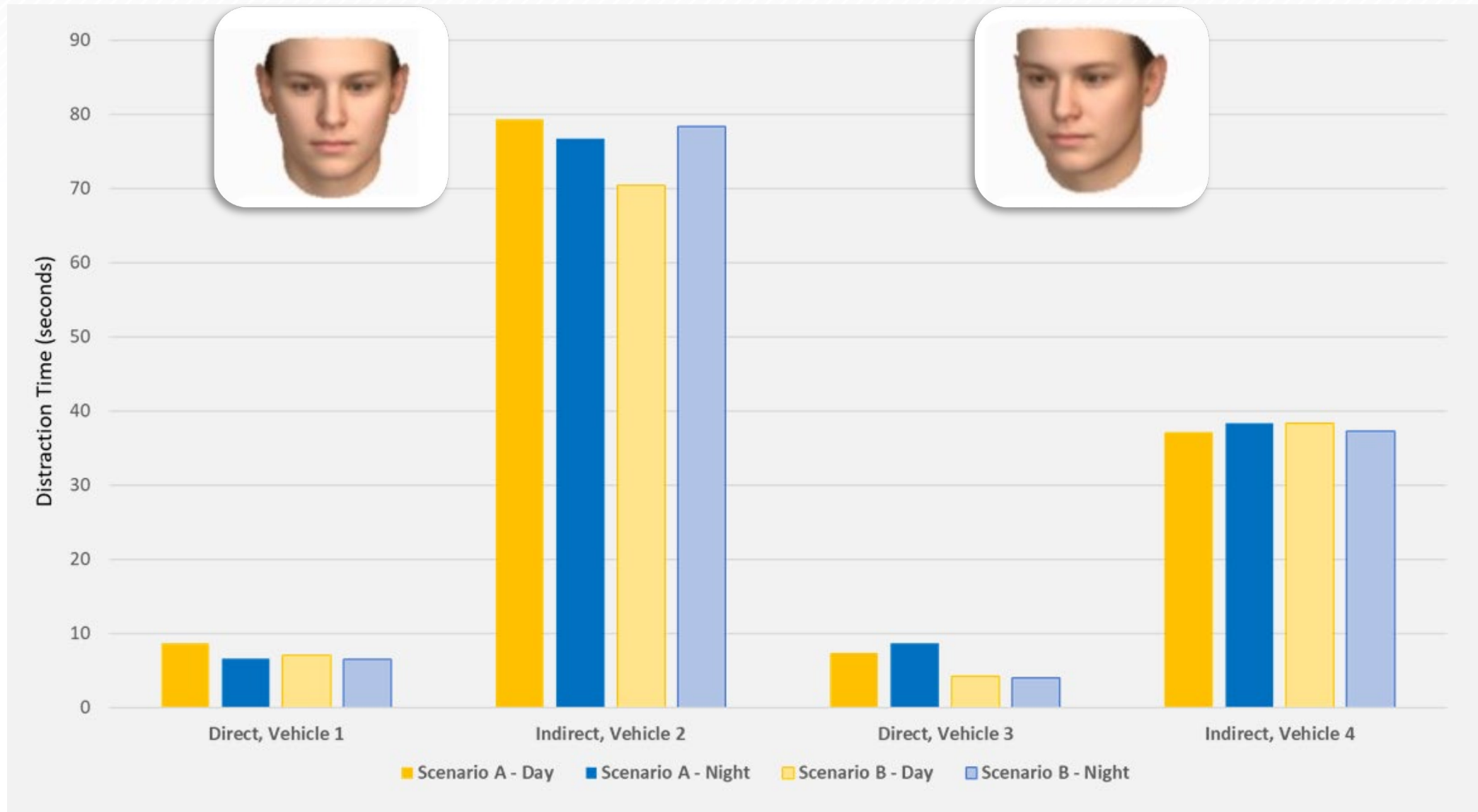


Research scope

- Effectiveness of reducing disengagement
- Ability to “fool” the system
- Four popular vehicles with an SAE Level 2 system were evaluated
 - Two with “direct” monitoring system
 - Two with “indirect” monitoring



Reaction to distraction



Did these systems mitigate driver distraction?

Versus systems that detect steering-wheel movement, camera-based systems:

- Alerted drivers 50 seconds sooner when their gaze was focused downwards
- Were more persistent
- Were more difficult to fool
- Both systems failed to disable semi-autonomous features



Can the systems be fooled?

Test drivers attempted to “fool” the systems.

No external devices, tools, or aids were used.

AVERAGE DISENGAGED DRIVING ALLOWED



5.65 minutes = 6 miles*



2.25 minutes =
2 miles*

*At 65mph

AAA's recommendations

Automakers should:

- Opt for camera-based driver-monitoring systems over systems that track steering wheel movement
- Further refine these systems to prevent driver distraction and misuse
- Consider disabling the system after a certain number of initial distraction alerts.

