

Motorsport - a showcase for advanced technology

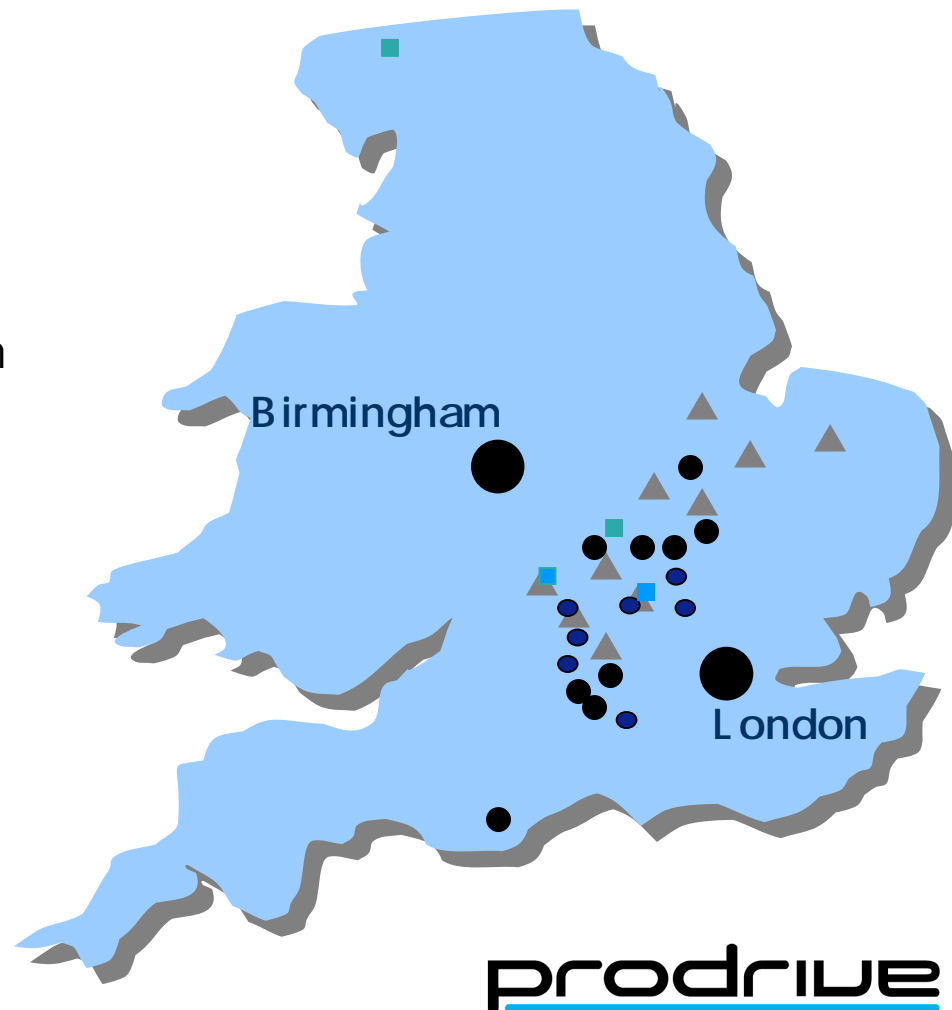
David Richards

Chairman

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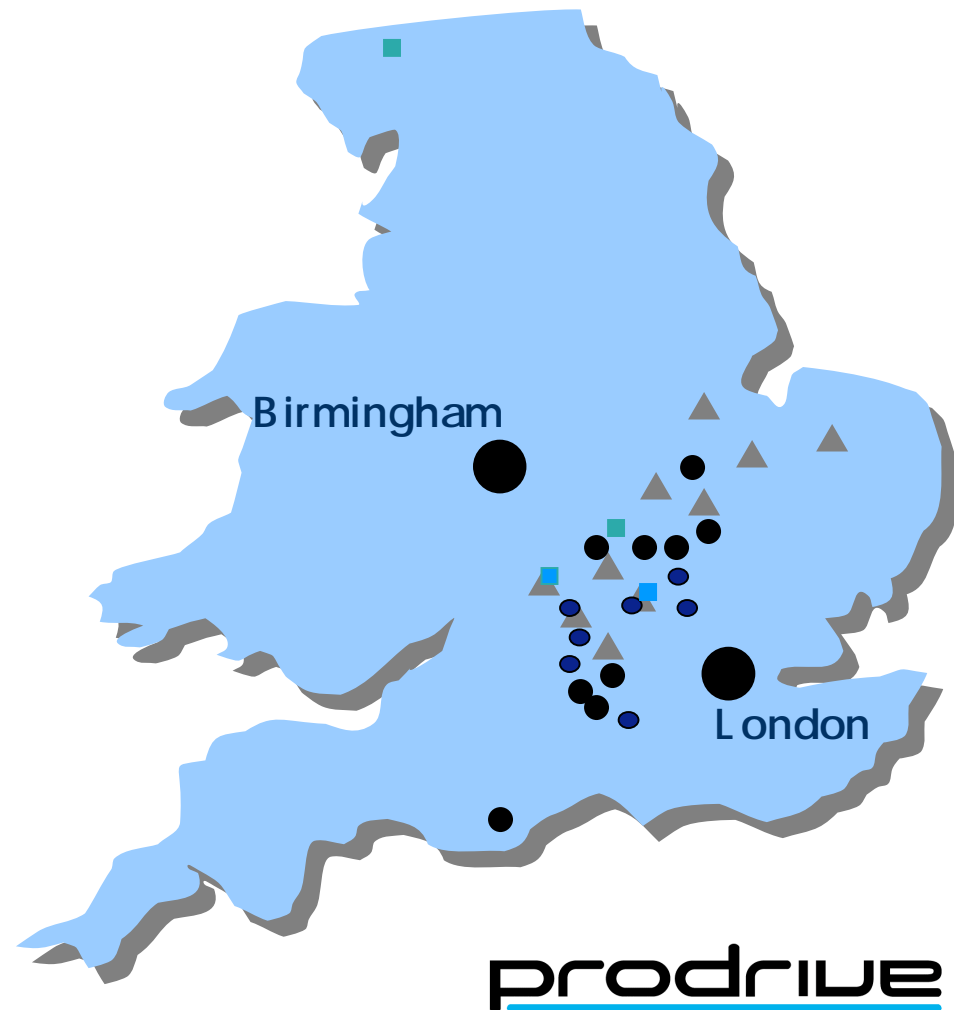
motorsport valley

- 7 Formula One teams
- 4 World Rally teams
- international race teams
- systems - engines, transmission



contribution to the economy

- 2,400 core businesses
- 40,000 people
- £4.8 billion turnover
- £2.2 billion in export

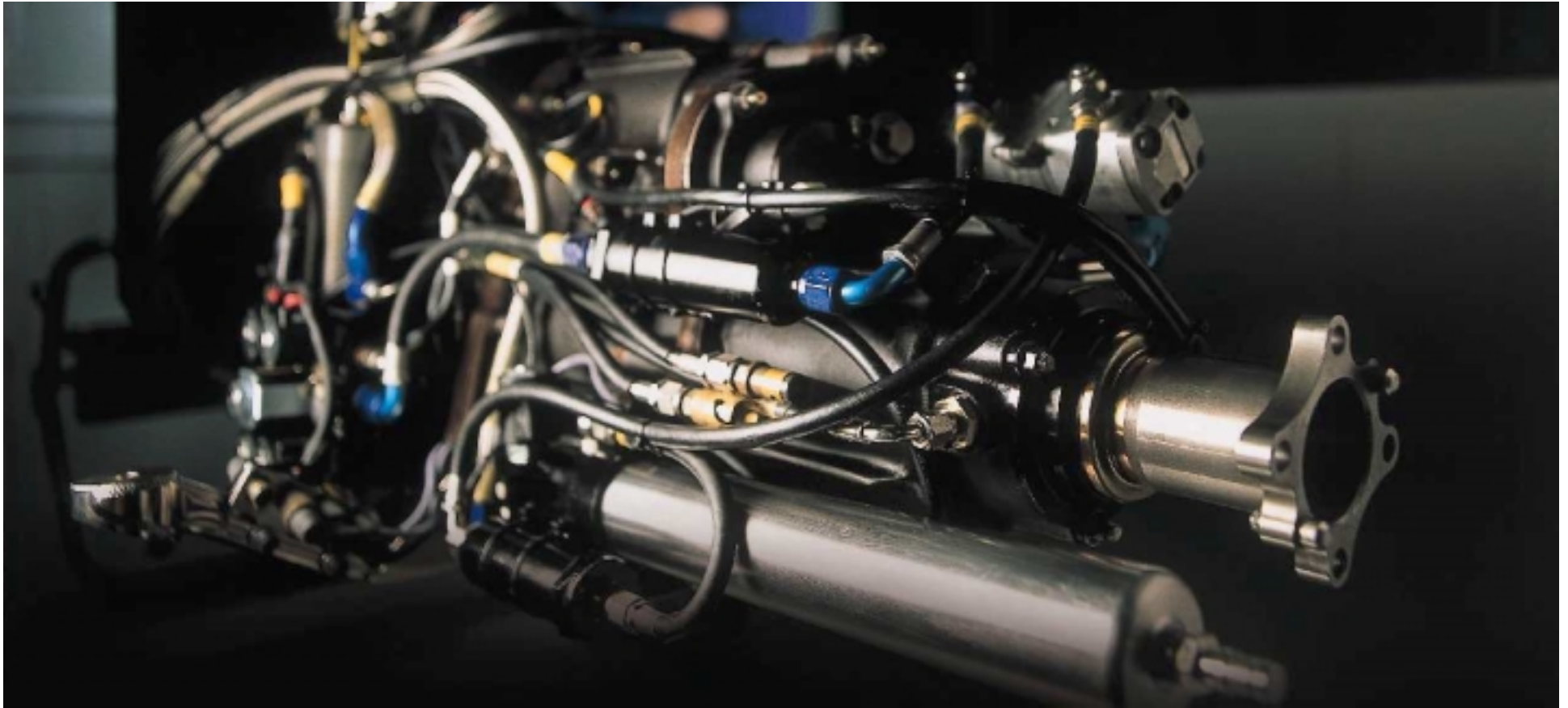


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- world leading motorsport and automotive technology business
 - 5 World Rally titles - Subaru
 - 5 British Touring Car Championships - BMW, Alfa, Ford
 - Sports car racing with Ferrari 550 GT S Maranello
 - Formula One - manage BAR F1 team
 - transfer technology from competition to the road



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AMT

Automated Manual Transmissions

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automatic transmissions

- Pros
 - easy to drive
 - smooth power delivery
- Cons
 - customers consider 'unsporting'
 - poor response
 - inefficient

Subaru Impreza WRC

- Six speed H pattern gearbox
- Semi automatic
- Benefits
 - Gear shift in under 40 milliseconds
 - driver focuses on driving
 - reduces driver error



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automated manual transmissions

Pros

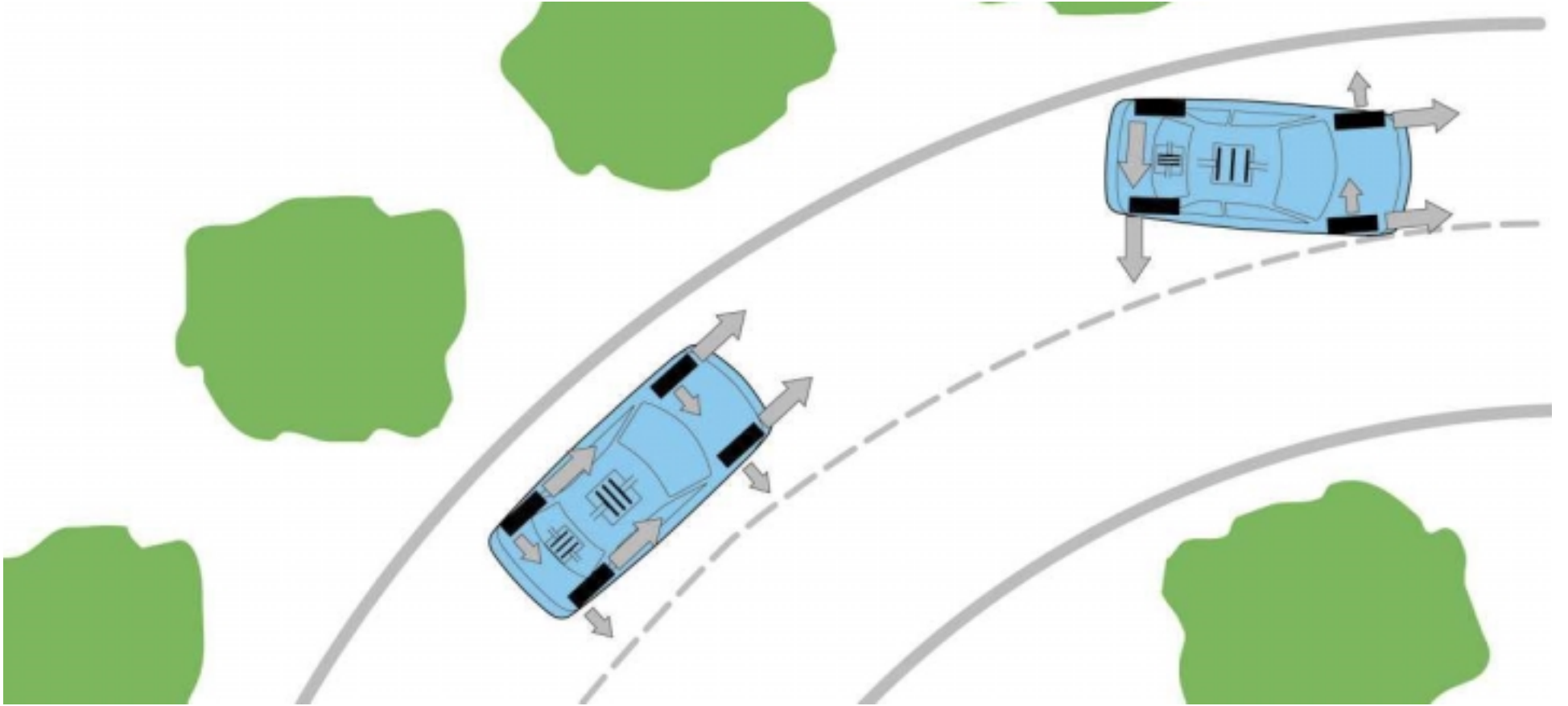
- driver involvement with 'restful' automatic option
- fast up and downshifts
- improved fuel economy versus automatic
- weight saving over automatic
- smooth as an automatic with dual clutch

applications

- high performance road cars
- earth moving equipment
- trucks
- scooter



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AT D™

Active T orque Dynamics

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what is the problem?

- in emergency car might not follow the steering wheel
 - understeer then oversteer - requires expert intervention
- current solution - ESP - using brake intervention is relatively crude and often only works at low speed



rally cars

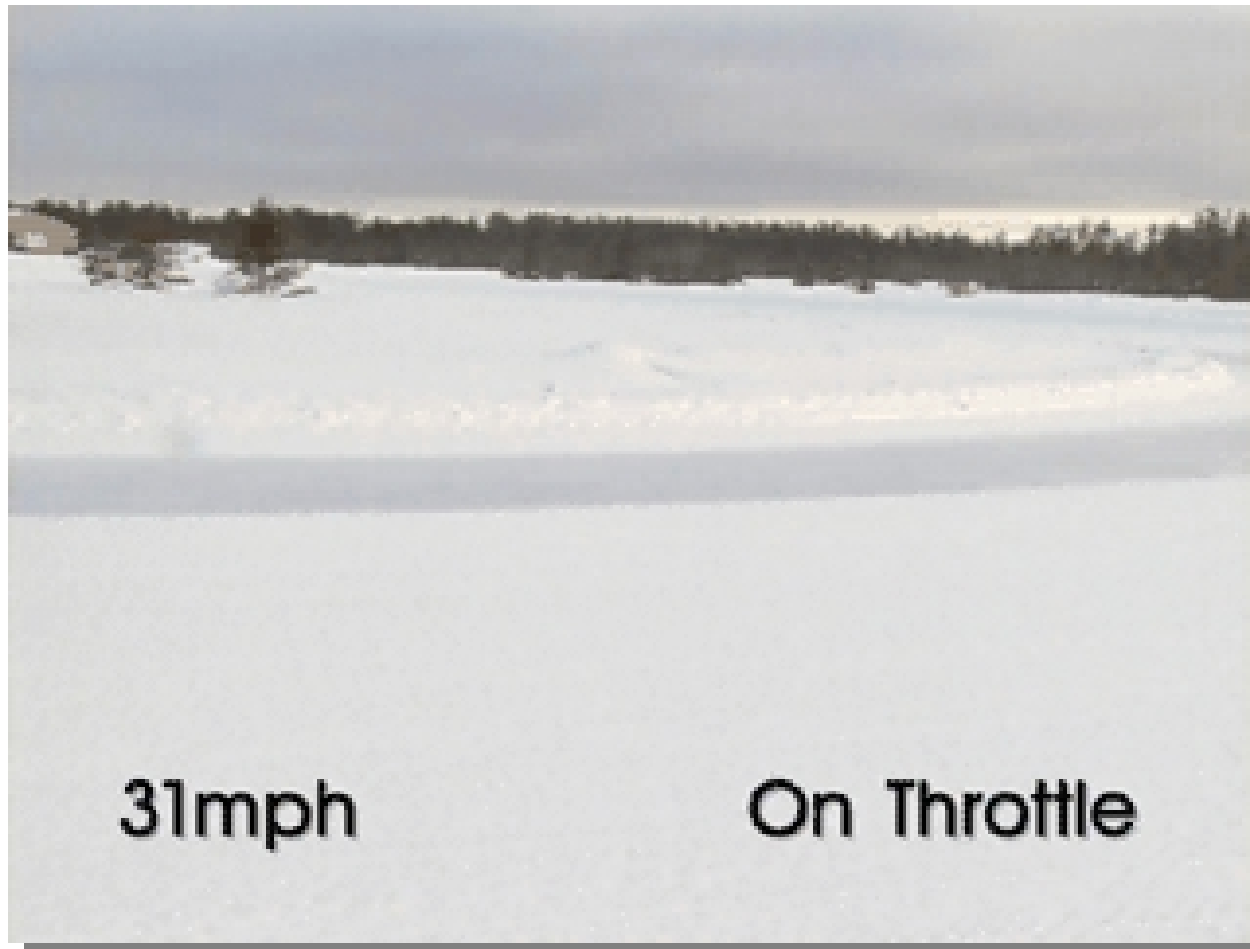
- rally cars also understeer and oversteer
- drivers are highly skilled and overcome car's limitations
- rally cars also have high tech differentials and electronics



active torque dynamics AT D

- use active differentials to help 'steer' the car
- open and close differentials to push torque around the car to help correct unwanted conditions
- benefits
 - improves safety
 - greater driving pleasure

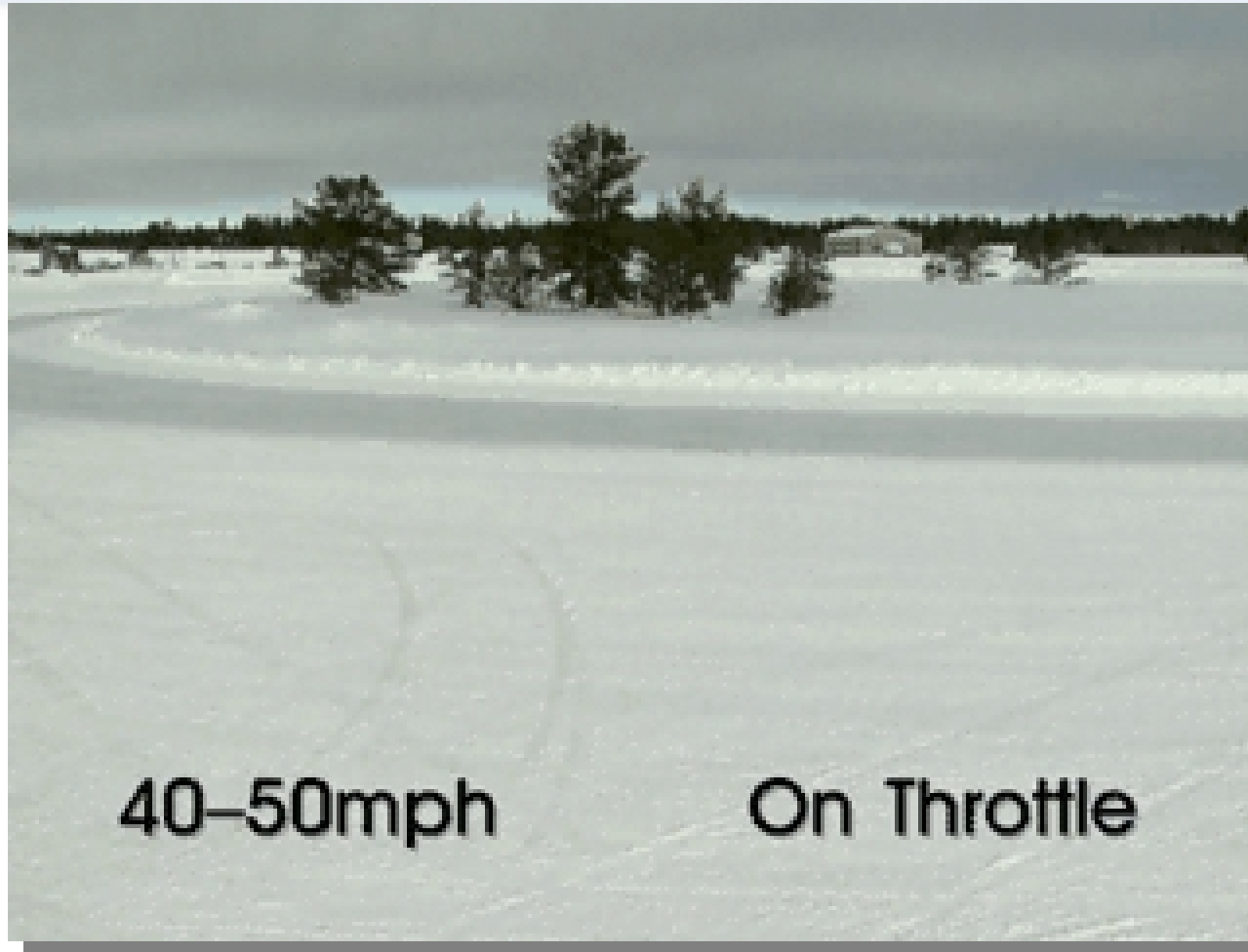
Golf Four Motion



31mph

On Throttle

Ford Mondeo with AT D

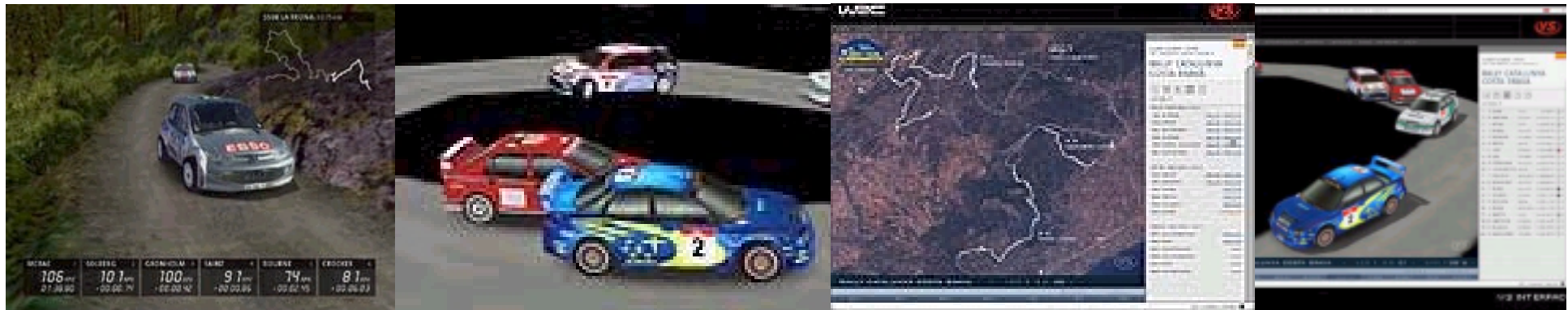


40-50mph

On Throttle

virtual spectator - rally cars

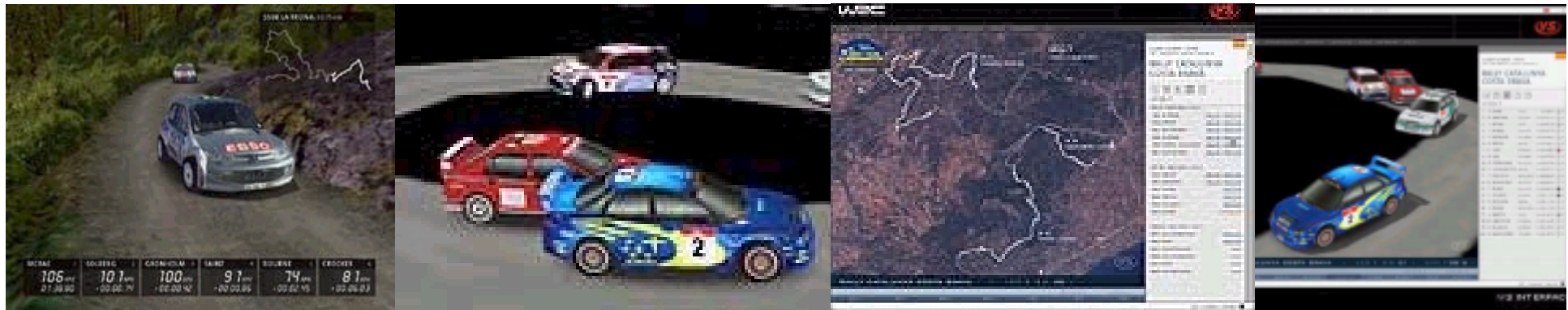
- GPS precisely tracks each rally car
- allows direct comparisons via Internet or TV on driver performance
- provides real time safety monitoring



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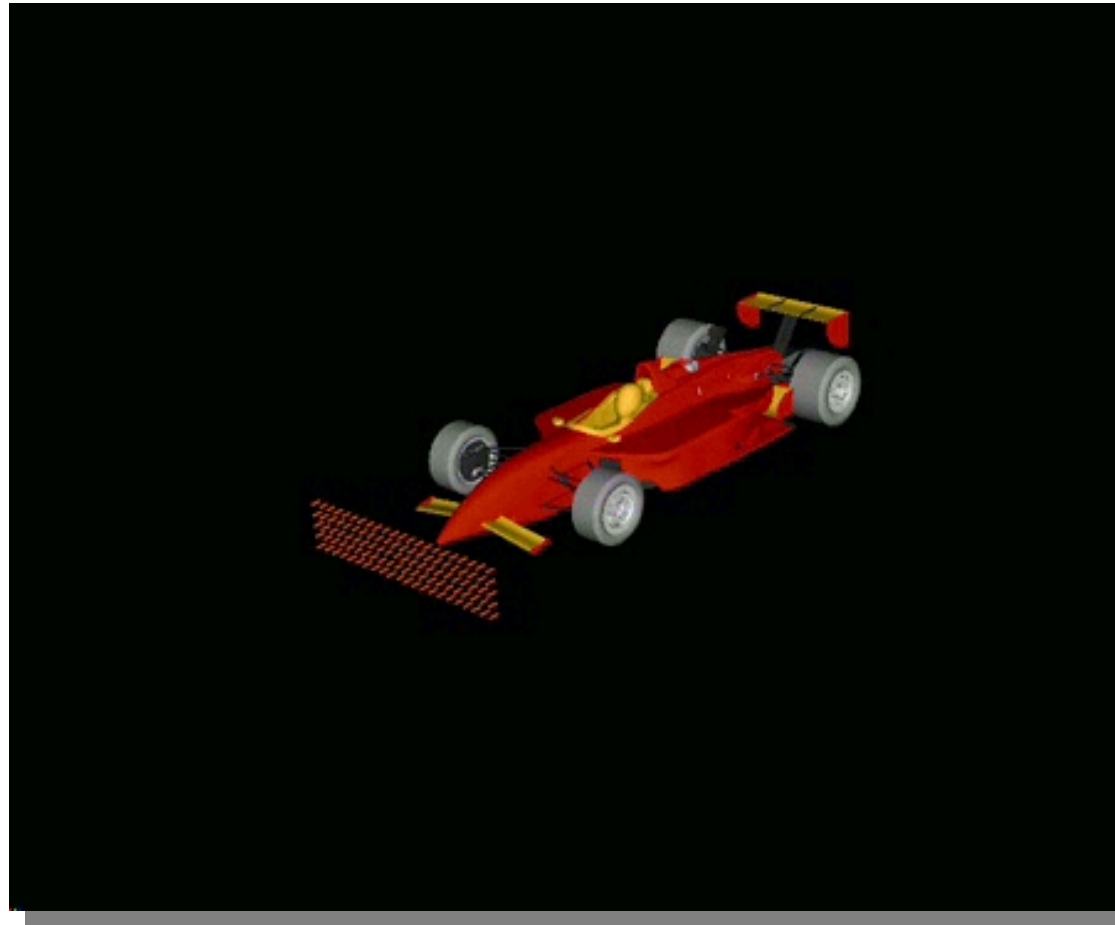
virtual spectator - road cars

- GPS could track every road car
- would provide real time traffic control and re-routing
- provide real time accident monitoring
- would also facilitate road use charging!



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computational fluid dynamics



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motors port technology bridge

- many latent technologies need a high profile platform
- motors port has a proven record in providing the 'bridge'
- motors port is a British success story and can provide a key tool for selling science and technology
- companies like Prodrive are already linking motors port and industry but much more can be done

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