

THE CAR of MY DREAMS



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TECHNION

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BROWN BAG LECTURE at GM RAD
- ISRAEL -

CREDENTIALS

- NONE

but

- I do have a driver's licence and did drive lots of cars
- I often seat in cars driven by others and pay (a bit too much) attention to their driving
- I had various adventures and troubles with cars and with driving
- ~ Over the years I often said to myself (and to others): I wish they'd invent X and sometimes X was related to cars and driving

I am going to talk about some of these X-es that are car-related.

Some of these were already proposed/patented and even produced (I suppose), and even before I thought of them, but they are, to the best of my knowledge, **NOT YET WIDELY AVAILABLE**

SOME "CAR-RELATED" STORIES

- Alon S's Window Wiper (1979/80)
 - "Lost" with Rented Car near Montreal (1981)
 - Key Troubles in Yosemite and
Yellowstone (1982-1986)
 - Long Night Driving Sessions during
5/6 week-5/6 Kmile trips in Utah
Arizona, Nevada, Oregon, Washington
& Canada (1985-1993)
 - GPS-driving with ATS-lady in San Diego
(2003/4)
- Cars I've met:

Peugeot 404, Ford Fiesta, Peugeot 205
Opel Sport, Toyota Corolla, Ford Focus
Volvo 940

Rental Toyotas, Chevy's, Fords, Buick's,
Mercedes', Opel's, VW's, Fiat's, Lancia
Hlden (NZ).

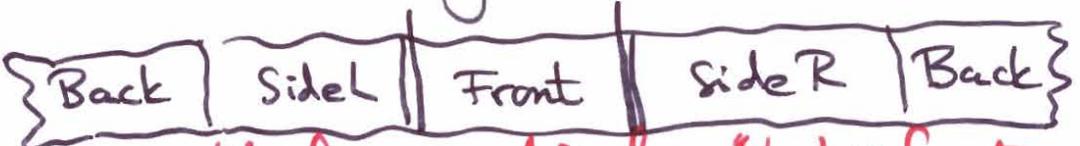
The Ultimate Car

- Ease of Operation
 - Comfort
 - Safety
 - Fun
- } parameters

■ Keys: the ultimate car has none
 • Instead of keys it's operated via one code, or an RFID or a Biometric identification process ••

■ Seats: the ultimate car has high & very comfortable seats that automatically adjust to the driver identified and heat, cool or provide some massage too! if needed.

■ Visibility the ultimate car has 360° visibility with mirrors & cameras



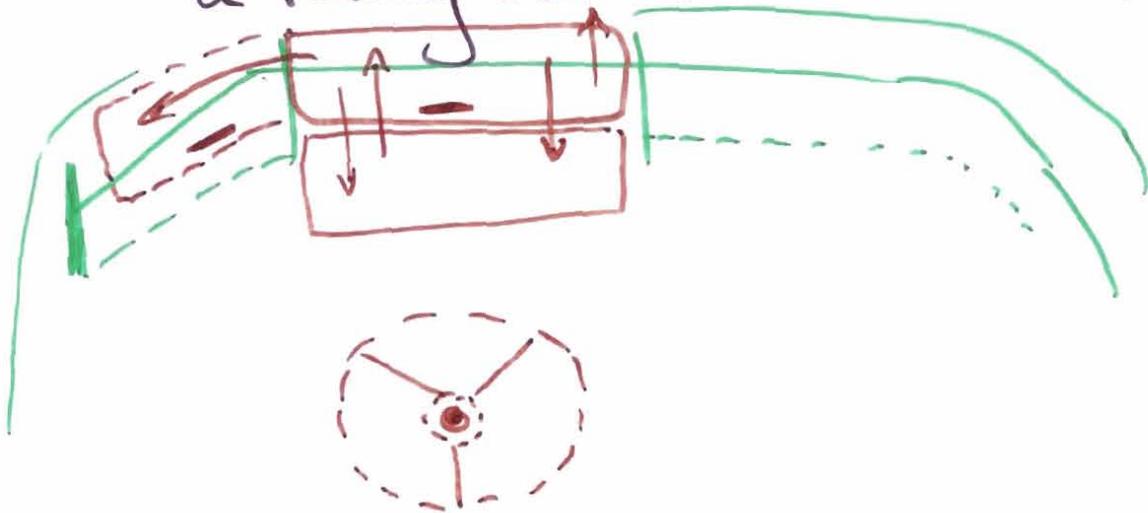
• "info on display" below front mirror

■ Window Wipers

the ultimate car has a "rain-controlled" adjustable "cleaning" frequency to ensure optimal visibility

■ Sun Visors

the ultimate car has either a "sliding-down" & around visor.



or better "adaptive sun screening" windows all around, that become darker when there is sun-glare

■ Driving Parameters' Display

the ultimate car displays only the car speed (ANALOG DISPLAY not digital) and has a Universal Display area for messages → as per need/warning etc!

■ LIGHTS A SIGNALS

- the ultimate car has "adaptive" forward lights: they increase their range of illumination with speed and "reduce" it automatically when a car coming towards yours ~~is~~ is detected.

- the ultimate car has, in addition to the usual directional signals and brake a warning signal a MESSAGING DISPLAY for cars approaching you too fast a too close etc...

■ Night Driving Display

- the ultimate car has infrared cameras that enable a clever overlay display on the front/back windows showing the road markings, obstacles etc



- same for "all around" camera-based display

■ Driver Status Monitoring System

The ultimate car has a system that comprises an inward looking camera & other sensors (on the driving wheel, in chairs etc..) that monitors the driver's "alert"-ness. Should the driver be in danger of falling asleep ■ the system will signal that actions must be taken, will increase the cool air flow towards the driver & will move the chair so as to keep the driver alert.

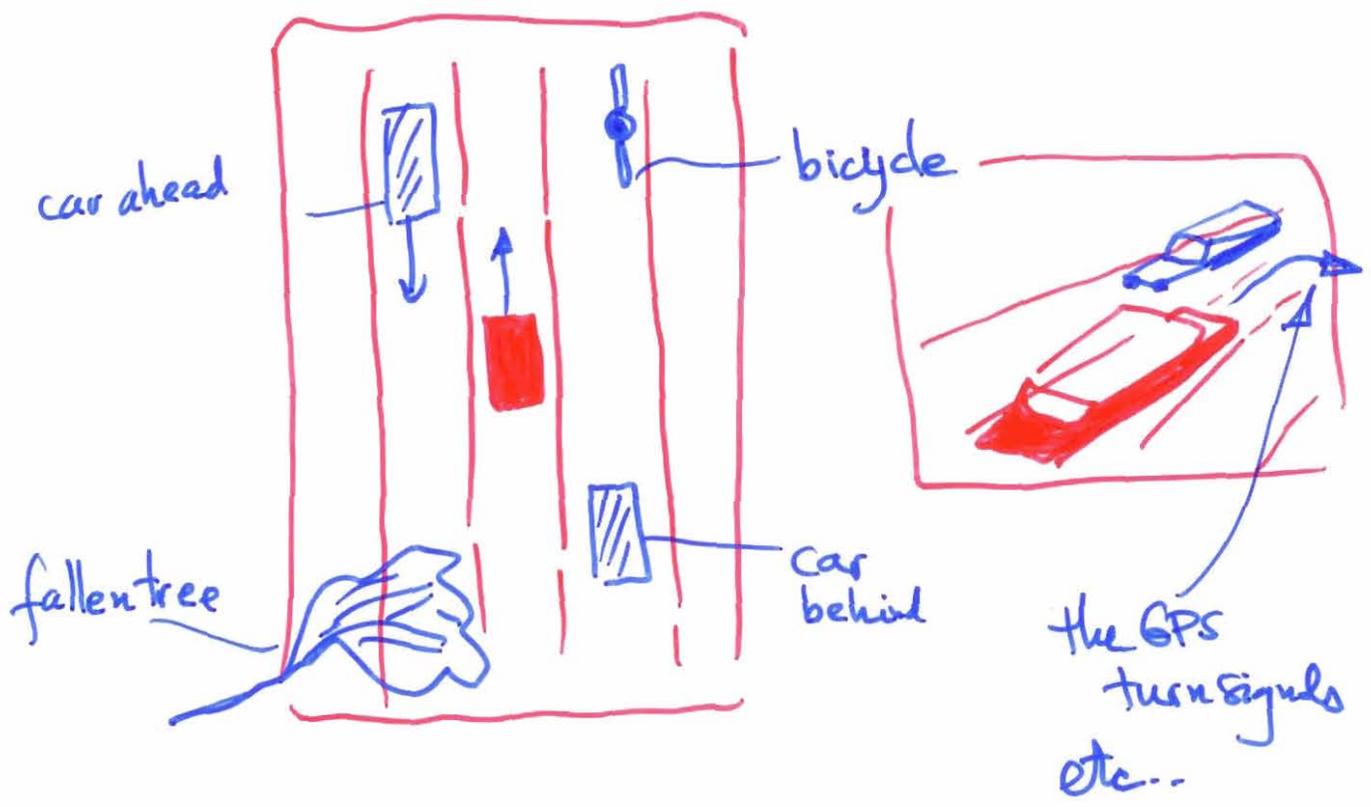
(Eventually the system should shut down the car engine and safely stop the car!)

■ Refueling/Recharging Info System

the ultimate car (which should be electrical!) will have an intelligent recharging info system that will alert the driver and direct him to the OPTIMAL recharging station.

■ GPS + De(a)l Reckoning +
Integrated Surround Information System

The ultimate car will have a very precise self-location system based on satellite geo-positioning and de(a)l reckoning which will place the car on a precise road map but the system will also show in real-time the other cars, vehicles, obstacles, pedestrians nearby by integrating information from the Surround Surveillance System based on on-site cameras and sonar sensors etc.



■ A Smart Cruise Control System

the ultimate car will have a smart cruise control system that will enable the driver to lock-in on a car in front to be "pursued" at a (more-or-less) constant distance (a safe distance of course!). This in addition to the usual Cruise Control (constant speed ...) functions. Such a system will enable car convoys to be very easily assembled on roads, for long drives on highways.

■ A "Situational" Performance ^{Maneuver} Limitation System

the ultimate car will have an automatic "speed limiter" and "maneuverability" limiting system that will not allow a driver to perform dangerous maneuvers. A dangerous maneuver will not be performed and the driver will get a feedback from the steering wheel and an announcement on this.

- An inter-vehicle coordination system

the ultimate cars will have a system by which they'll be able to automatically coordinate their motions when the distance between them will be less than a threshold.

These systems will control the closest approach between the cars and their joint maneuvers to achieve what their drivers desire, in terms of getting on the highway or leaving it, in terms of joining a convoy or departing from it, etc...

- A "vehicle-road" communication system

the ultimate cars will drive on smart roads that will talk to them. The system will "load" into the car speed limits, information on the road status and even traffic control signals, on optimal jam avoidance etc..

■ in case of unavoidable accident the system will optimize the collision for minimal damage.

■ A parking place location system

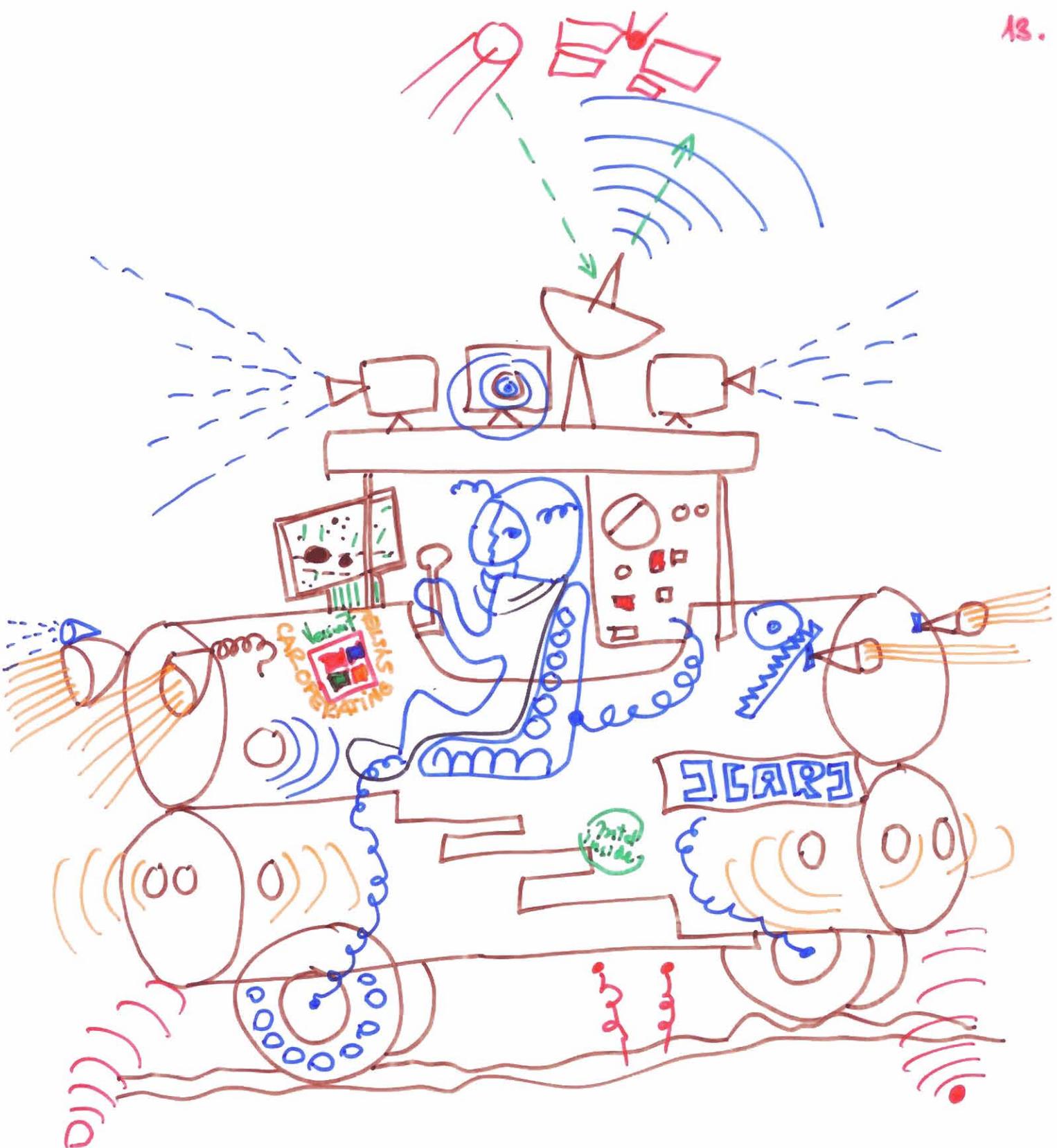
The ultimate car's driver will not spend lots of time on locating a parking place near his/her destination. The navigation system will also have a device to integrate info from the parking places about availability!

■ A self-parking system.

In the ultimate car the driver will just position the car near a parking place and the car will automatically do the driving into the spot.

The ultimate car will, of course have surround sonar sensors so as to be able to avoid any static or moving obstacle, while parking or making any other maneuver.

- The Entertainment / Phone / AC system
- the ultimate car will have an integrated phone / radio / audio system that will be voice activated, will have lots of memory for interesting audiobooks (and movies for the kids in the seats behind!)
The cell phone system will work through the radio / audio channel and all the distractive output will automatically be silenced in situations when the driver attention will be needed.
The AC system will be locally voice controlled individually by each passenger in the car.



THE ULTIMATE CAR