Automotive: next hot mobile platform
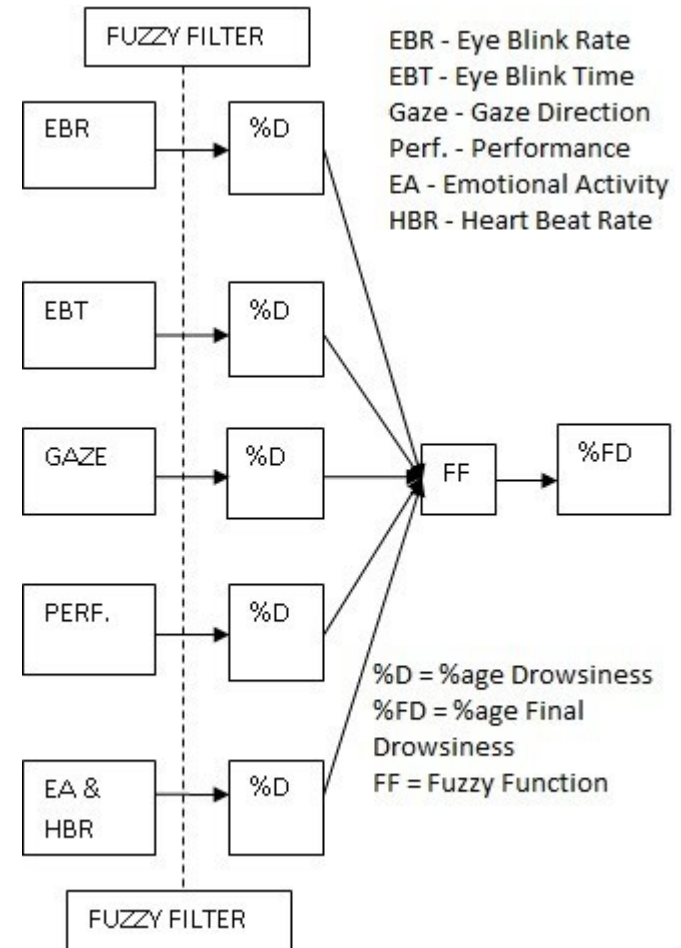

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What is "in-vehicle infotainment"?
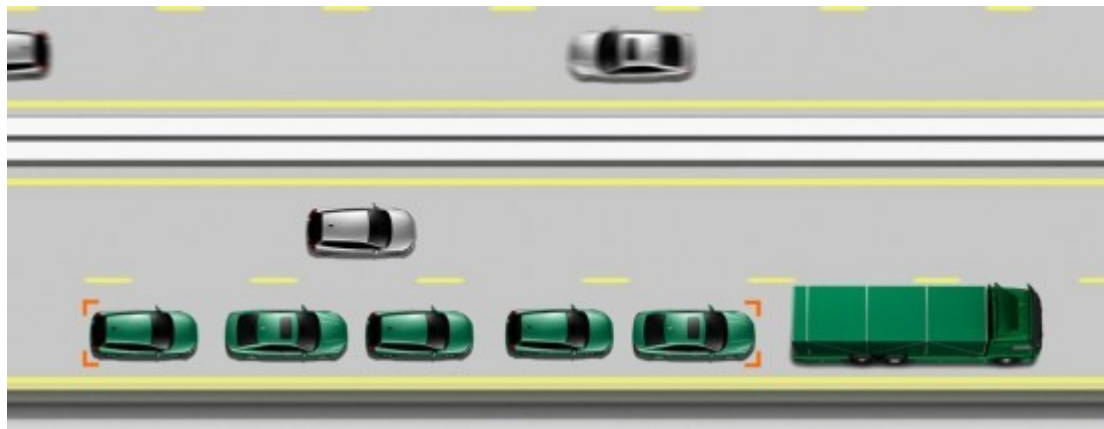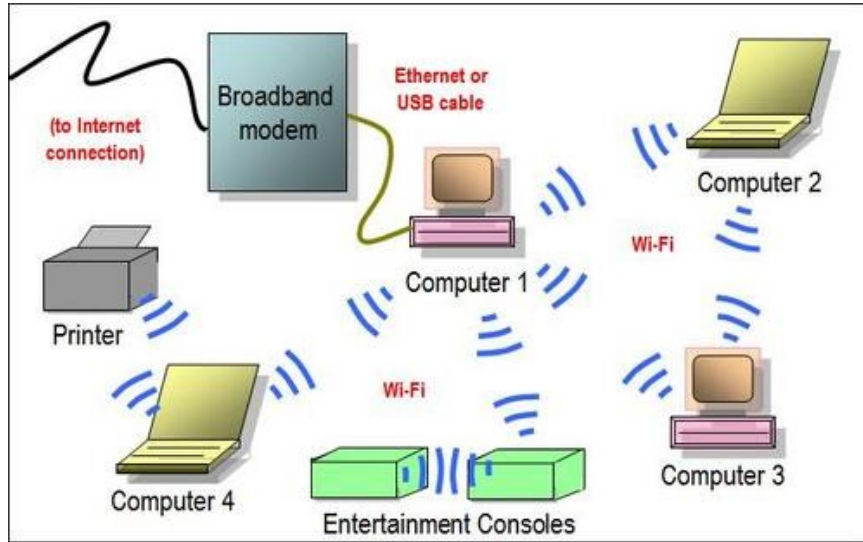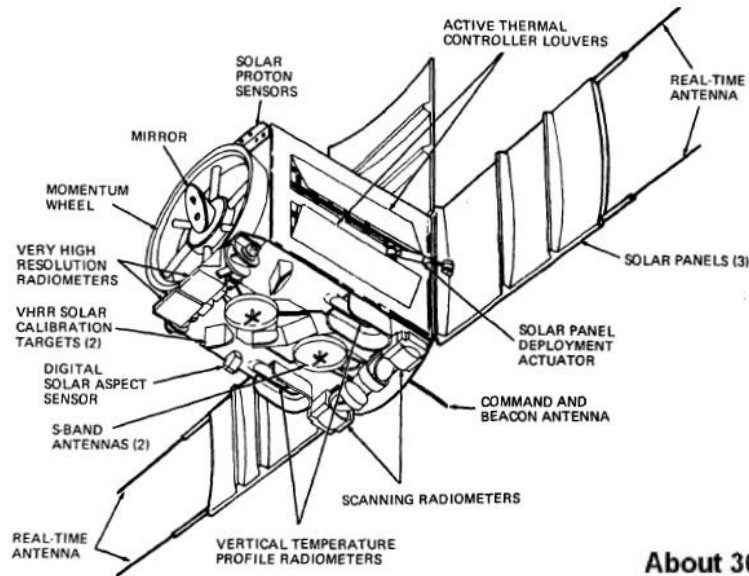

What "infotainment" calls to mind

What IVI could be

Ad hoc networking saves energy

Stress collision avoidance!

Mobile sensor platforms

MEMS & Sensors

Simplified view of a smart-phone board
MEMS & Sensors in red (scope of this report)

• BAW filters
• BAW duplexers
• RF switch / variable capacitor
• TCXO oscillators

• Accelerometer
• Gyroscope
• Electronic compass
• Pressure sensor

MEMS micro-mirror

• CMOS Image Sensor
• Auto-Focus actuator

• Front camera
• ALS & Proximity sensor
• Microdisplay

Silicon microphone

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About 30 electric/electronic systems and more than 100 sensors

DTR CDI AAC RCU PTS LWR ECT ESP ZV ABC TPM ABS

System	Abb.	Sensors			
Distronic	DTR	3	Common-rail diesel injection	CDI	11
Electron. controlled transmission	ECT	9	Automatic air condition	AAC	13
Roof control unit	RCU	7	Active body control	ABC	12
Antilock braking system	ABS	4	Tire pressure monitoring	TPM	11
Central locking system	ZV	3	Elektron. stability program	ESP	14
Dyn. beam levelling	LWR	6	Parktronic system	PTS	12

Figure 1: Car functions and the respective sensors (source: based on DaimlerChrysler)

Mobile sensor data collection coverage
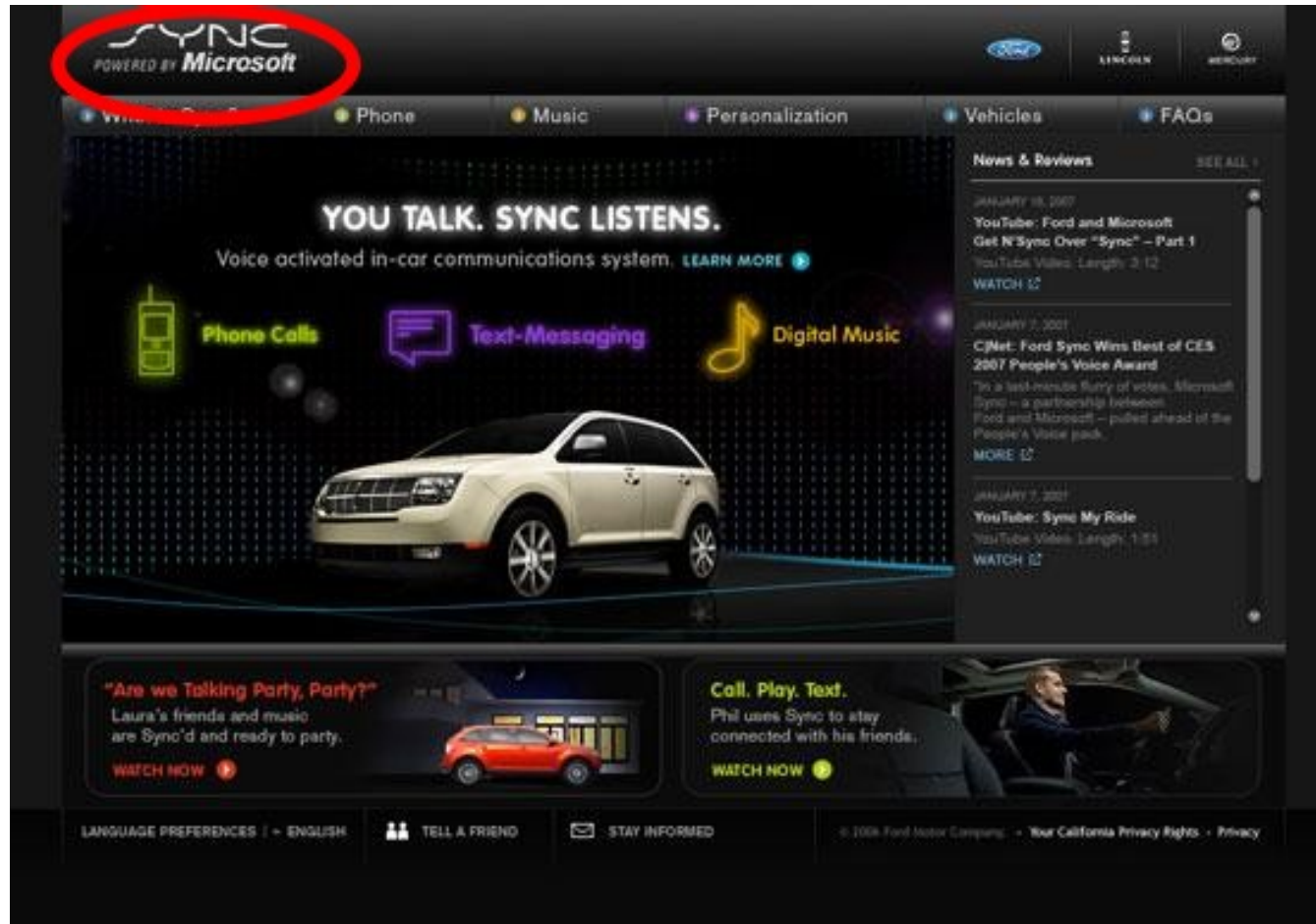

Sensor data fusion: way beyond real-time traffic!

Inserting smarts into big dumb docking stations

Cars can tether and sync rural houses?

Special concerns for automotive: security

What is the right security model for auto use case?

Is the platform we need Android . . .

. . . from the Open *Handset* Alliance?
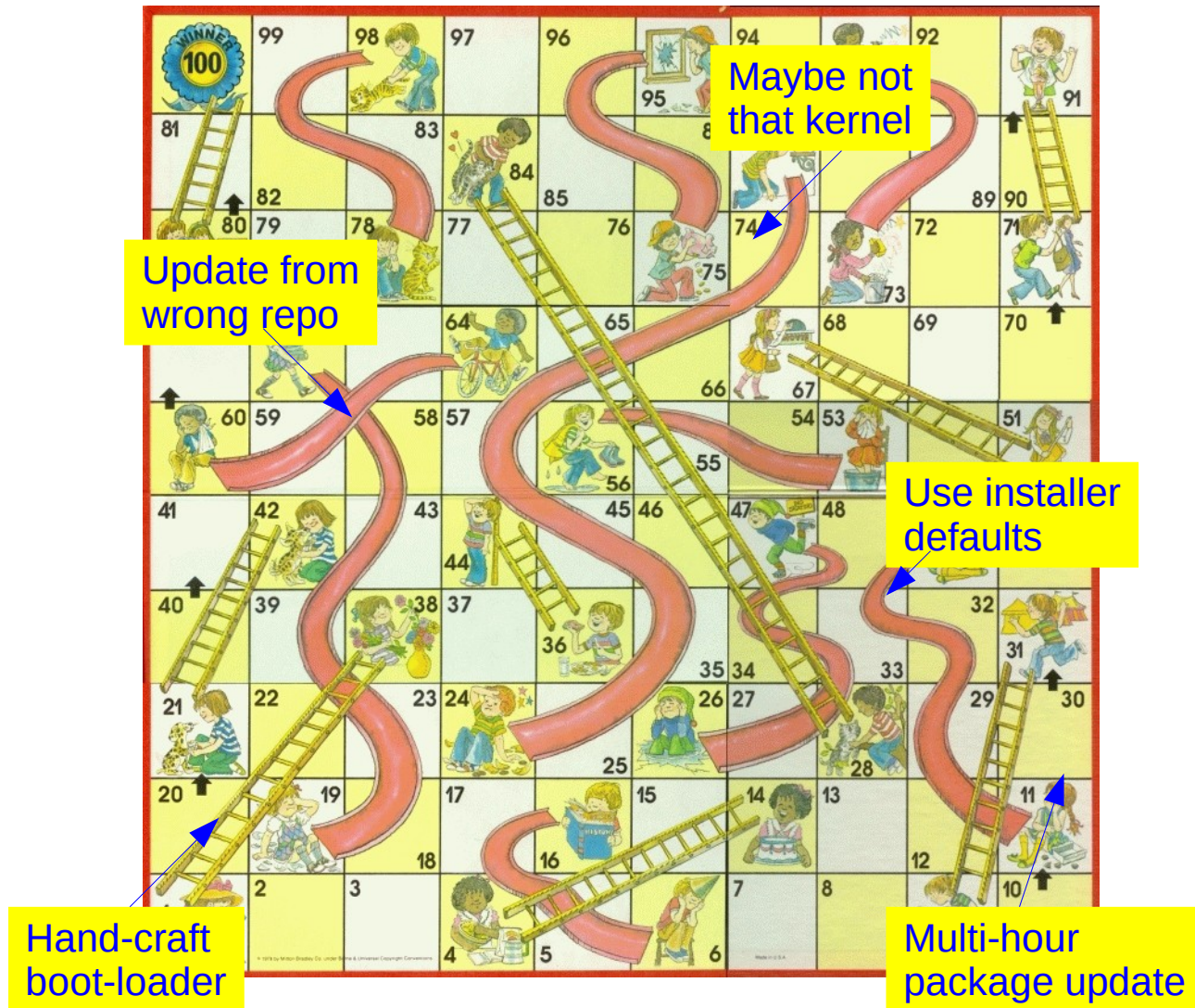
Special concerns for automotive: safety

A highly regulated area, but lots of auto and insurance $.

Special concerns for automotive: real-time

Not just audio, but video too!

Hardware Adaptation Process

Maybe not that kernel

Update from wrong repo

Use installer defaults

Hand-craft boot-loader

Multi-hour package update

Target platform: ExoPC Atom-based Slate running MeeGo

Advertisement: longer version with Demo

- MeeGo Meet-up: Tuesday September 7, 7 PM here at HD

- North Bay Linux Users Group, September 13

- Code Camp, October 9