

Intelligent Traffic Systems Security Vulnerabilities

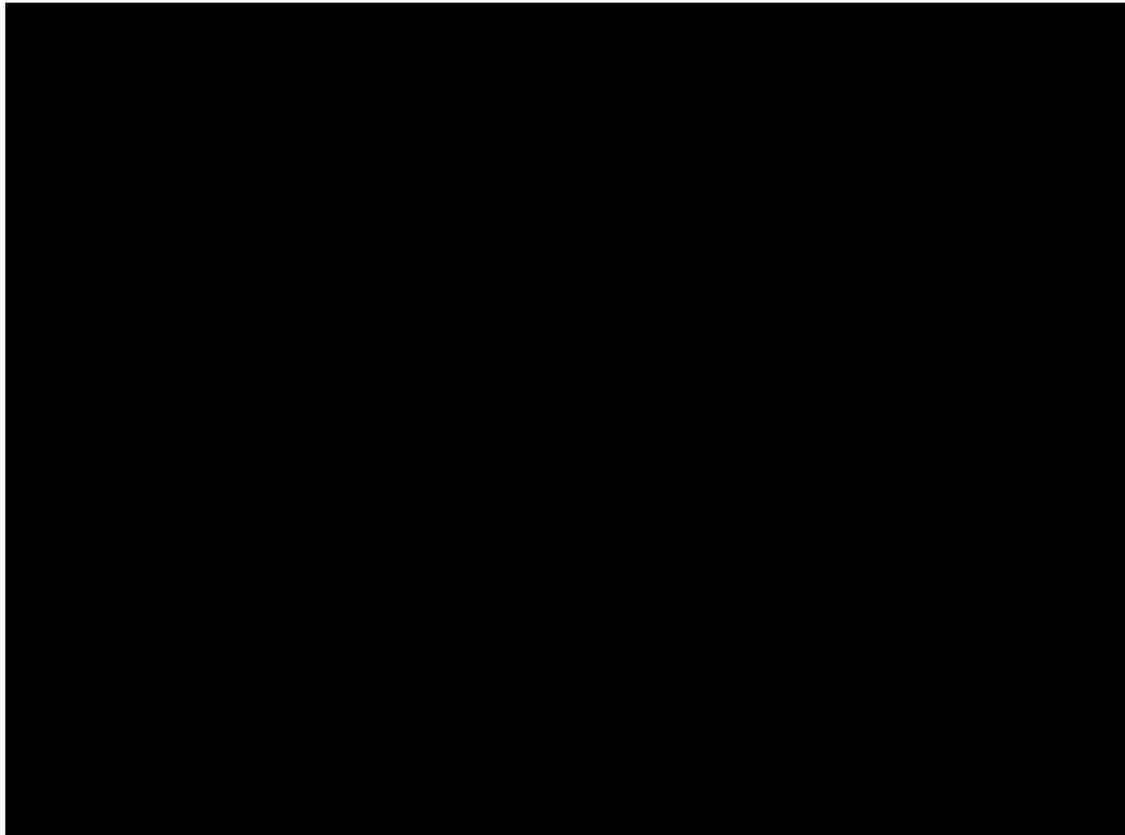


Morsli Oumrani
Population Strategies Laboratory-Algeria
E-consumer Protection Association
PRI member

ITS security Vulnerabilities

- Iphone on weels
- Sensors vulnerabilities
- Software and applications Vulnerabilities
- Communication channels and ports Vulnerabilities
- Privacy and data Vulnerabilities
- Camera and image collection vulnerabilities
- Conclusion

Hacking a car ..the story



Iphone on wheels



50 billion



1.5 billion

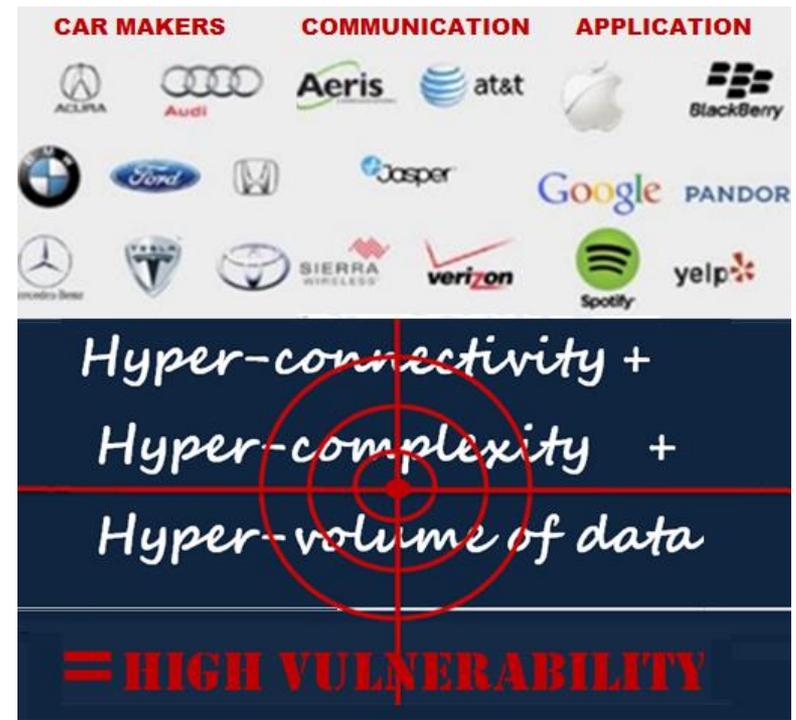
Ericsson predicts that there will be 50 billion connected devices by 2020 – including 1.5 billion vehicles

Iphone on weels

- Appolo 11 , had 145 000 lines of computer codes .
- Android opperating system has 12 million.
- Future car has easily 100 millon

Security Risk =

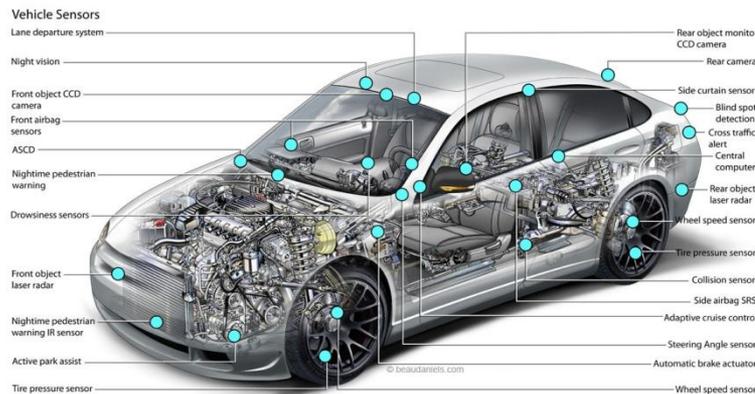
Probability of Incident Attempt x Vulnerability x Damage



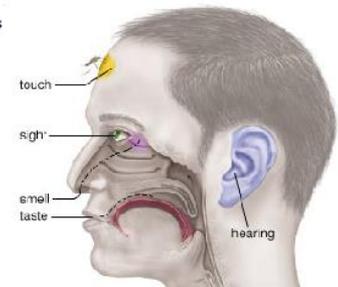
Sensors Vulnerabilities

- Devices that can sense and measure different variables

Position , level , humidity , flow , force , acceleration ,
temperators , weight , size , light , color ...



sensors



Sensors Vulnerabilities

“Kaspersky’s laboratory” has warned about the vulnerability of Moscow’s traffic sensors

“Kaspersky lab” told about the vulnerability of Moscow’s traffic sensors. How did the specialists, the attackers easily can gain unauthorized access to the sensors traffic in Moscow and distort the data they collect.



This can lead to significant losses of money and other damage for the city. Including, the authorities may take wrong decisions regarding the development of road infrastructure, if you will proceed from incorrect data.

Because of encryption mechanism data can be captured over the air.

Motivations ..

- Motivations of car attacks , may be :
To develop skill levels and resources ,
(academic) researchers for scientific reasons.
(organized) criminals with large budgets that
want to steal valuable data from a vehicle, for
financial gain.
Or chip tuning, the car owner himself may be the
'attacker' who wants to unlock extra features or
gain (engine) performance

Software and applications Vulnerabilities

- Deny of service , password stealing , code insertion are some of the attacks that threaten software code vulnerabilities of control traffic systems ...



Communication Channels and Ports Vulnerabilities

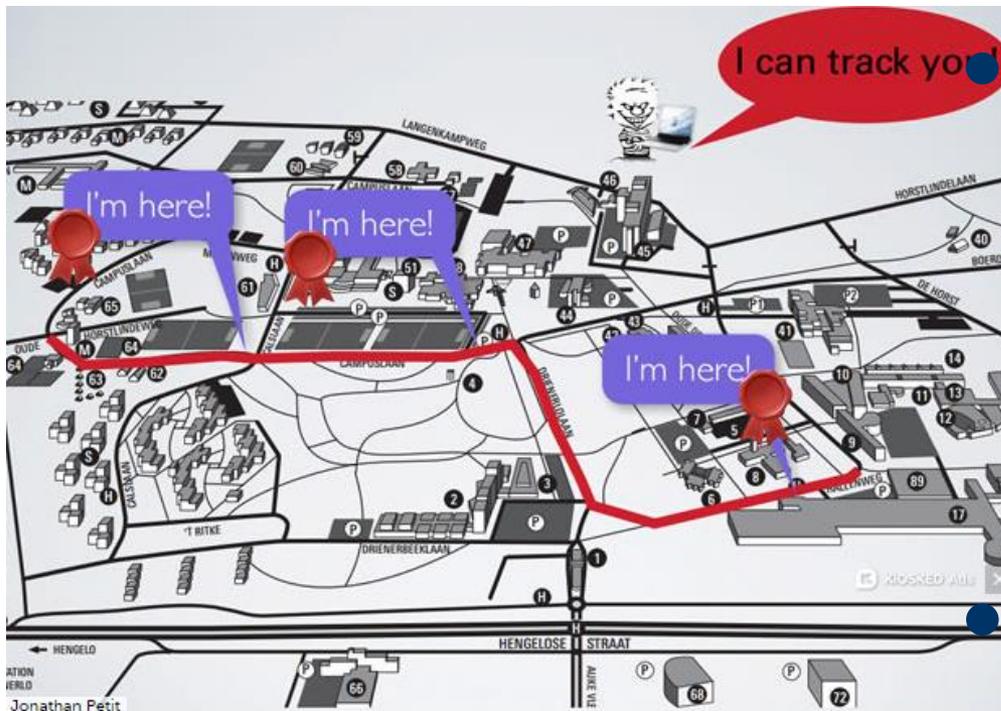


**Hacking alert over two MILLION cars:
Gadget used by insurance firm
Progressive to monitor driving could
allow hackers to take control of
braking and steering**



The SnapShot (right) simply plugs into a car's diagnostic port - but contains virtually no security measures, a leading expert has claimed.

Privacy and Data Vulnerabilities



In ITS small scale , sniffing and eavesdropping attacks were proved.

In 2,734,691 messages transmitted 68,542 captured

Privacy and Data Vulnerabilities

Denial of service attacks , Ddos
Could disturb or disable temporarily traffic and transportation services

Information To Be Shared

- Transit Routes
- Transit Schedules
- Turning restrictions
- Speed Restrictions
- Direction Controls
- Lane Closures
- Road Diversions
- Delay time
- Travel time
- New Roads
- Accidents
- Incidents
- Traffic Conditions
- Operational Statistics
- Trends
- Usage
- Congestion

Camera and Image collection Vulnerabilities

NETWORKWORLD
FROM IDG

Peeping into 73,000 unsecured security cameras thanks to default passwords



Credit: [MylaBerg](#)

RELATED



About those unsecured security cameras in the U.S. without password protection



U.S. still No. 1 for unsecured security cameras: Creepy site linked to over...



2014 Holiday Gift Guide: The other NSA also knows what you want

on [IDG Answers](#) →

How does Simply Secure improve cloud security?



Vulnerability Facts

Fiat Chrysler recalls 1.4 million cars after Jeep hack



BMW fixes security flaw that left locks open to hackers



Tesla fixes security in Model S after Chinese hack

September 21, 2016



Tesla Model S

Volkswagen security vulnerability leaves 100 million cars wide open to wireless key hacking



Over 100 million cars sold by Volkswagen since 1995 are susceptible to hacking, research claims. (Getty Images)

Conclusion

- Vulnerabilities of car design figure at many levels of hardware and software parts .
Because designs focus on functionality and safety with unsecure technology .
- Road safety players should adopt the security issue in their future plans .

Can we trust autonomous cars and send our kids to school without driver?

morsli2002@hotmail.com

Thanks



Can we trust autonomous cars in one day and send our kids to school without driver?

morsli2002@hotmail.com

Thanks

