2018 Communication Technology Update and Fundamentals: Automotive Telematics

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Automotive Telematics

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Why Study Automotive Telematics?
- With land building and road changes, locations are often hard to find. GPS is an integral part of navigating for drivers.
- Landscaping, debris, and quick responses times can affect drivers in an area. The real-time traffic, and
  laws are always changing.
- Smart phone apps will provide high and hard alerts to help find a lost car, unlock the car, direct
  the driver to the nearest coffee shop, and much more.
- Hands-free communication and enhanced phone technology will increase "entertainment"
  in the car.

Introduction

Automotive Telematics can be defined as "the blending of computers and wireless telecommunication technologies" (Nadra, 2009). It enables drivers to get information about the location, movement, and state of their vehicle. It also enables vehicle-to-vehicle and vehicle-to-roadside communications, which opens up a whole range of services.

Telematics essentially a range of different features, options, and devices that are brought together by a single principle—the communication. (Gum, 2005). To provide the above services, telematic products may include GPS (Global Positioning System), microphones, digital audio and video solutions, wireless telecommunication, navigation systems, and car navigation systems (e.g., Audi, BMW, & Vol., 2006).

Table 1.2: Evolution of Automotive Telematics

<table>
<thead>
<tr>
<th>Years</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1930s</td>
<td>Early radio receivers in cars</td>
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<tr>
<td>1950s</td>
<td>FM radios in cars</td>
</tr>
<tr>
<td>1970s</td>
<td>AM/FM radios with enhanced features</td>
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<tr>
<td>2000s</td>
<td>Advanced telematics systems</td>
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The Birth of the Car Radio

The first automotive broadcasts began in the 1920s, when radio stations began broadcasting signals over longer distances. According to Gumb, "The first radios received by cars were in the 1920s, but it wasn’t until the 1930s that most cars contained AM radios." William Lear, who created the Lear, also created the first mass market car radio. The first FM
What is Automotive Telematics?

Automotive Telematics can be defined as “the blending of computers and wireless telecommunications technologies” (Rouse, 2007)
- Telematics is essentially a range of different features, options and devices that are brought together by a single principle – data and communication.

- Telematics enables you to get information about the location, movement, and state of your vehicle. It also enables your vehicle to communicate wirelessly, which opens up a wide range of services. (Coe, Prime, & Jest, 2014b).
Telematics makes your car safer, keeps you from getting lost, summons roadside assistance at the press of a button, routes you around accidents, and auto-dials 911 if you’re in the accident.

For most users, telematics means navigation, communications, safety, security, and increasing infotainment.
Fleet Management trends

Still on the Rise…

- Self-Driving Cars
- Driverless UBER, car rental, food delivery…etc.
- Smart technology & Connectivity gone mad
- Safety features e.g. Brake sensor technology
Electric Car Charging Stations


Connectivity, Navigation, and Diagnostic Analysis

- GM On-Star system
- The Mercedes Benz mbrace,
- BMW iDrive Vehicle Control System
- Lexus Enform
- Toyota Safety Connect
- Ford Sync
- Hyundai BlueLink
- Infiniti Connection
- Honda Link


5G Technology

How Vehicle-to-Vehicle Communication Could Replace Traffic Lights and Shorten Commutes

Photo: Dan Saelinger
1. Each vehicle computes its own distance to the intersection, the distance of the vehicles approaching the intersection from other directions, and each vehicle’s speed, acceleration, and trajectory. Together they elect one vehicle to serve as the leader for a certain amount of time.

2. The leader vehicle decides which direction has the right-of-way (the equivalent of a green light) and which direction has the red light.

3. The leader assigns the status of a red light to its own direction of movement, while giving the green light to all the cars in the perpendicular flow.

4. After the leader’s time is up, a car in the perpendicular flow becomes the leader and does the same thing. In this fashion, leadership is handed over repeatedly.

That’s all the algorithm needs to decide which vehicle gets to go through the intersection (green light) and which has to stop (red light).

Illustration: Anders Wenngren
Don’t we have this?
“Communication Technology Update and Fundamentals”

Is a great text and/or tool for any emerging media or technology course
The Book is used as a supplemental text in our Communication and Emerging Media Major course:

COM 244- Development of Technology in Communication
In Conclusion...
Keep updated with us…

What’s next?
Thank you!