Before the North Carolina Distracted Driving Task Force

Stopping Texting While Driving

The Technical Solution

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What is an effective solution to propose?

NNID recommend funding of Pilot Project that demonstrates a Technical Solution.

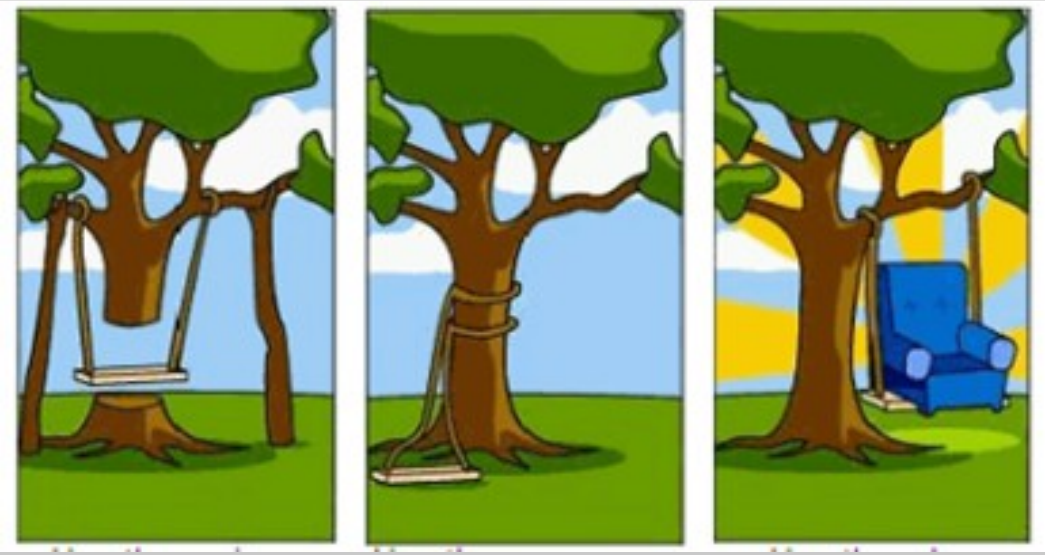
Classic Solutions

- Change User's Behavior
  - Education Programs
  - Ad Campaigns (NNID)
  - Legislation (44 States)

http://www.iihs.org/iihs/news/

Engineer Solutions

- Stopping Texting While Driving is an Engineering Problem
  - Define the Problem
  - State the Requirement
  - Design a solution



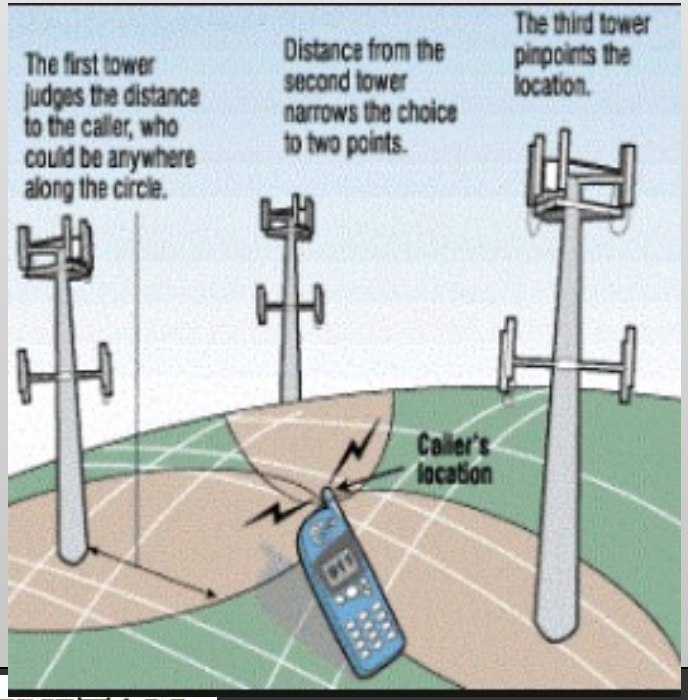
Engineers solve technical problems with technical solutions.

Engineer Solutions

- Requirements
  - If user is moving more than 5 MPH, phone should be blocked from sending or receiving text messages.
  - Solution should work on exisiting phone already in the field.
  - Solution should allow incoming messages to be received at a later time when stationary
  - Solution should not be an undue burden on cell phone carriers.
  - Allows for 911 / Emergency Override
  - Results should be measurable.

Similar Problems & Solutions

- Enhanced 911 for Cell Phone
  - 1994 33% of 911 calls came from cell phones and 95% of caller's didn't know their own location.
  - FCC mandated that carriers develop a solution
  - Today, 911 caller's location is know to about 100 ft



Solution:

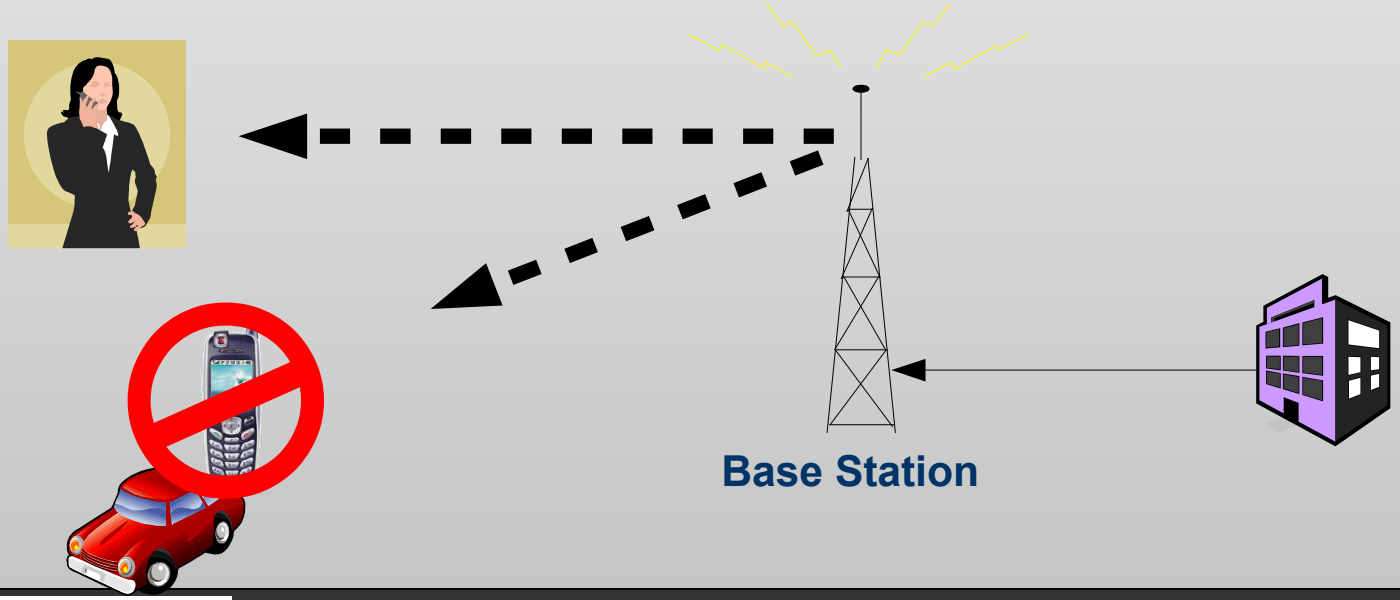
- Provides user location to 911 Operator
- Works on all existing phones
- Was not a burden to carriers
- Benefit - created all the location service we have today.
- 70% of 911 calls come from cell phones (Per FCC report)

Similar Problems & Solutions

- Emergency Alert to Cell Phones (2007)
  - As a result of Virgina Tech shooter and similar cases.
- Wiretap Capability for Cell Phone (1994)
  - Enabled law enforcement to regain investigative tool.
- Kill Switch for Cell Phones (1984)
  - Due to high rate of phone theft, develop method to make stolen phones useless to perpetrators.
  - Capability in already in phone system.
  - Works on all phones.

Texting While Driving "Firewall"

- US Patent Application 13052098 (Examiner Ajayi)
  - Developed by two Raleigh Engineers (under company NNID)
  - Former Nortel / Verizon Engineers
  - Telecommunications Experts w/30+ patents
    - Cell Phone Expert Witness in Legal Cases
    - Expert In Cell Phones Associated Accidents



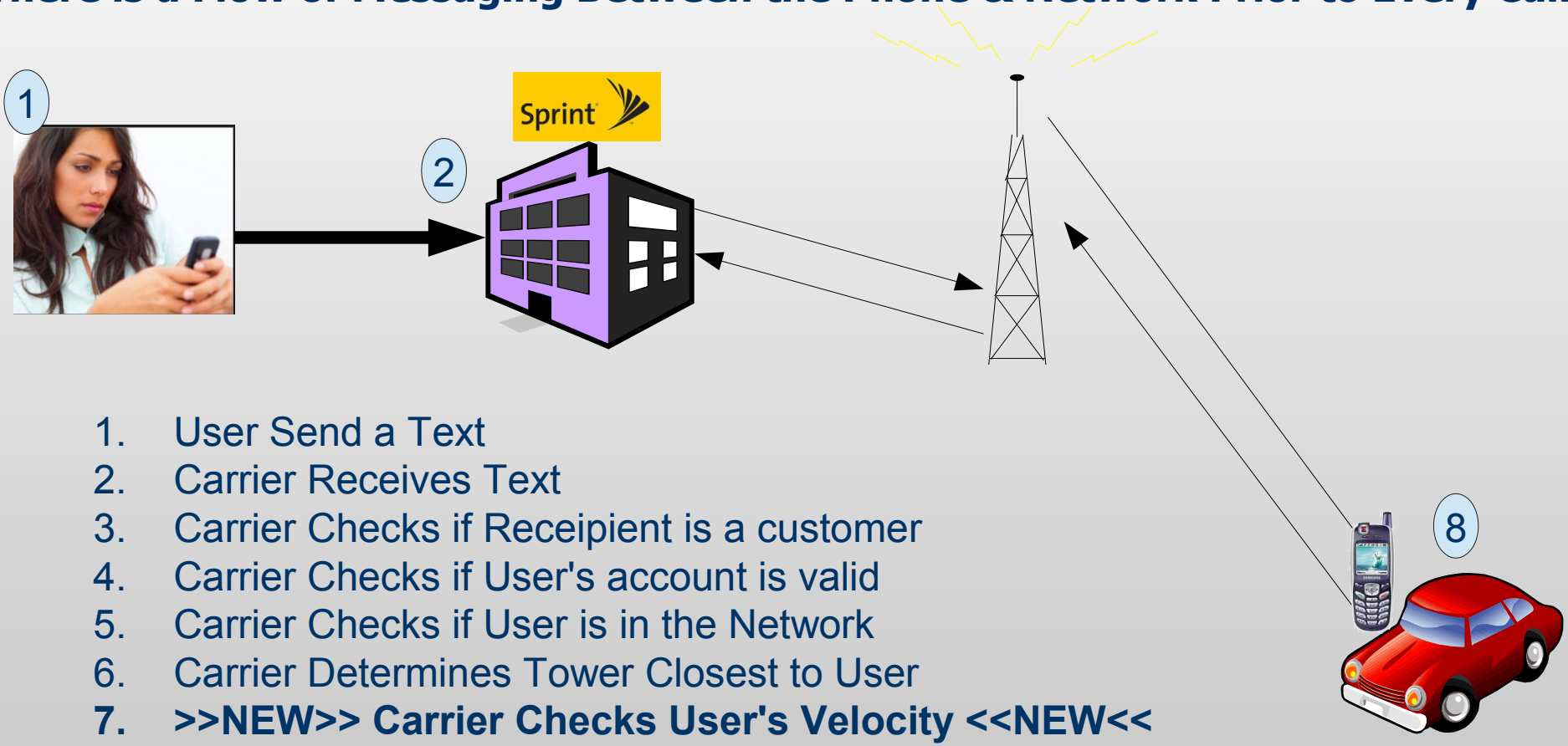
Features

- Detects If Text Sender or Receiver is Moving
  - Prior to delivery, Network detects user's velocity
  - Uses existing capabilities in phone networks
  - Works on all existing phones just like 911 – No APP
  - Acts like a "feature"

    - Can be applied to any subset of phones (e.g. User's under age 25)
    - First Responders can be exempt
    - Outgoing 911 text is allowed
    - Incoming Emergency text is allowed
  - Can also control voice usage or Facebook usage

Basic Call Flow

There is a Flow of Messaging Between the Phone & Network Prior to Every Call



1. User Send a Text
2. Carrier Receives Text
3. Carrier Checks if Receipient is a customer
4. Carrier Checks if User's account is valid
5. Carrier Checks if User is in the Network
6. Carrier Determines Tower Closest to User
7. **>>NEW>> Carrier Checks User's Velocity <<NEW<<**
8. Carrier delivers text to cell tower / Tower Delivers Text
9. Confirmation of delivery is returned

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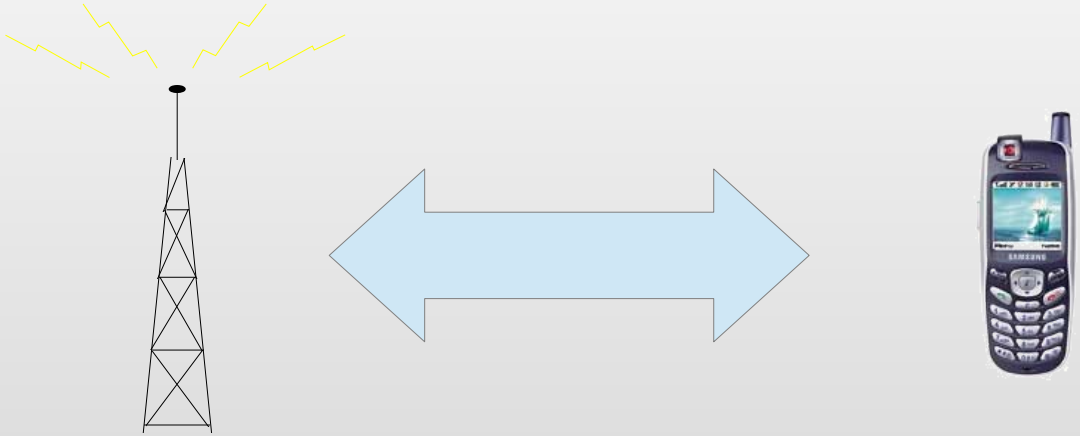

- The Handset & Network Exchange Data Prior to Call
- Capability to Provide Velocity Already Exists
- Delivery of Text is Denied if User Is Moving
    - The text is stored for later delivery
    - Sender can received a "NNID" notification
- No changes required to Handset / Little to Network Protocol

But What If…

- **What if the user is on a bus or a train?**
  - Mass Transit can be equipped with a "Beacon" that allows passenger to be shown as authorized to text by the network. (Beacon is placed behind driver)

- **What if the user is the passenger?**
  - Front seat passengers should be blocked from texting. This is a known driver distraction.
  - Back seat passengers can text via "Beacon" or "Legal Notice" that certifies that the user is not a driver and further notes velocity in call detail records and in customer bill.

- **More technical solution in Phase III**

Phases Of Implementation

- **Phase I – No Blocking, Just Measurement**
  - Phone systems currently keep extensive details of each call and text message, called "Call Detail Records" (AKA, "Meta Data")
  - Phase I adds "Velocity" data to each call record.
  - Accurate "use of phone while driving" data now available through data. Aggregate data reports provide accurate baseline.
- **Phase II – Implement in High Risk Areas**
  - Block texting along I-40 and I-85 Corridors
  - Applies only when connected to cell towers that cover these Highway.

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TELECOMMUNICATIONS EXPERT

Funding Proposal

Funding Purpose & Expectation

- **Pilot Implementation**
  - Through NC State Incubator, funds used for a implementation of patent in a small test area (Single Cell Tower)
  - Testing by MBA Program Student
  - Partnership with Sprint
  - Primary Research Report

- **Expectations and Results**
  - Proof of Concept Report
  - Technology Demonstrations
  - Regulatory Recommendations for State's Cell Phone Service Providers
  - New Investigative Tool for Accident Investigations

Contact Information for NNID.ORG

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