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Stuck in Traffic: Analyzing Real Time Traffic Capabilities of Personal Navigation Devices and Traffic Phone Applications

GPS Units
- Manufacturer installed units
- Portable personal navigation devices (PNDs)
- Smartphone Apps

For this report, we will primarily focus on a dynamic core function of the PND/app unit: Correctly reporting traffic jams on a driver’s route.
- Secondarily, we will analyze the accuracy of each unit’s estimated time of arrival (ETA) whether the driver is in a traffic jam or just following driving directions from a PND/app.
Devices

- **TT PND**: TomTom GO LIVE 2535M PND unit
- **Garmin HD**: Garmin NUVI 3490 (HD) and Garmin NUVI 3590 (HD)
- **Garmin SIM**: Garmin NUVI 1690 (RDS-TMC) and Garmin NUVI 1695 (RDS-TMC)
- **Google App**: App Version 1.1.6
- **INRIX App**: App Version 4.5.1
- **TT App**: TomTom App Version 1.14
UMTRI Research Vehicle

The Customized Shelf Containing PNDs, Phones, and Cameras
Digital Video Recorder

View of Simultaneous Videos on UMTRI Computer
A traffic jam is defined as

1. delaying the driver 90 seconds or more while en route to his destination **and**
2. the vehicle’s speed is reduced to about half of the posted speed limit.
Our analyses include comparisons of how well all the units reported:

- All traffic jams
- All traffic jams on surface streets
- Traffic jams on surface streets lasting less than or equal to five minutes
- Traffic jams on surface streets lasting longer than five minutes
Our analyses include comparisons of how well all the units reported:

- All traffic jams on highways
- Traffic jams on highways lasting less than or equal to ten minutes
- Traffic jams on highway lasting longer than ten minutes