tire

inventory &

reporting

engine

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PROBLEMS FACED
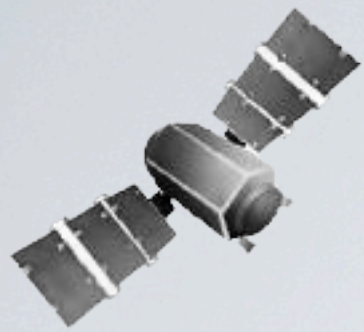
* currently there exist no way to uniquely identify tires.

* tire theft.

* cost associated with tire warranties.

* detecting pressure in 18 wheels on a semi is a strenuous task.

* ill-judged pressure in tires result in decreased fuel efficiency.

* also poses a safety hazard.

OBJECTIVES

✳ to embed a customized RFID based tag within the tires.

✳ these tags will be used for identification and diagnosis.

✳ will facilitate in uniquely identifying tires.

✳ will aggregate information about tire (eg. tire pressure, etc)

✳ collect data from tags, and broadcast to repository.

✳ this data will be used by the core data processing engine to analyze and efficiently manage thousands of tires.
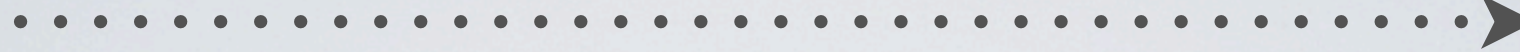
Received data from thousands of trucks and beams it back to base.
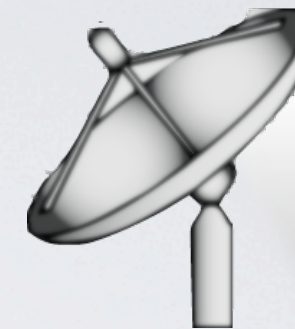
DESIGN FLOW

RFID tag aggregates data.
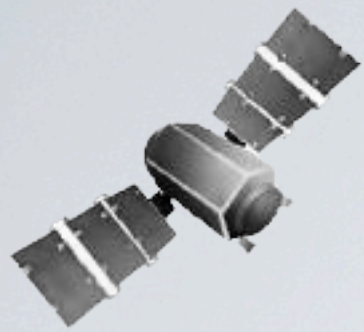this data is beamed through via a satellite link.

[-] Server continuously tracks:
- status of tires
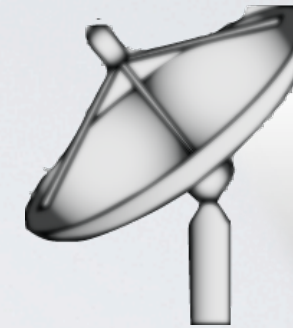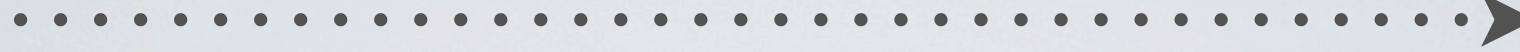- position of truck
- fuel in truck

[-] Gives holistic viewing and
querying of all data

[-] Allows optimum efficiency in fue
and safety.

Satellite

TECHNOLOGY

Mainframe

- Data processing engine
- Inventory Management
- Reporting Services

- RFID Tags
- Pressure Sensors
- On-board RFID Readers
- Satellite transmitter / GPS

APPROACH

✳ research current solutions and modern technology.

✳ devise design patterns to store and process large amounts of data.

✳ devise algorithms for optimum maintenance and inventory of tires.

✳ develop software first under simulated hardware.

✳ analyze cost and benefits.

✳ build hardware based on simulated hardware prototype. (RFID, Pressure Sensors)

RISKS

* information received from hardware is not reliable enough for practical use
* cost for hardware may be too excessive
* may be too time consuming to retrofit into the current industry