

Global Tracking System

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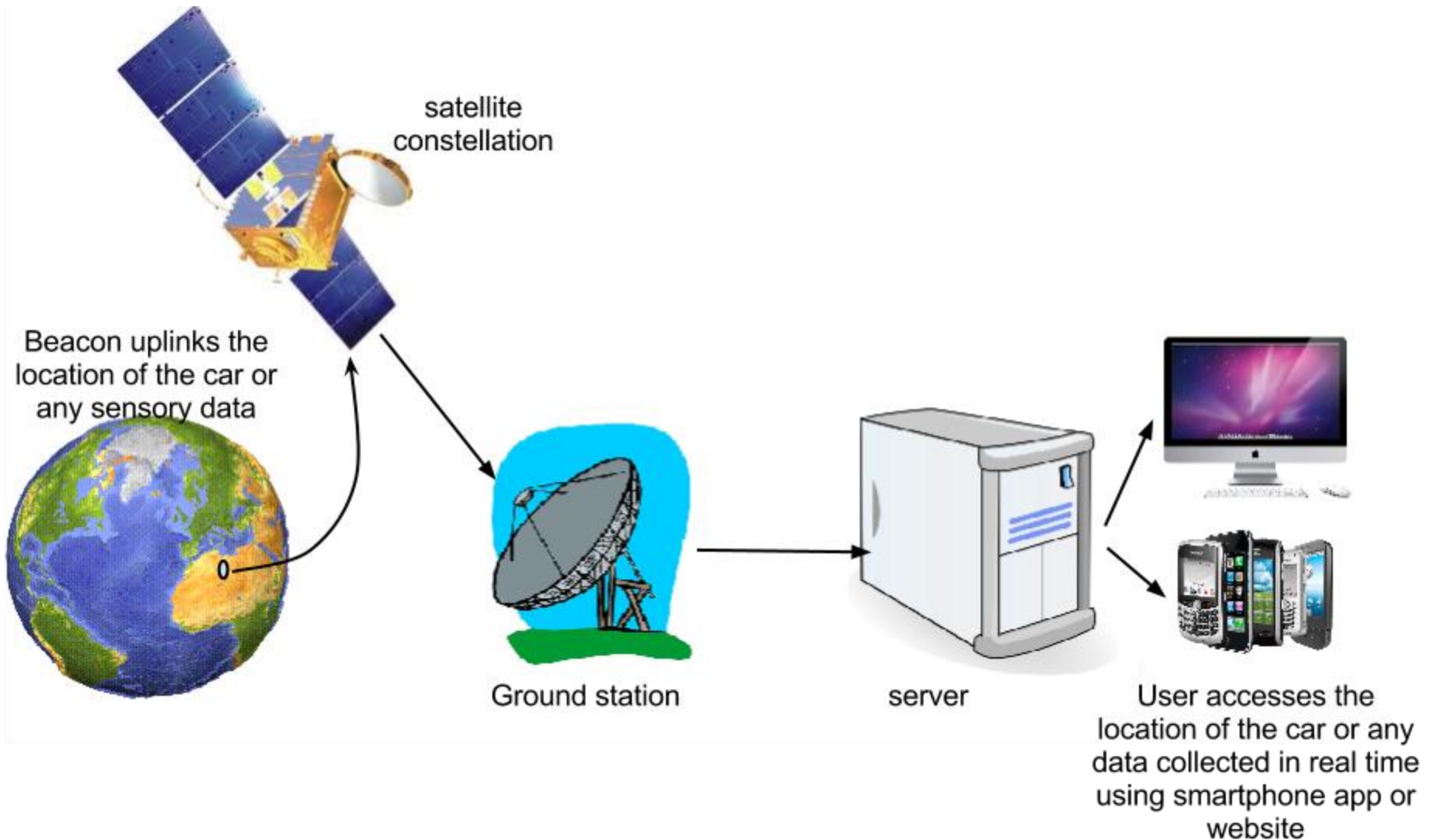
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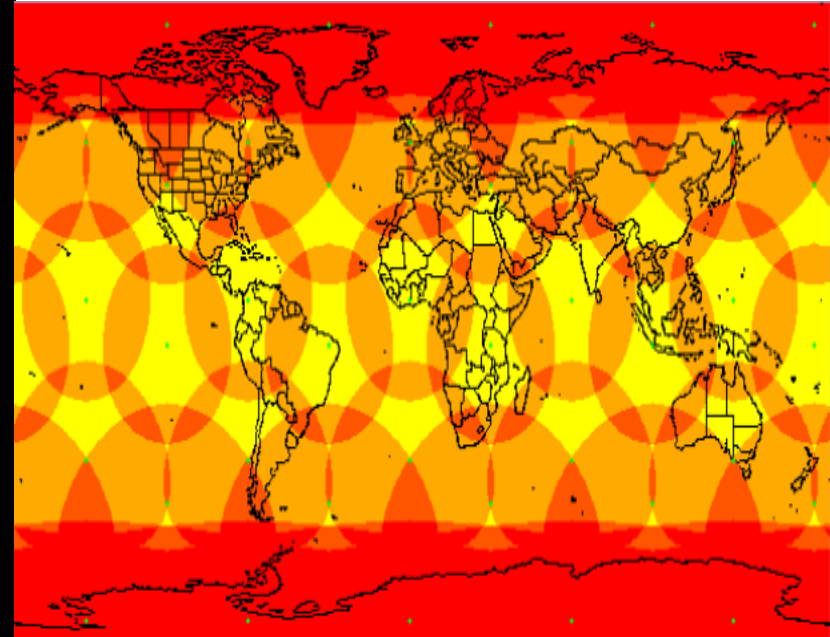
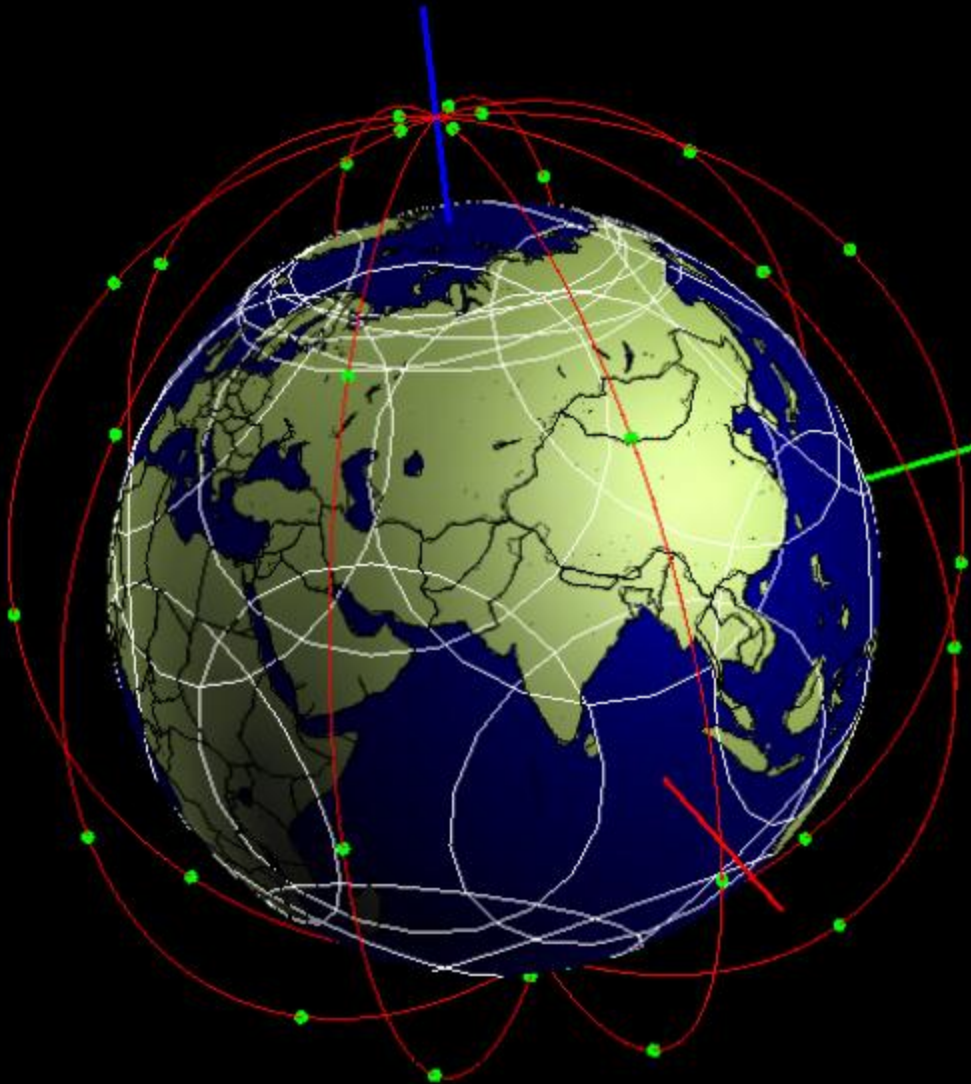
Problem Definition

- Car theft is a major problem in both developed and developing countries.
- Statistics show that a car is stolen every 26 seconds in the United States.
- According to the British Crime Survey, a vehicle is stolen every 4 minutes in the United Kingdom.
- And, in Australia, a vehicle is stolen every 10 minutes with nearly over 3.5 million cars stolen annually worldwide.

Global Tracking System



How the constellation looks like?



40 satellites

5 orbits

Altitude: 1600Km LEO

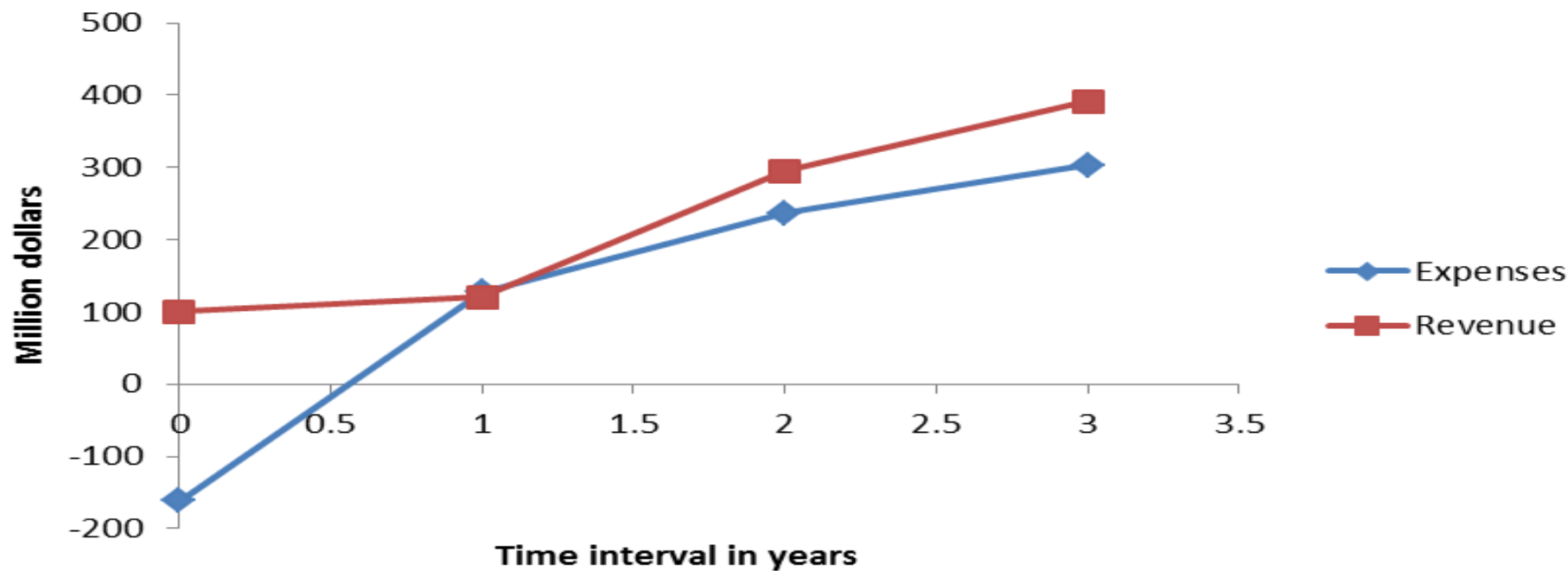
Business feasibility

- **One-time cost**
- **Satellites and ground stations cost:**

Satellites components	Cost
Bus cost "low level bus (9.6 Kbps)"	\$0.5M
Communication payload "uplink 1200 bps "	\$0.4 M
Cost of one satellite	\$0.9M
Total cost of all 40 satellites	\$36M
Ground station specifications	Cost
9.6 Kbps	\$0.05M
Total cost of four ground stations	\$0.2M

Launch cost

- Launch cost = rocket cost * 5 rockets - free slots * rockets * 4M = $(25 * 5) - (7 * 5 * 4) = -15 \text{ M\$}$
- Which means a gained profit with \$15M however, it's expected that not all slots are occupied. As an average, 5 slots of 7 available would be free leading to launch cost = \$25M
Initial costs = Satellites cost + Ground stations cost + Launch cost
 $= 36 + (0.05 * 4) + 25 = \61.2 M
- Unadjusted total costs: Initial costs + software development + Distribution + Advertising and Marketing = $61.2 + 0.05 + 2 + 4 = \$67.25 \text{ M}$
Unexpected one-time operations : 10% of total onetime costs = \$6.725M
- **Total one-time cost:**
total one-time cost = $67.25 \text{ M} + 6.725 \text{ M} = \73.975 M
- Suggested selling price to the beacon: \$400 in first year, \$350 in second year and \$320 in the last year.



RISK ANALYSIS

- 1) System failure in one of the satellites.
- 2) Failure in one of the ground stations.
- 3) Downlink overloading on one of the ground stations.
- 4) Lag of service due to server failure.
- 5) Launching delay.

Thank you