Smart-Hire

Gaurav Bhagwat (113050046)
Surendra Salke (113050003)

Smart-Hire Scenario

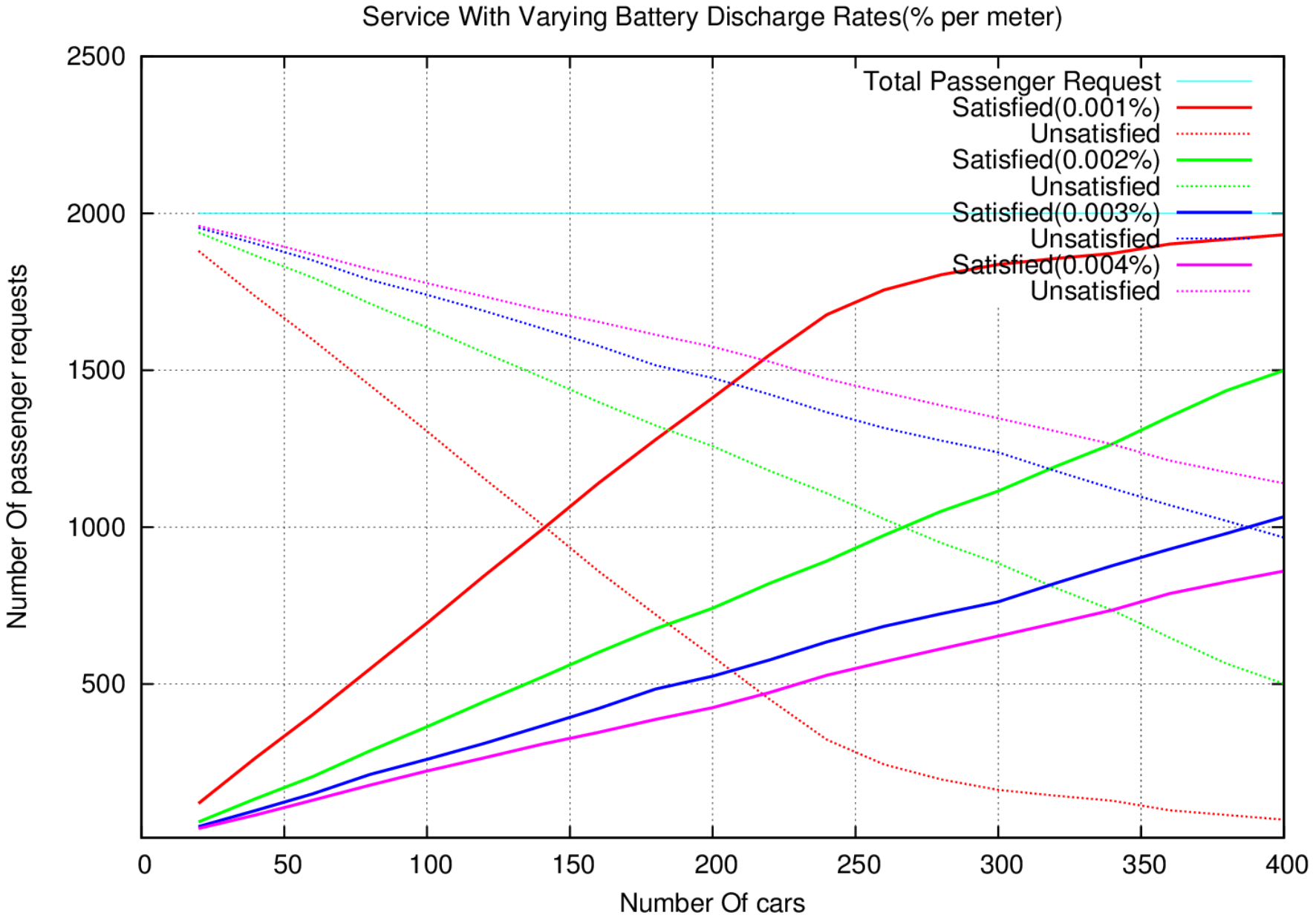
- Battery operated cars running continuously
- Customer calls for a car to go from src A. To dest B.
- Cars may be currently at location X, Y, Z...
- To reach src A, cars at X, Y, Z have to travel, results in wastage of power.

Smart-Hire Problem

- **Possible Goals:**
  - Minimize the non-revenue travel. (completed)
  - Maximize the service ratio. (completed)
  - Minimize the recharge counts. **(incomplete)**
- **To find**: For the same locations and customer requests
  - What number of cars achieve the goal mentioned above for a fixed battery spec.
  - Which battery to use given the same **nCars.**
  - Is there an optimal **(nCars,Battery)** pair? **(incomplete)**
- **Assumptions:**
  - Cars don't recharge until they are discharged completely.
  - Time to attend the customer apart from travel is not considered.

Scenario: No recharging

- Expected Result (Intuition):
  - Service drop is linear. (with number of cars).
  - Service drop occurs faster with greater discharging rate.


Service With Varying Battery Discharge Rates(% per meter)
Number Of passenger requests
Number Of cars
2500
2000
1500
1000
500
0
50
100
150
200
250
300
350
400
Total Passenger Request
Satisfied(0.001%)
Unsatisfied
Satisfied(0.002%)
Unsatisfied
Satisfied(0.003%)
Unsatisfied
Satisfied(0.004%)
Unsatisfied