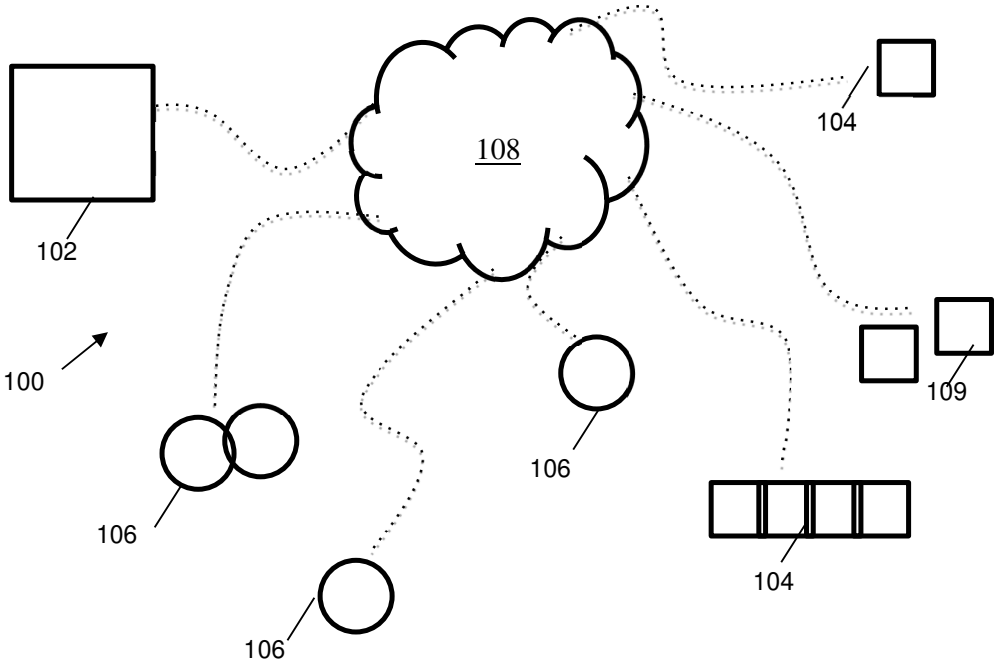
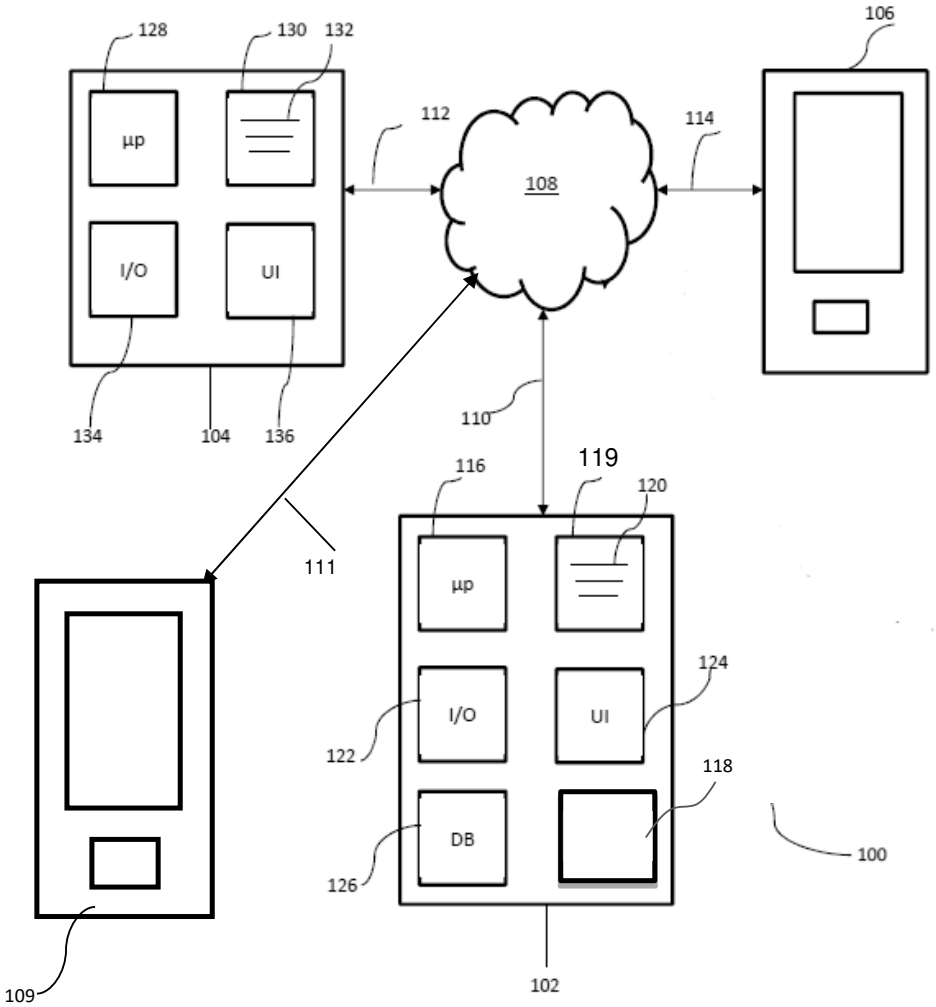


Fig. 1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132
106
µp
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114
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I/O
UI
134
104
136
110
119
116
120
111
µp
124
I/O
UI
122
118
DB
126
100
109
102

Fig. 2

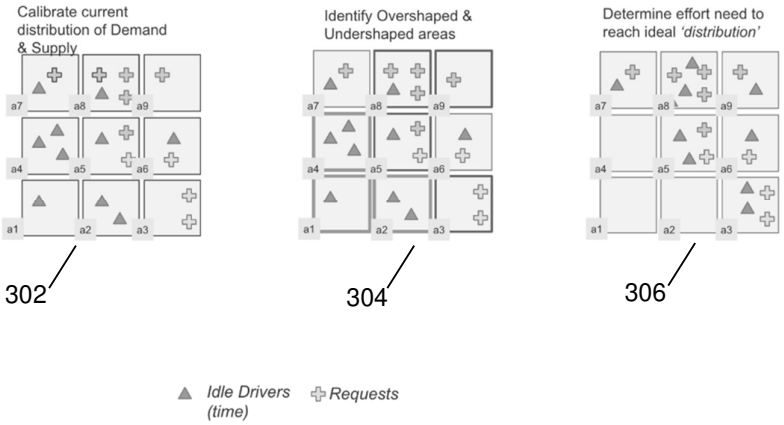
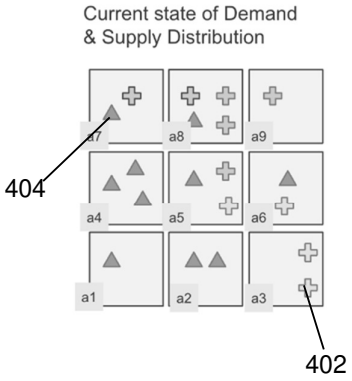
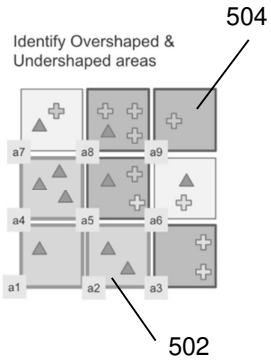


Fig. 3



A1 - 1/0 (10% of supply / 0% of demand)
A2 - 2/0 (20% of supply / 0% of demand)
A3 - 0/2 (0% of supply / 20% of demand)
A4 - 3/0 (30% of supply / 0% of demand)
A5 - 1/2 (10% of supply / 20% of demand)
A6 - 1/1 (10% of supply / 10% of demand)
A7 - 1/1 (10% of supply / 10% of demand)
A8 - 1/3 (10% of supply / 30% of demand)
A9 - 1/0 (10% of supply / 10% of demand)

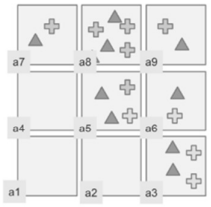
Fig. 4



A1 - 1/0 (10% of supply / 0% of demand) -1
A2 - 2/0 (20% of supply / 0% of demand) -2
A3 - 0/2 (0% of supply / 20% of demand) +2
A4 - 3/0 (30% of supply / 0% of demand) -3
A5 - 1/2 (10% of supply / 20% of demand) +1
A6 - 1/1 (10% of supply / 10% of demand) 0
A7 - 1/1 (10% of supply / 10% of demand) 0
A8 - 1/3 (10% of supply / 30% of demand) +2
A9 - 1/0 (0% of supply / 10% of demand) +1

Fig. 5

Effort is defined as the fraction of idle drivers needed to be moved to reach ideal positioning



A1 - 1/0 (10% of supply / 0% of demand) -1
A2 - 2/0 (20% of supply / 0% of demand) -2
A3 - 0/2 (0% of supply / 20% of demand) +2
A4 - 3/0 (30% of supply / 0% of demand) -3
A5 - 1/2 (10% of supply / 20% of demand) +1
A6 - 1/1 (10% of supply / 10% of demand) 0
A7 - 1/1 (10% of supply / 10% of demand) 0
A8 - 1/3 (10% of supply / 30% of demand) +2
A9 - 1/0 (10% of supply / 10% of demand) +1

6/10

- 6 idle units out of 10 idle units need to be repositioned to achieve ideal distribution
- SPS -> 60% (Lower the better)

Fig. 6

[Under Supplied Conditions]

Allocation - prioritize rides going from over shaped to under shaped areas

Surge - Lower surge for rides from Over shaped -> Under shaped areas (Network value based surge) & vice versa

DAX incentives - ride guide, tier boosters, streaks, effective zones in targeted area time slots

[Over Supplied Conditions]

- **Promos** - rides from Over shaped -> Under shaped areas to stimulate growth / protect driver earnings.

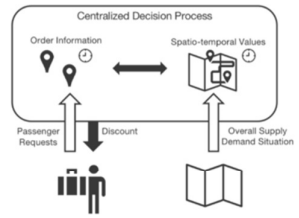


Fig. 1. Overview of spatio-temporal incentives optimization in ride-hailing services.

Source : https://arxiv.org/pdf/2211.03240.pdf

Fig. 7


12:05
MANDAI
YISHUN
SELETAR
High demand
THOMSON
FARM
SINGAPORE
BUKIT TIMAH
TANGLIN
QUEENSTOWN
BUGIS
KALLANG
PULAU BRANI
High demand in Hougang Central

Fig. 8

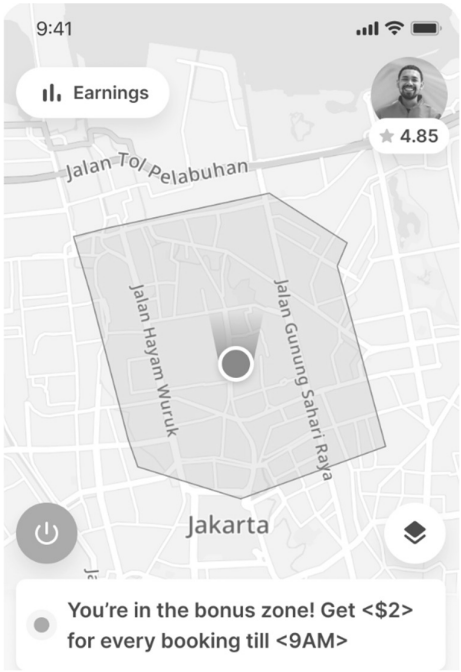

9:41
Earnings
4.85
Jalan Tol Pelabuhan
Jalan Hayam Wuruk
Jalan Gunung Sahari Raya
Jakarta
You're in the bonus zone! Get <$2>
for every booking till <9AM>

Fig. 9