

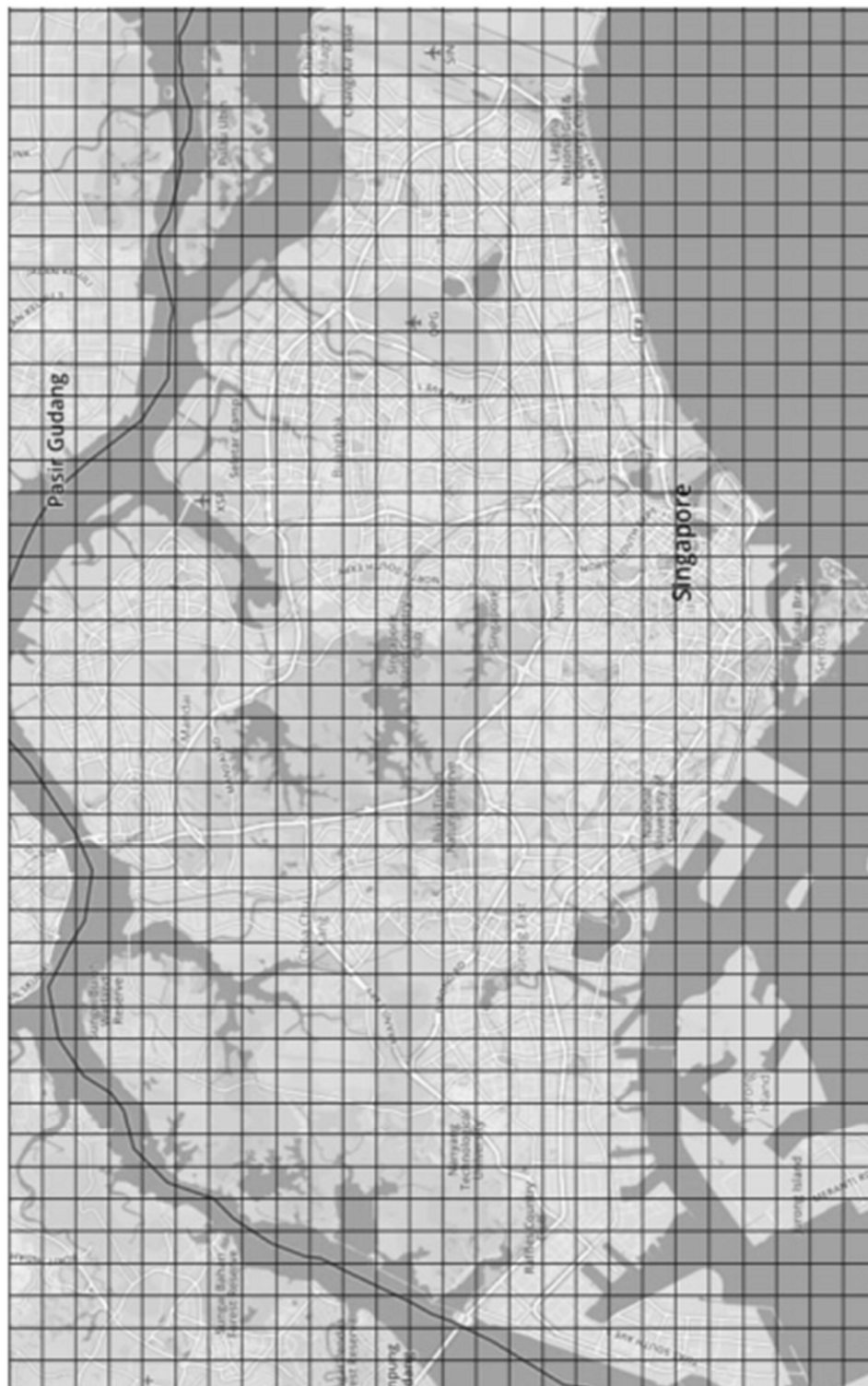


FIG. 1

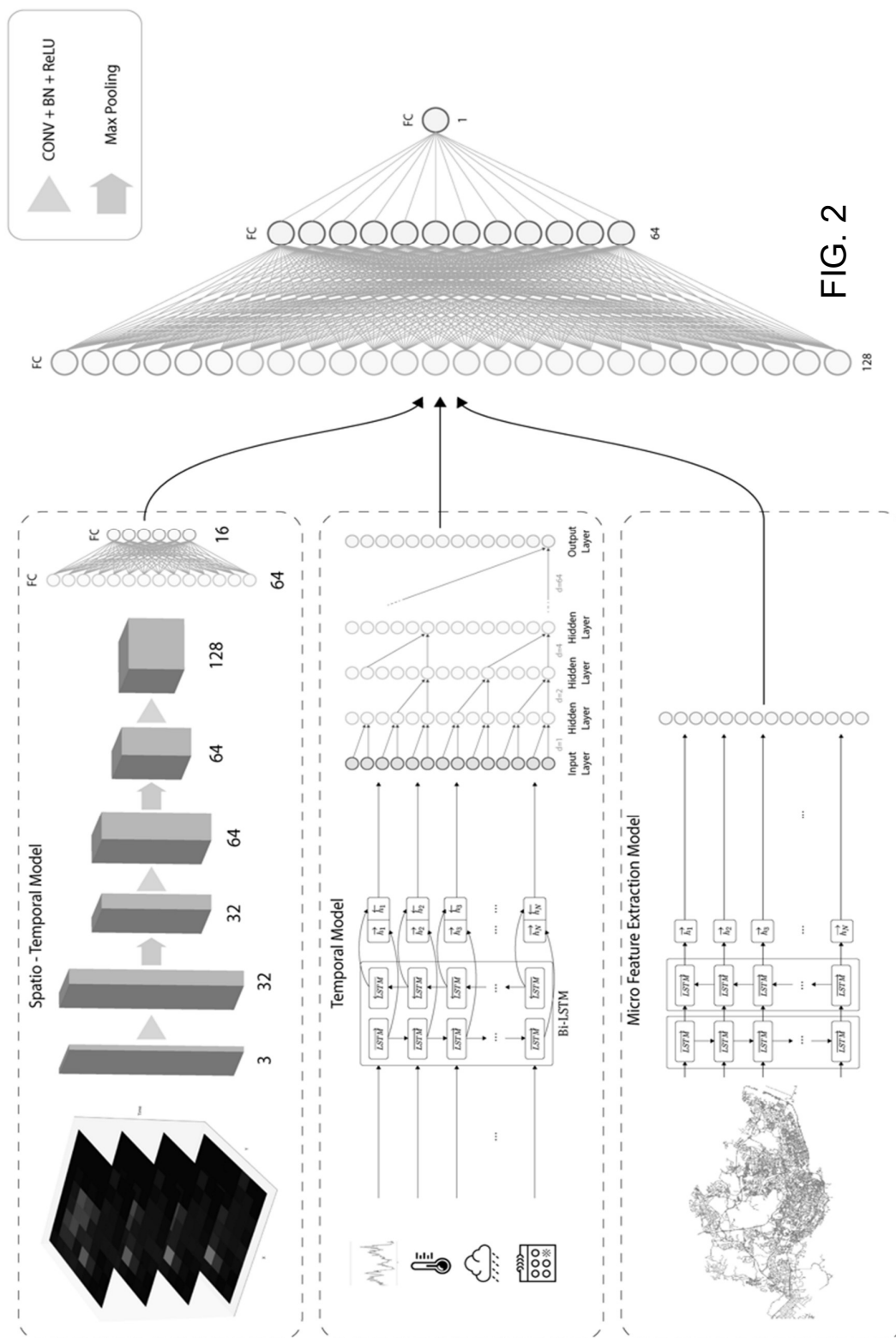


FIG. 2

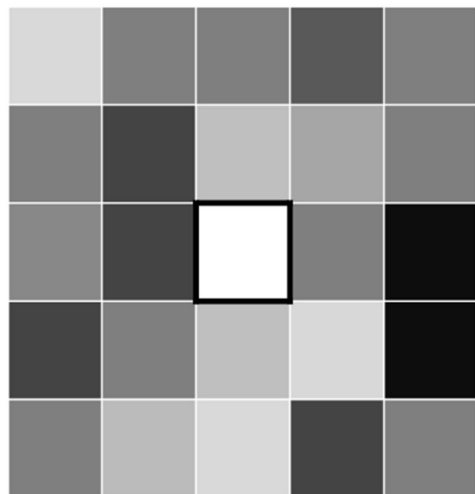


FIG.3(a)

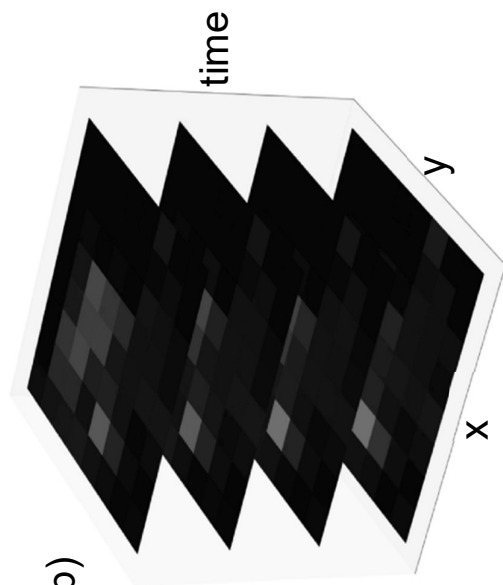


FIG.3(b)

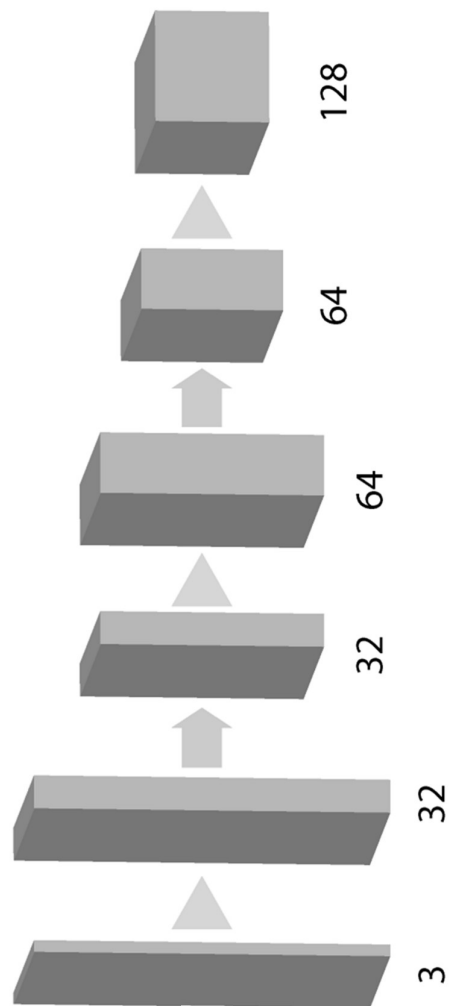
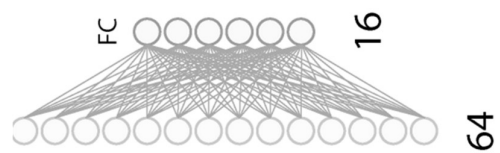


FIG.3(c)

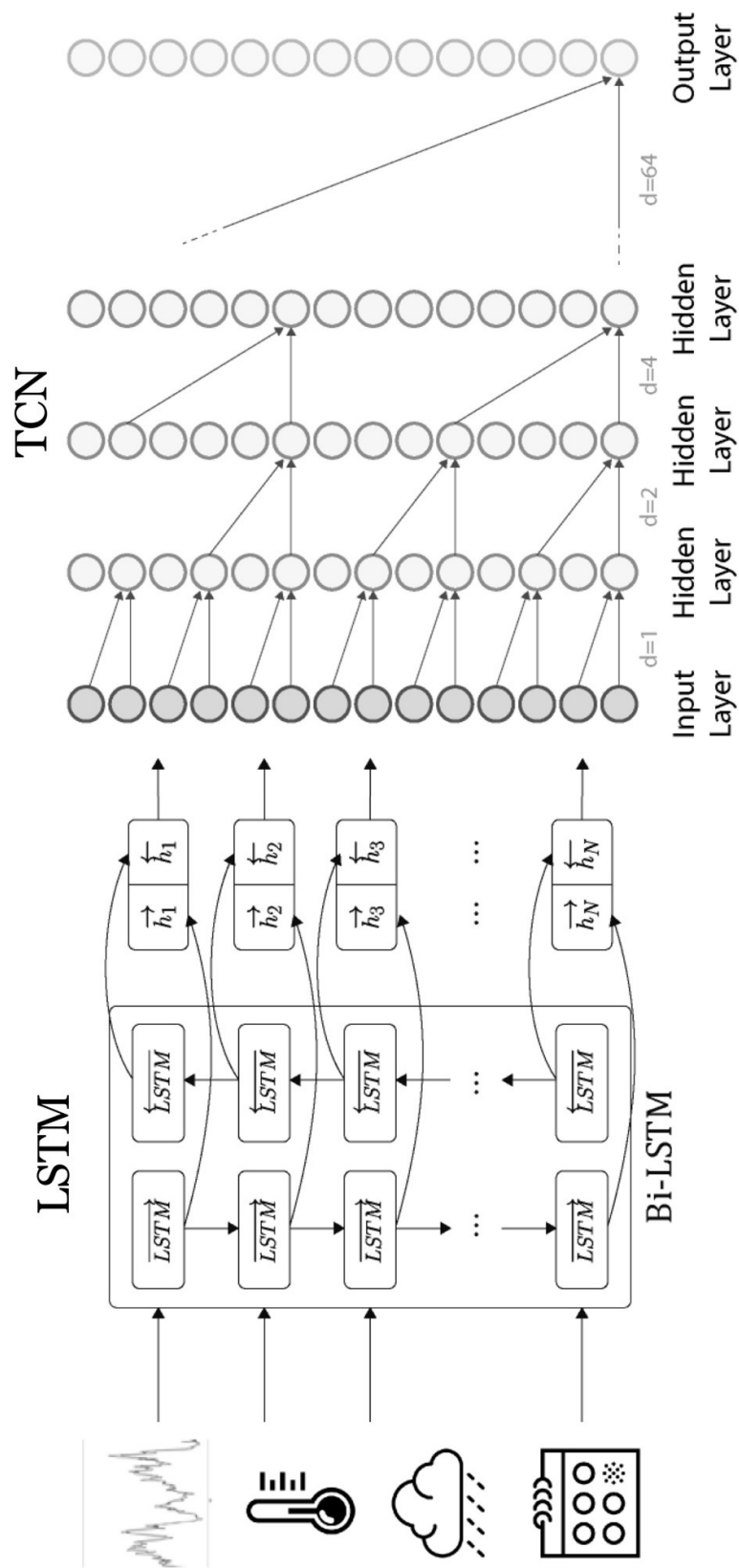


FIG. 4

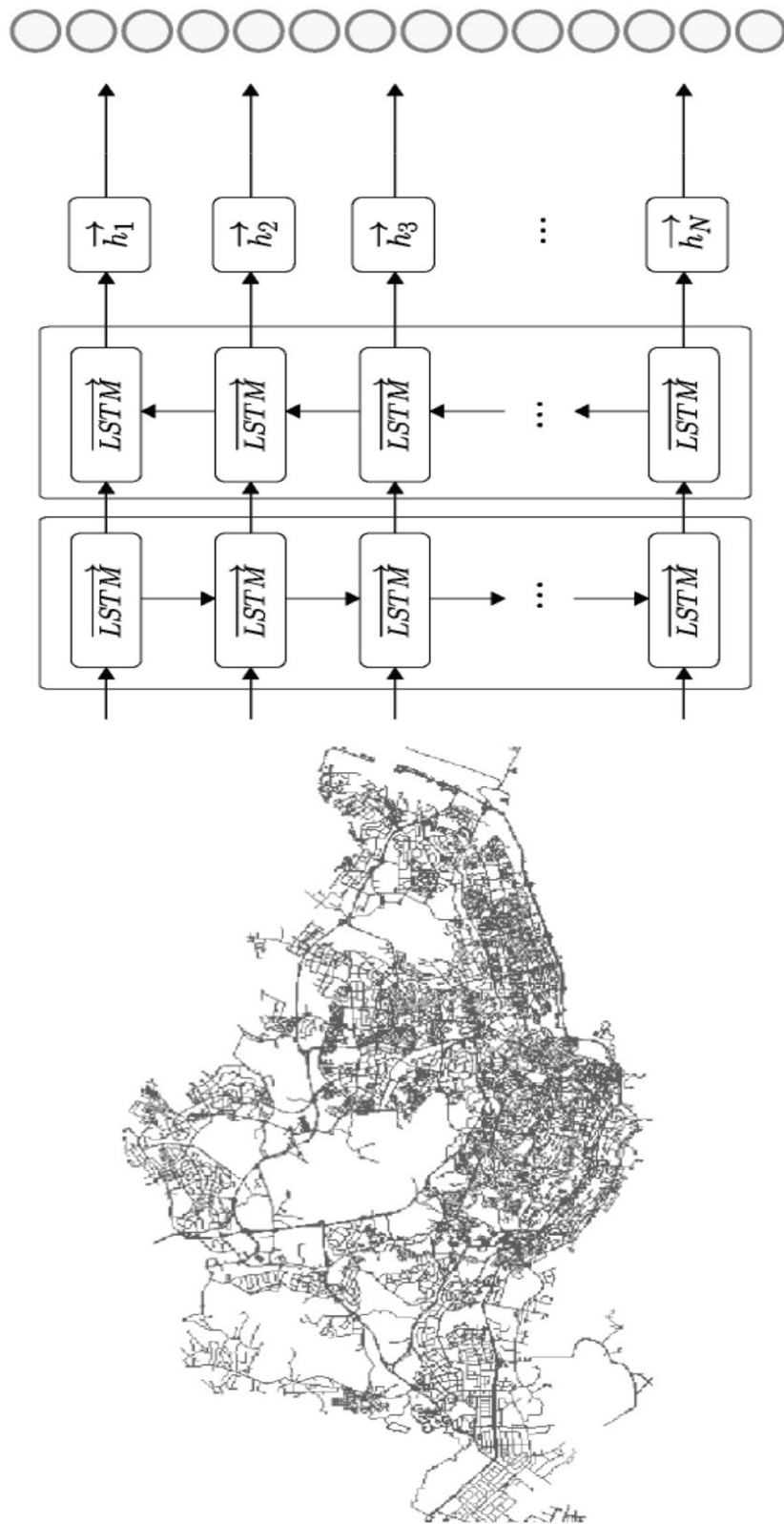


FIG. 5

	RMSE			MAPE			SMAPE		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
HA	6.8392	10.6237	15.2724	2.8719	3.1438	3.762	0.9912	1.101	0.9986
LR	2.4078	4.5630	7.1004	1.0307	0.9745	0.4142	0.7210	0.5591	0.3832
SVR	1.2218	2.8600	8.2159	0.7951	0.8463	0.6050	0.5177	0.4539	0.3227
ARIMA	1.0607	2.2094	5.4988	0.5380	0.4555	0.2480	0.5925	0.3848	0.2138
XGBoost	1.0670	2.1769	5.4163	0.5108	0.4371	0.2403	0.5852	0.3662	0.2053
MLP	1.1328	2.3367	6.1637	0.5758	0.4934	0.2772	0.6142	0.4103	0.2389
DMVST-Net	1.0189	2.1676	5.5287	0.4540	0.4254	0.2384	0.5091	0.3511	0.2074
M ² -CNN	1.0166	2.0740	5.1228	0.4487	0.4139	0.2273	0.5084	0.3426	0.1957

FIG. 6

	RMSE			MAPE			SMAPE		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
HA	572.8%	412.2%	198.1%	540.0%	659.6%	1555.1%	95.0%	221.4%	410.3%
LR	136.8%	120.0%	38.6%	129.7%	135.4%	82.2%	41.8%	63.2%	95.8%
SVR	20.2%	37.9%	60.4%	77.2%	104.5%	166.2%	1.8%	32.5%	64.9%
ARIMA	4.3%	6.5%	7.3%	19.9%	10.1%	9.1%	16.5%	12.3%	9.2%
XGBoost	5.0%	5.0%	5.7%	13.8%	5.6%	5.7%	15.1%	6.9%	4.9%
MLP	11.4%	12.7%	20.3%	28.3%	19.2%	22.0%	20.8%	19.8%	22.1%
DMVST-Net	0.2%	4.5%	7.9%	1.2%	2.8%	4.9%	0.1%	2.5%	6.0%

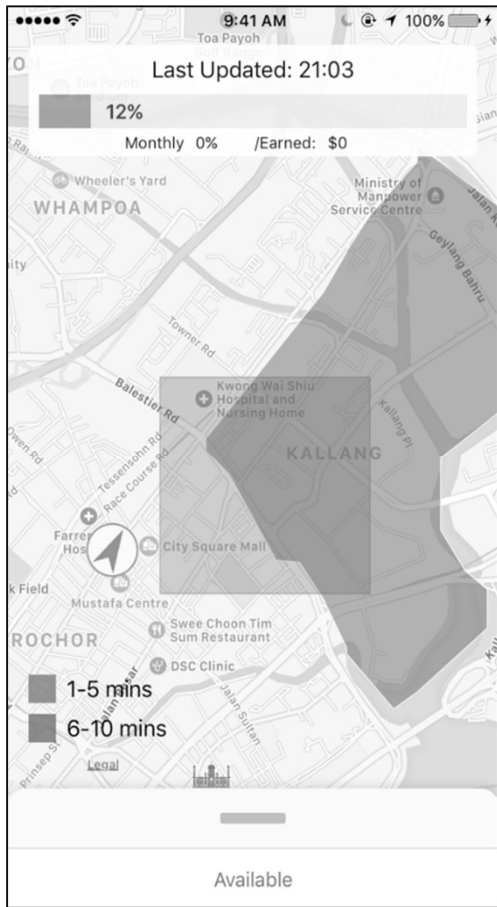
FIG. 7

Approach	Vacant Roaming Time per Trip (in minutes)						
	mean	std	min	25.00%	50.00%	75.00%	max
DMVST-NET	26.3	20.2	0.9	10.6	19.9	36.8	88.3
M ² CNN	23.8	16.9	0.9	10.3	19.0	33.8	71.1
Gap (%)	9.4%	16.2%	-0.3%	2.8%	4.8%	8.0%	19.4%

FIG. 8

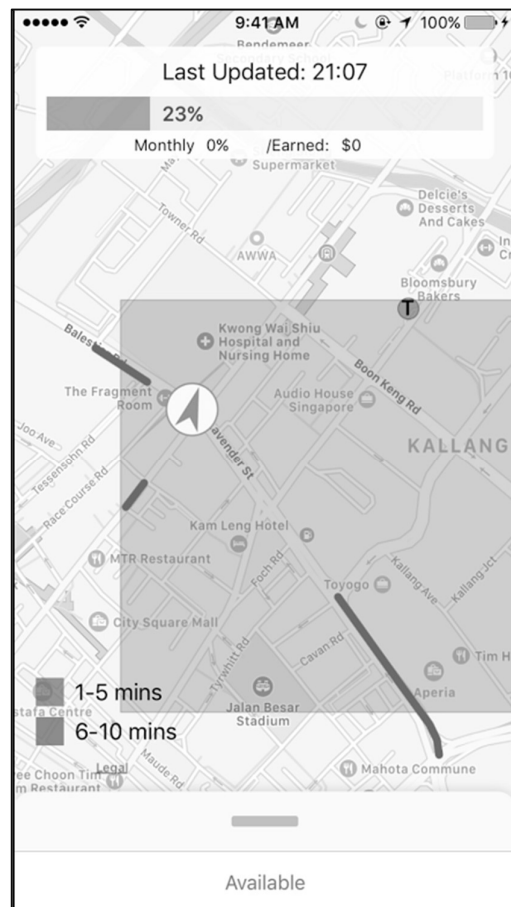
Model Variant	RMSE			MAPE			SMAPE		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
3D-CNN	1.1131	2.1445	4.6725	0.506	0.3501	0.2243	0.4838	0.4299	0.2628
3D-CNN+LSTM-TCN	1.1327	2.1742	4.6967	0.5104	0.3537	0.2284	0.4841	0.4354	0.2727
3D-CNN+Micro	1.111	2.1363	4.5756	0.4951	0.348	0.2233	0.4833	0.4273	0.2647
M ² -CNN	1.1021	2.1319	4.5554	0.4849	0.3477	0.2227	0.4817	0.4252	0.2623

FIG. 9



DGS displaying adjacent zone-region level demands to driver's current location when driver is far away

ZONE-REGION LEVEL



DGS displaying adjacent region- street level demands to driver's current location when driver is nearby

REGION-STREET LEVEL

FIG. 10