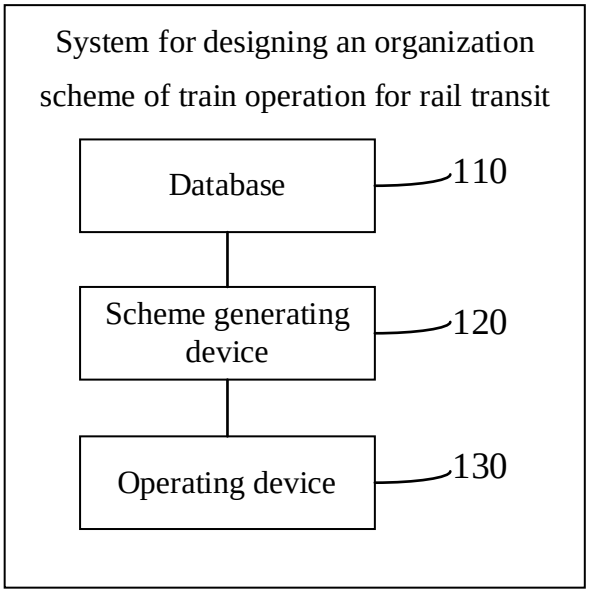
System for designing an organization scheme of train operation for rail transit
Database
110
Scheme generating device
120
Operating device
130

FIG. 1

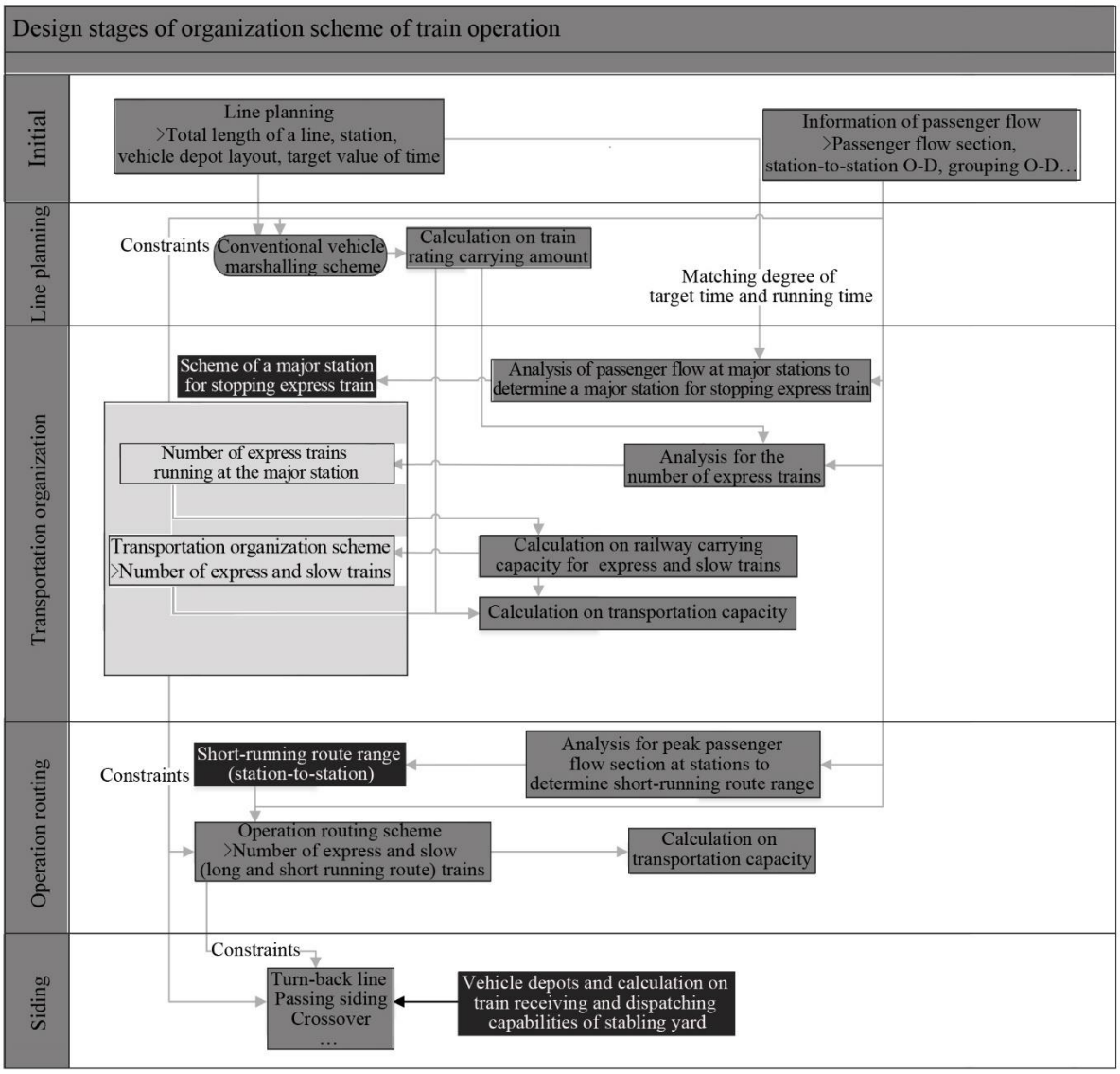
Design stages of organization scheme of train operation
Initial
Line planning
Transportation organization
Operation routing
Siding
Line planning
>Total length of a line, station, vehicle depot layout, target value of time
Information of passenger flow
>Passenger flow section, station-to-station O-D, grouping O-D…
Constraints
Conventional vehicle marshalling scheme
Calculation on train rating carrying amount
Matching degree of target time and running time
Scheme of a major station for stopping express train
Analysis of passenger flow at major stations to determine a major station for stopping express train
Number of express trains running at the major station
Analysis for the number of express trains
Transportation organization scheme
>Number of express and slow trains
Calculation on railway carrying capacity for express and slow trains
Calculation on transportation capacity
Constraints
Short-running route range (station-to-station)
Analysis for peak passenger flow section at stations to determine short-running route range
Operation routing scheme
>Number of express and slow (long and short running route) trains
Calculation on transportation capacity
Constraints
Turn-back line
Passing siding
Crossover
…
Vehicle depots and calculation on train receiving and dispatching capabilities of stabling yard

FIG. 2

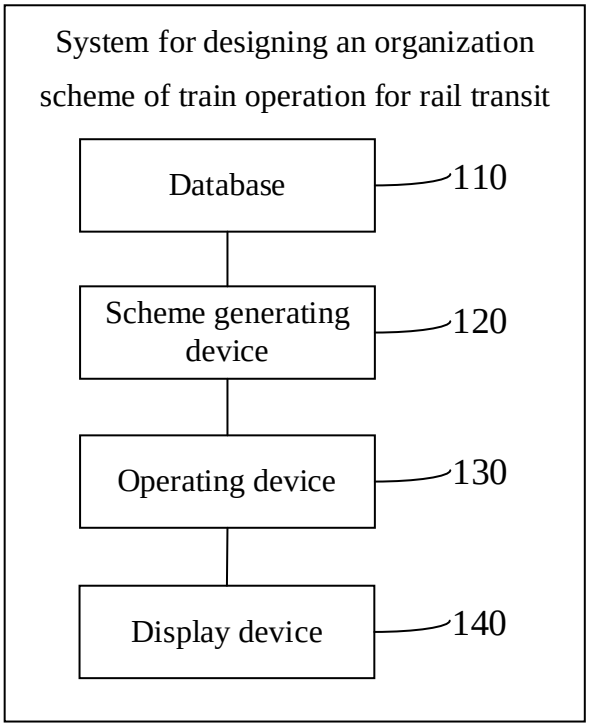
System for designing an organization scheme of train operation for rail transit
Database
110
Scheme generating device
120
Operating device
130
Display device
140

FIG. 3

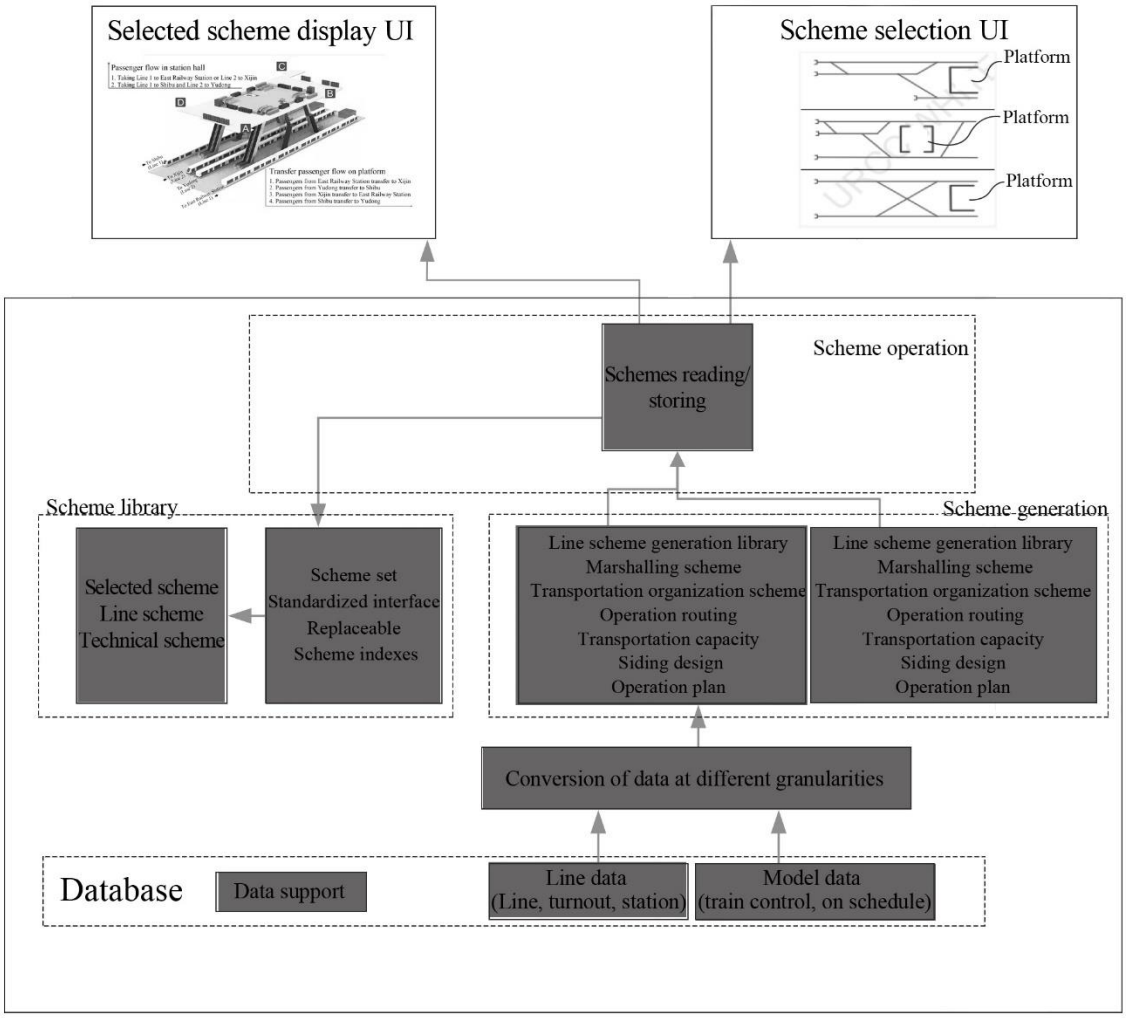
Selected scheme display UI
Scheme selection UI
Platform
Platform
Platform
Scheme operation
Schemes reading/ storing
Scheme library
Scheme generation
Selected scheme
Line scheme
Technical scheme
Scheme set
Standardized interface
Replaceable
Scheme indexes
Line scheme generation library
Marshalling scheme
Transportation organization scheme
Operation routing
Transportation capacity
Siding design
Operation plan
Line scheme generation library
Marshalling scheme
Transportation organization scheme
Operation routing
Transportation capacity
Siding design
Operation plan
Conversion of data at different granularities
Database
Data support
Line data
(Line, turnout, station)
Model data
(train control, on schedule)

FIG. 4

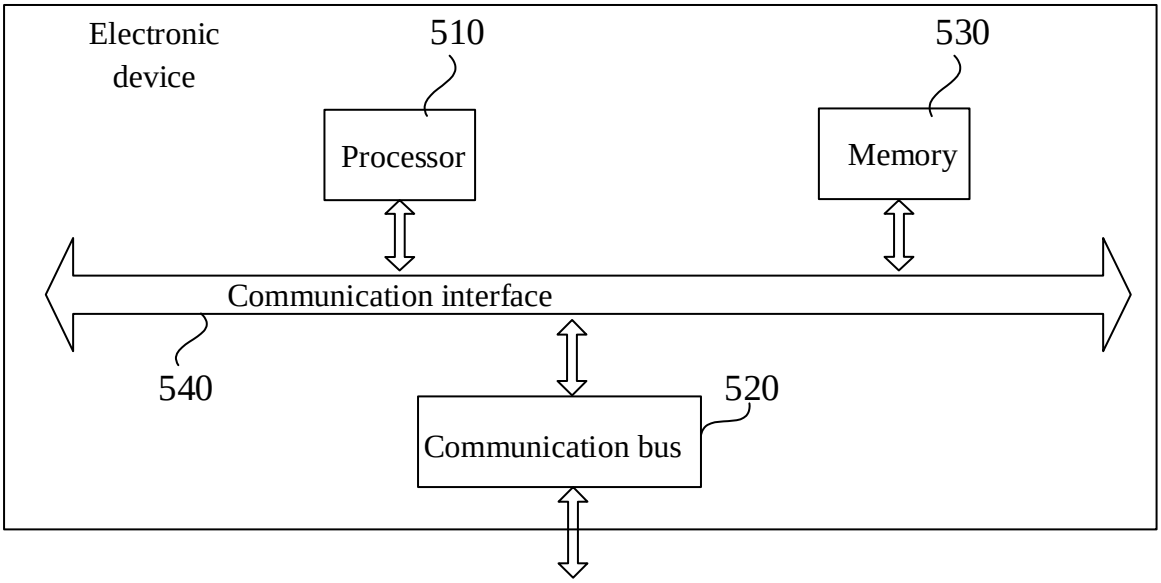
Electronic device
510
530
Processor
Memory
Communication interface
540
520
Communication bus

FIG. 5