|  |  |
| --- | --- |
| **Variables** | |
|  | Time windows of order i |
|  | Travel time for truck |
|  | Travel time for drone |
|  | Route for truck |
|  | Route for drone |
|  | Time when truck arrives j |
|  | Time when drone arrives j |
|  | Truck wait time at j |
|  | Drone wait time at j |
|  | Customer location of order |
| **Parameters** | |
|  | Sufficiently big number |
| **Sets** | |
|  | Order node (restaurant and customers) |
|  | +start node(0) and end node(e) |
|  | Customers’ nodes |
|  | + start node(0) and end node(e) |
|  | Drone launch node set for restaurant node i |
|  | Order supply node set for drone bring restaurant order of node i |
|  | Landing node set for drone supply restaurant order i to truck at node j. |

Object:

The drone routing constraints

Truck routing constraints

Synchronization & Time Constraints

Pickup & delivery constraints