Drones in the sky of Tel Aviv

In Tel Aviv, it is planned to operate for the first time a taxi service of drone for human-sized.

The service allows to the drone to take off vertically up to a certain height and then move in a straight line while maintaining the height to the destination and where to land vertically.

It was decided to conduct the following simulation:

20 drones are participating in the service.
15 different heights are assigned.
It is forbidden for two drones to be at the same height at the same time.
Drones move at a horizontal and vertical speed of 60 km / h on average.

For a drone that has landed on the ground, someone arrives for a ride within a random time of between one minute to fifteen minutes from the moment of fatling - and travels in a flight for a random distance of between one and five kilometers.
At the beginning of the simulation all the drones are on the ground (also at the beginning of the simulation for each drone arrive person at random time between one minute to fifteen minutes and takes a flight at a random distance between one and five km - just as happens below).

A central control system manages the 15 heights. Any drone that wants to take off should ask permission and get the altitude at which height he will fly. If there is no free height - he will wait a minute and ask again.

You must write a simulation program for 4 hours.
The simulator will simulate the situation on the ground and the events. Every time an event happens it should be printed.

Example of events:
• Time: Drone number X landed.
• Time: A person reached to drone number X.
• Time: Drone number X asked for a permit to take off and received a permit + height.
• Time: Drone number X requested a take-off permit and did not receive a permit.

<u>Guidance for implementation:</u>

Each drone will have a STATE - a small data structure that holds information such as:
·   Is the drone in the air or on the ground?
·   Time left until landing (if drone in the air)
·   Time left until someone reaches the drone (if drone on the ground)

In addition, a ticker variable must be initialized to a value of 0 and increased in each cycle from 1 to 240. This variable actually represents the number of minutes that have elapsed from the moment the simulation begins.
In each cycle, the new STATE of each drone must be calculated - if necessary, a random number must be raffled (for example, for the time until someone arrives at the drone on the ground).
The time it takes for the drone to reach its destination can be rounded to multiples of one minute for simplicity.