FSM

```
            (Player detected)
  Patrol --------------------------------> Alert
    ^                                  |
    |  (Search time over)              |    (Confirm player visible)
    |                                  v
  Search<----------------------------- Chase
           (Lose sight of player)
```
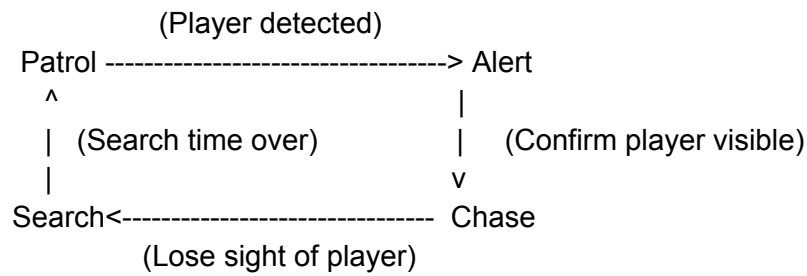
Patrol :

Behavior:

- Enemy walks between predefined waypoints

- Normal walking speed

- Idle animation between points (optional)

Navmesh :

Yes it moves between patrol points using NavMeshAgent

Transition :

- ➔ **Alert** when :
  `Player enters detection radius`

Alerts :

Behavior:

- **The enemy stops moving**

- **Faces player direction**

- **Plays alert animation (or short delay 1–2 sec)**

Navmesh :

 For The Alert No movement (agent stopped)

Transition:

- ➜ **Chase** when :
  ```
  Player still visible after alert delay
  ```

- ➜ **Patrol** when :
  ```
  Player leaves detection radius
  ```

CHASE :

Behavior:

- The enemy runs toward the player.

- Faster speed.

- Continuously updates player position.

NavMesh

For Chase yes SetDestination(player.position)

Transition:

- ➜ **Search** when:
  ```
  Player not visible for X seconds
  ```

- ➜ **Attack (optional extra state)** when:
  ```
  Distance < attack range
  ```

SEARCH :

Behavior :

- Enemy moves to the last known player position

- Look around (rotate left/right)

- Search lasts for a limited time (e.g 5 seconds)

NavMesh :

For the search, yes he moved to the last known player location.

Transition :

- ➜ **Patrol** when:
  ```
  Search timer expires
  ```

- ➜ **Chase** when:
  ```
  Player detected again
  ```

NavMesh is used in :

- Patrol → Move between waypoints

- Chase → Move toward player

- Search → Move to last known position

NavMesh ensures :

- Logical pathfinding

- Avoids obstacles

- Smooth movement

- No walking through walls

How Player Can Escape

The player can escape by :

1. Breaking line of sight (hide behind wall/cover)

2. Leaving detection radius

3. Running faster than enemy speed

4. Staying hidden until search timer ends

Once:

- Player not visible

- Chase timer expires

Enemy switches → **Search**
 If still not found → **Patrol**

This makes behavior:

- Fair

- Predictable

- Player-friendly

- Not overpowered