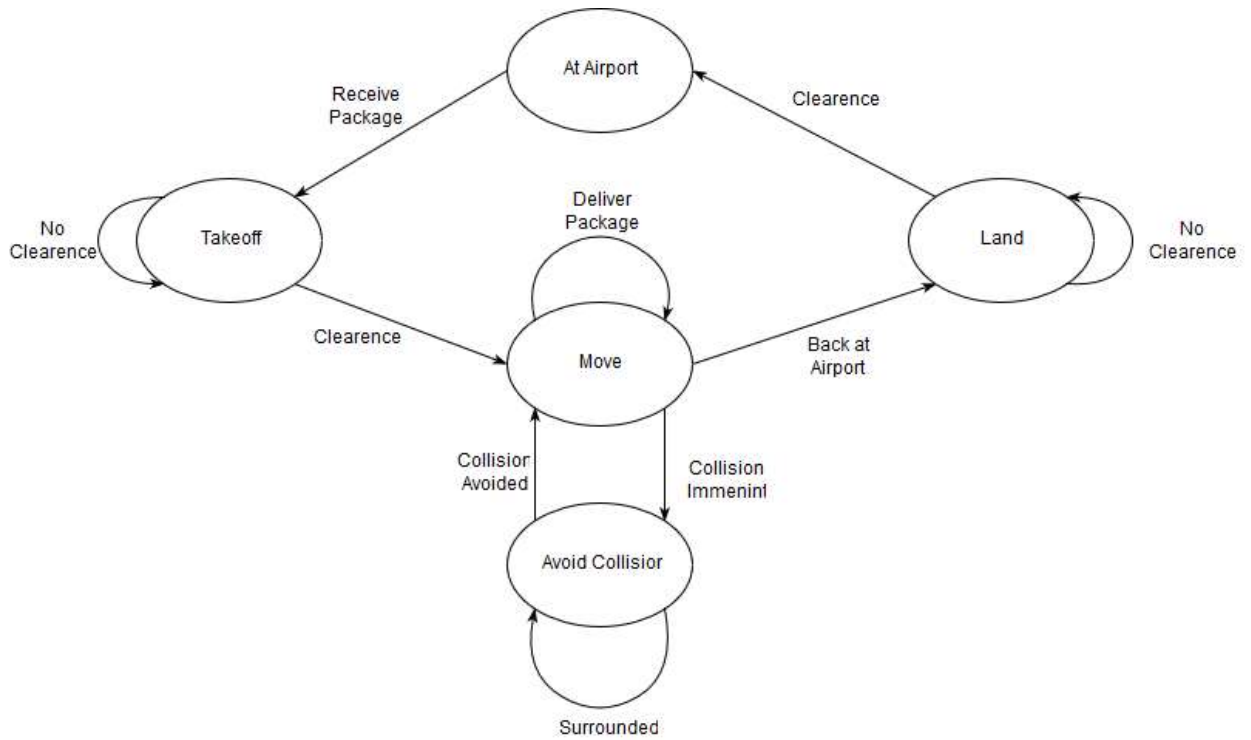# Design Document – Lab 1

Jared Brown

Drone FSM

Class Diagram

main

+ numDrones: int

+ size: int

+ threadReturn: int

+ drones: pthread_t [ ]

+ map: pthread_t

+ mapRate: struct timespec

+ launchRate: struct timespec

+ droneCreate(void*): void*

+ printMap(void*): void*

+ main(): int

1

Calls Drone(long)

1   Calls printMap() and createWorld(int

10

1

Drone

+ getID() : int

+ Drone(long) : constructor

+ getPos() : pair<int,int>

- path: queue<pair<int,int>>

- returnPath: stack<pair<int,int>>

- curX: int

- curY: int

- nextX: int

- nextY: int

- move(): void

- takeoff(): void

- avoidCollision(bool,bool): void

- droneID: long

- waitTime: struct timespec

1   1

Calls placeDrone(int,int,Drone*
generatePath(long) and
land()

World

+ land(): static void

+ createWorld(int): static void

+ printMap(): static void

+ generatePath(long): static queue<pair<int,int>>

+ placeDrone(int,int,Drone*): static int

+ numDronesLanded: static int

- mapSize: int

- world: static map<int,vector<string>>

- mWorld: static map<int,vector<pthread_mutex_t>>

- World(): constructor