TEAM TELLIX

NANYANG POLYTECHNIC CATEGORY E

NANYANG THE INNOVATIVE POLYTECHNIC

OUR TEAM

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THE MISSION

Programming a fully automated control system, either centralised or decentralised, for a fleet of 10 to 25 drones with capabilities for localizing, sensing obstacles, and avoiding obstacles.

TELLO EDU

WEIGHT: 80g

DIMENSIONS: 98x92.5x41mm

CHOICE OF SENSOR:

IR sensors - XYZ axis
TOF sensor - Detect mission pad
Camera - Detect color paper

SWARM AUTONOMY & FLIGHT CONTROL STRATEGY:

Tello swarm autonomously search for victims in groups using coloured papers and mission pads without external input.

MODIFICATION TO COTS:

Thermal paste, External LED, Camera mounted downward with 3D-printed support brackets, Removed propeller gaurds.

METHOD OF COMMUNICATION AND SWARM CONTROL:

From the laptop through the router to the drone while using routers to control a group of Tello drones.

LOCALISATION:

Bonus room - Colored papers
Side rooms - Mission pads

OBSTACLE AND COLLISION AVOIDANCE:

Mission pads informs the Tello of obstacles and guide it to avoid collisions.

STRATEGY

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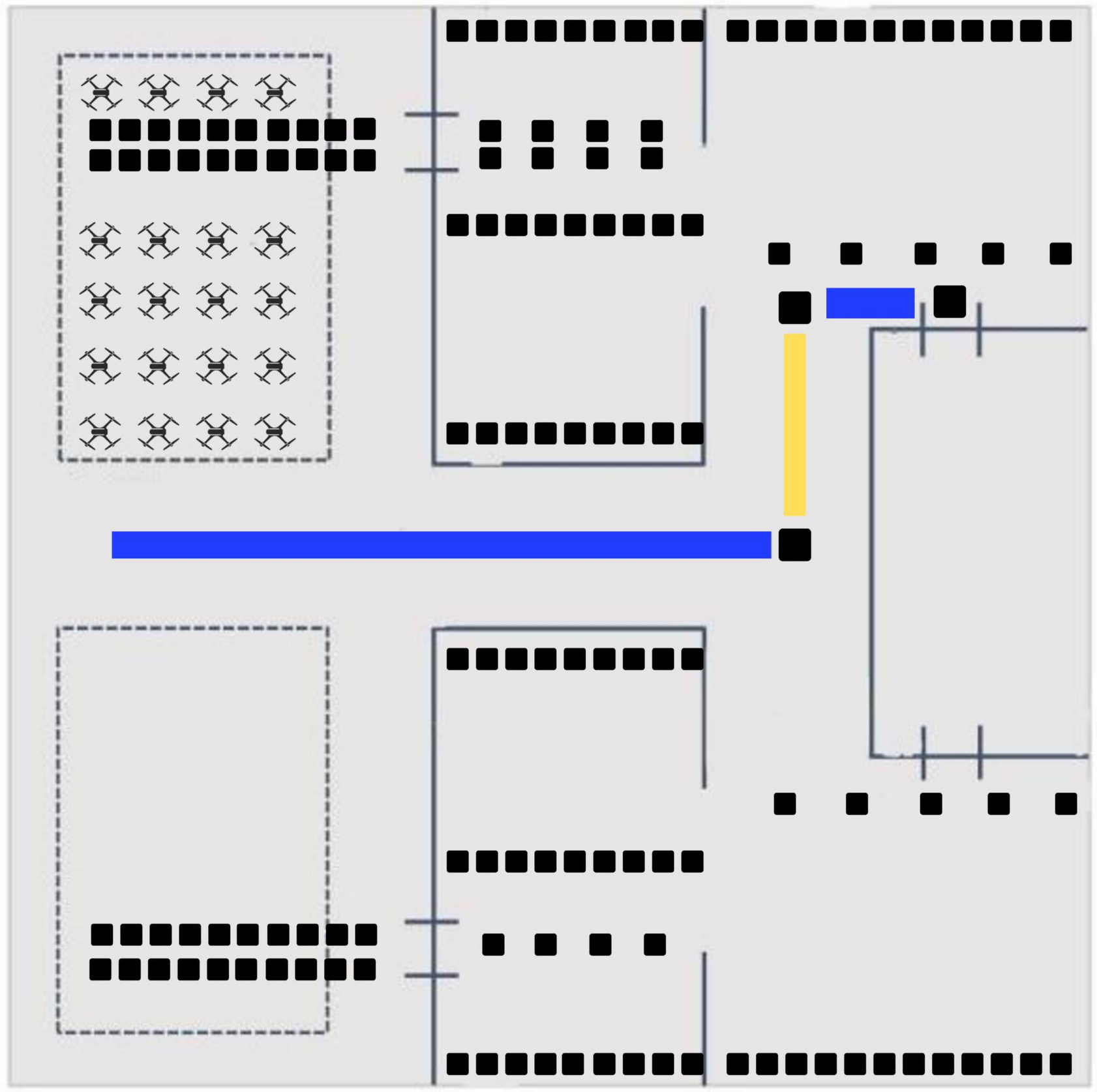
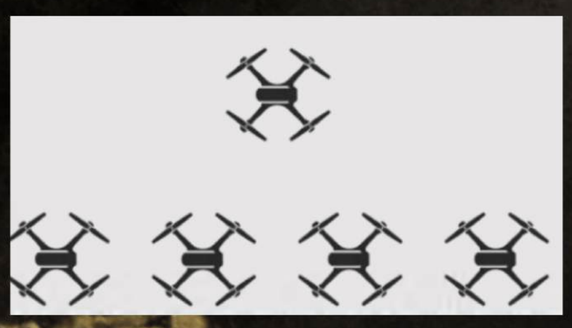


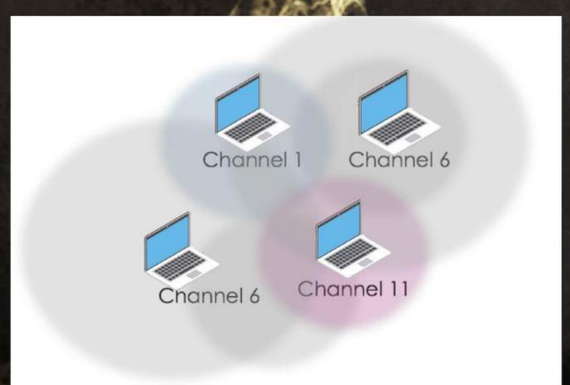
Legend:

- Colour line follower
- Colour line follower
- Drone
- Mission Pad

EXPERIMENTED STRATEGIES AND IDEAS:

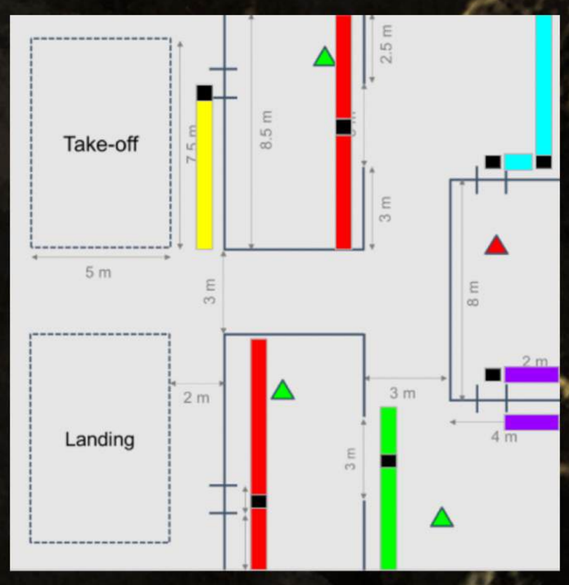
1 Leader
4 Followers

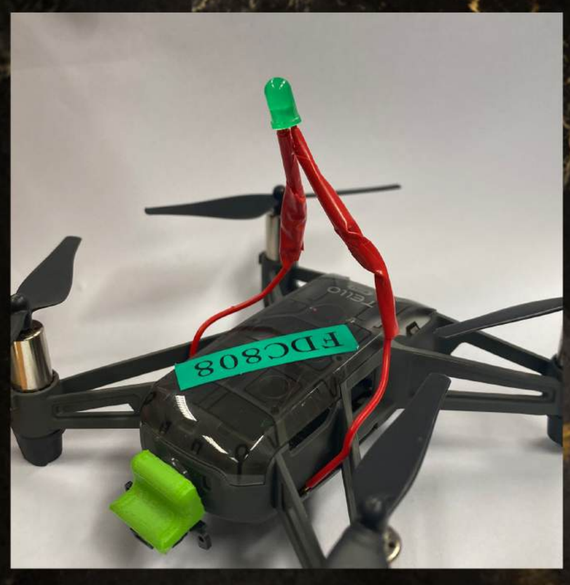




1 Laptop = 1 Drone

Color line (whole arena)





Soldered LED's directly to the Tello's motherboard