The team challenge video (V)
scores provide a proof

1)Flight- worthiness

●Aircraft must be shown to perform stable, sustained flight (**Completed**)

●Video of the swarm taking off simultaneously

2)Mission-readiness

●Demonstrate that swarm is shown to be able to fulfill mission requirements. 21

●Explain the on-board sensor suite for each unique drone used in the challenge

~~●The swarm must be shown to avoid static obstacles~~

~~●The swarm must be shown to search a room containing at least TWO (2) victims, and land next to them when detected~~

3)Creativity

●Resourcefulness in re-creating competition layout to showcase similar mission requirements.

Max:10 mins

The submitted video should adhere to the following guidelines:

1)Animations are NOT allowed.

2)Computer-aided simulations are NOT allowed.

3)Video must NOT be produced by a professional, or with professional assistance.

4)No offensive images or audio.

5)Narration and/or subtitles are allowed.

6)All videos must be original work conceived and created by the Participants. No copyright materials (images, music, etc.) may be used in the video unless the participants own the copyright or have a license to use the material in the video.

7)If the participants have gained formal permission to use any copyright materials (images, music, etc.) under terms and conditions stipulated by the copyright owners, acknowledgements/credits must be included at the end of the video.

8)The use of logos including known commercial brands, institutional crests or trademarks, unless integral to the project, is not allowed.

9)Ownership of the underlying intellectual property of the video remains with the participant(s) of the individual/team project, with the following exception:

a.Participant(s) grant the organizer the right to use, distribute and display their videos without further compensation nor notification to the participant(s).

23b.Participant(s) grant the organizer the right to use their images and videos for publicity and advertising without further compensation or notification to the participant(s).

For recording on 1 march 2023 (Today) - Record shots using multiple iphones

Opening shot: n

1. Motion blur transition (horizontal, vertical)
2. Wall/ obstacle transition (horizontal, vertical)
3. Immediate appear from empty area (from empty playing area to all drones organized in playing area)

Swarm shot:

1. Open the video with a shot of all 10 drones stationary on the ground. The 10 drones will take off all at once as a swarm (2 shots required, front and back)
2. One drone will move aside from the swarm and while it's hovering. There will be a shot of someone poking the hovering drone with a stick (Gently poke the drone to prove stability)
3. The swarm will be moved near a curved wall. One of the drones will move towards the wall then move right towards the function room back door. The drone will move forward through the door (avoid obstacles)
4. Victims shot (transition/cut/overhead):
    a. The swarm will be moved outside the dotted line room, 5 of the drones will move forward into the room and will move accordingly to its designated location (coordinated movement inside room)
    b. Victims will be placed inside the dotted line room. The drone will move towards the placed victim marker inside the room. (victim search)
5. The drone will land on the phone's back camera (end shot)

For recording on 2 march 2023 (Thursday) - Record shots using Irshaad's Drone

1. Static object avoidance

    (move near a wall and move away from the wall)

    2 drones min, do 1 by 1

2. The drone will take off with the swarm and then it will fly diagonally above for a overhead shot

    Track the drones(sort of)

Script for the voiceover:

Hi guys, we are from NYP, and we are here to give you a brief introduction about Tello Sensors.

The first set would be the IR sensors. The left is TX and the right is RX. This IR sensors shoots a light to the object or ground and back. The time taken for the light to receive back would estimate the distance between the sensor and the ground.

The second set would be the Camera. The top would be the bottom camera and the bottom would be the front camera. The front camera was flipped to about 90 degrees downwards to see the ground more clearly. It was done due to our strategy and also because we have issues with accessing the bottom camera

Skeleton of poster

Red highlight = will not be in poster but in speech

What we have:

- 4 pages of A1

What info needed:

- Main titles:
  - Journey & Failed Strats
  - Aerial platform / Prototype display & Current Strategy

Aerial platform / Prototype display (Velcro one)

- Specs of Tello:
  - Motors
  - Propeller
  - Battery
  - Motherboard

- Prototype:
  - Tello LED(Original LED and AMK hub LED and Jeryls LED)
  - 3D printed
  - Solder Wire
  - Tello With guards
  - Tello Without guards
  - Tello with camera
  - Tello with camera and LED

- Use tello EDU cuz we hv the spare parts of the drone to
  - maintain/repair
  - have exp on the drone
  - Beginner friendly

- Tell how the Tello communicate to the router and laptop
- How we control it
- Basics concepts of the sensors used and how the code works
- **Explanation of flight control strategy**
- **Explanation of swarm autonomy strategy**

Strategy

- Basics concepts of the sensors used and how the code works
- **Choice of sensor suite used to tackle the mission**
- **Obstacle and collision avoidance method**
    - **Mission pads on side of walls to indicate the parameter of the room**
- **Localisation method**
    - **We are using the camera sensor under the Tello to scan the mission pads (uses gray scale and measure the distance between 2 circles)**
- **Search strategy**
- **Method of communication between drones and ground control station (GCS)**
    - **Send packets of data from laptop to router, router to Tello and vice versa.**
- **Any other algorithms used in completion of the mission**
    - **(nothing)**
- **Teams are also encouraged to utilize and present unique concepts, which may include:**
- **Robust and intelligent methods of swarm control**
    - **(nothing)**
- **Effective utilization of different kinds of drones in the swarm**
- **Non-conventional ideas and methods to complete the mission**
    - **Separating the arena into multiple sectors**
    - **Go thru the whole arena once**
- **Methods to reduce time taken to complete the mission**
    - **Split into 3 groups of drones**
    - **Set speed**
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- **3) Content**
    - **● Information presented is relevant to the flying machine and the team's**
- **project progress**
    - **● Team is able to explain the rationale behind design choices and major**
- **decision**
    - **● Team is able to express what they have learnt through the process and**
- **their learning journey**
- **4) Teamwork**
    - **● Presentation should highlight the work of all the team members, and how**
        - **they have contributed and cooperated to the team**