Letter of Collaboration

Date: 21 September 2025

**To:** NTSU Aviation

**From:** VIR-Group 2 **Institution:** Belgium Campus **Project: NLP Powered Drone**

Dear NTSU Aviation Team,

We are writing to formally introduce our university project and request your collaboration as previously discussed.

## **Project Overview**

Our group, VIR-Group 2 from Belgium Campus, is developing an innovative NLP Powered Drone system. The project enables natural language commands such as "go to the chair," whereupon our system:

* Processes the video feed to identify and locate the target object
* Calculates distance and movement parameters
* Directs the drone to the specified location
* Provides real-time video feedback with spatial information through MR/VR interfaces

## **Current Limitations**

Our university has provided a DJI Tello Drone for development. While functional, this basic model presents significant limitations:

* Fixed camera positioning
* No built-in spatial awareness capabilities
* Absence of ROS2 integration
* Limited SLAM functionality

These constraints require us to develop complex software-based SLAM systems using video feed analysis alone, which significantly impacts project scope and accuracy.

## **Collaboration Proposal**

We respectfully request collaboration with NTSU Aviation to enhance our project through access to Enterprise Grade DJI drones. These advanced systems offer:

* Native ROS2 compatibility
* Built-in SLAM capabilities
* Enhanced spatial awareness
* Superior location data extraction
* Improved overall system reliability

## **Meeting Arrangement**

We plan to visit your facilities in the coming week, pending confirmation, to discuss:

* Available drone models and specifications
* Potential sponsorship opportunities
* Technical capabilities alignment with our project requirements
* Collaboration framework and timeline

## **Conclusion**

This collaboration would significantly advance our research capabilities while providing NTSU Aviation with insights into cutting-edge NLP drone applications. We look forward to exploring this mutually beneficial partnership.

Thank you for your consideration and support of our academic endeavour.

Sincerely,

VIR-Group 2, Belgium Campus

For any inquiries **Contact Information:**

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* Project Lead: Hayley Treutens (071 264 2729)