TOHOKU UAV TECH.
ACTIVITY REPORT

AKITO IKUSHIMA (B3), TAKUMI FURUSAWA (B3)

Organization Overview

Foundation : Sep.2021

Objectives : ・Win the indoor flying robot contest

・Understand the mechanism of flying through making flying robots

Members : 12 members

(M1×2, B3×3, B2×1, B1×6)

PREVIOUS ACTIVITIES

In 2022

We Had 2 Teams in the general division

→ Resulted in 1ST and 2ND place

Goals for 2023

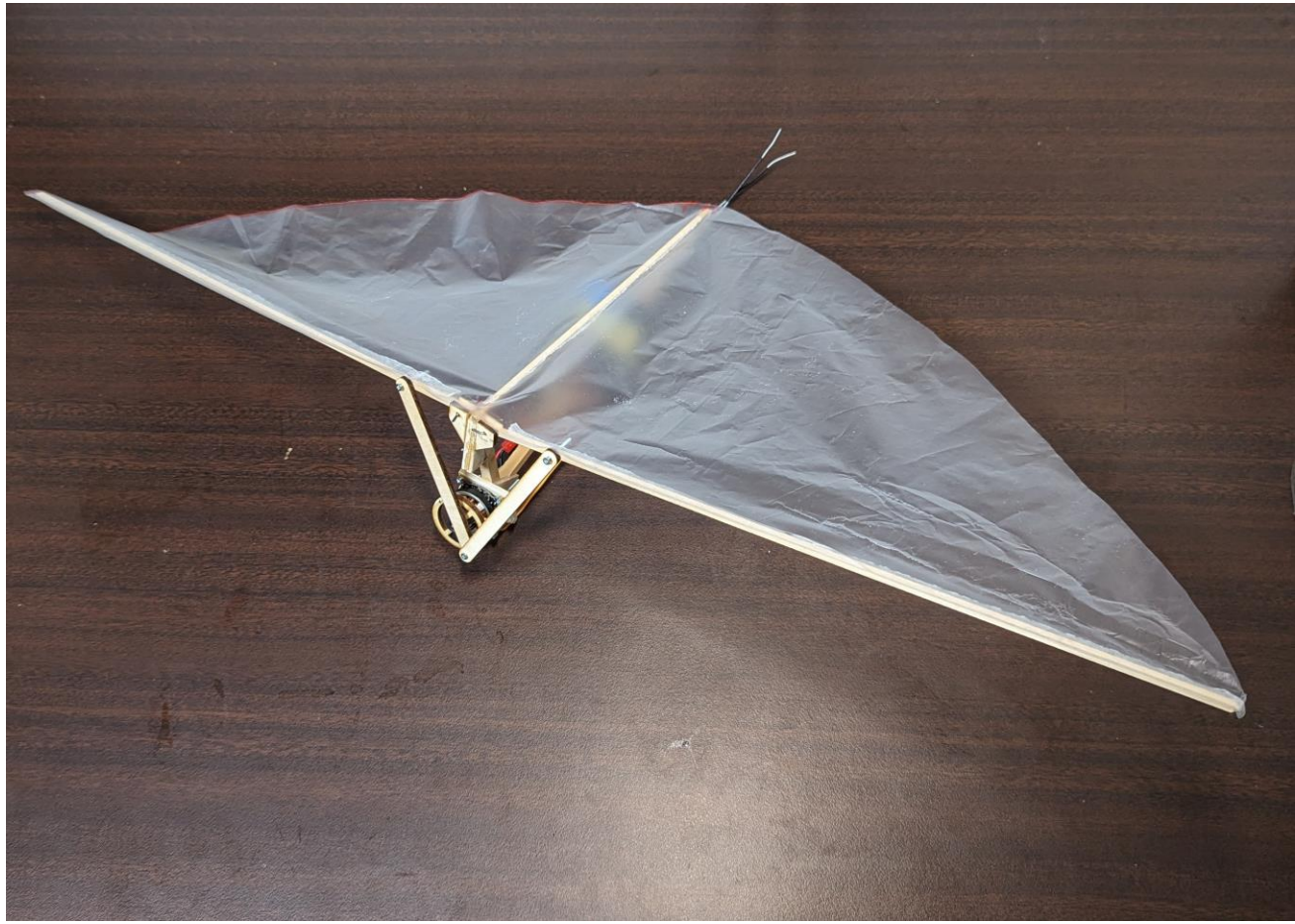
- Participate in unique design division
- Win the general division again

UNIQUE DESIGN DIVISION (ORNITHOPTER)

We decided to make an ornithopter
But...We finally couldn’t

Problems

- Not enough torque
- Weight saving



GENERAL DIVISION

participated in general division

B1 × 2 B2 × 1

Concept

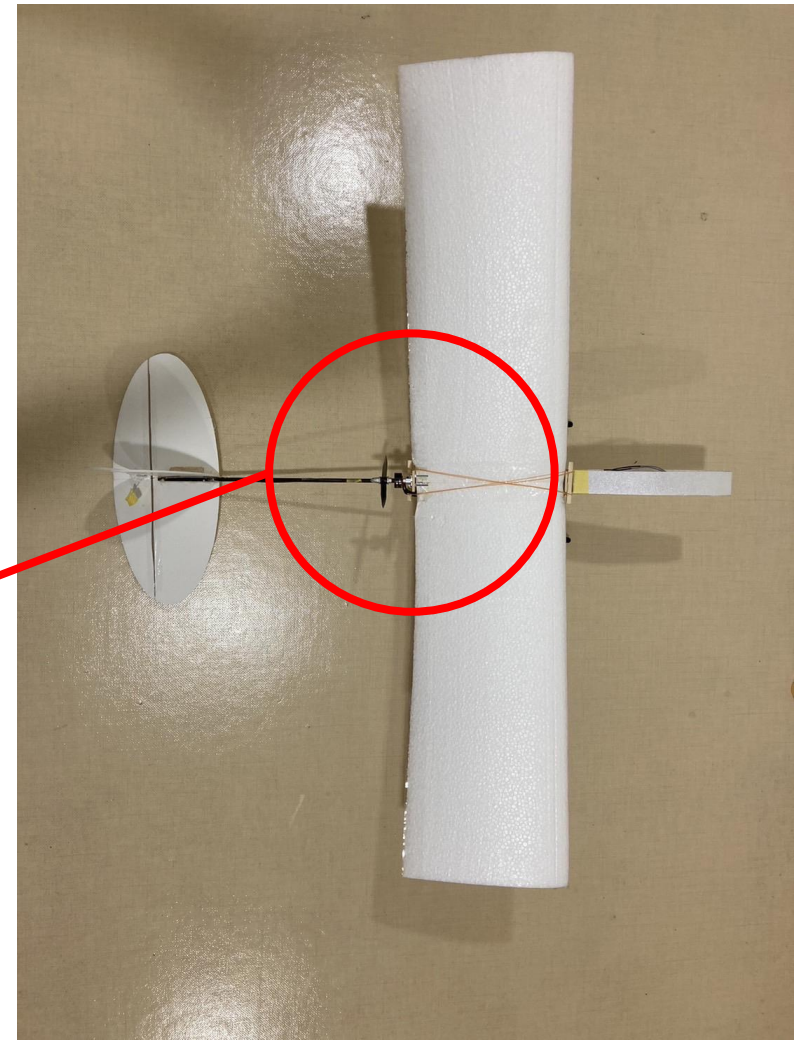
Easy to repair

→Simple and strong structure

Pusher configuration

Easy to control

→Large wing area for low-speed flight



GENERAL DIVISION

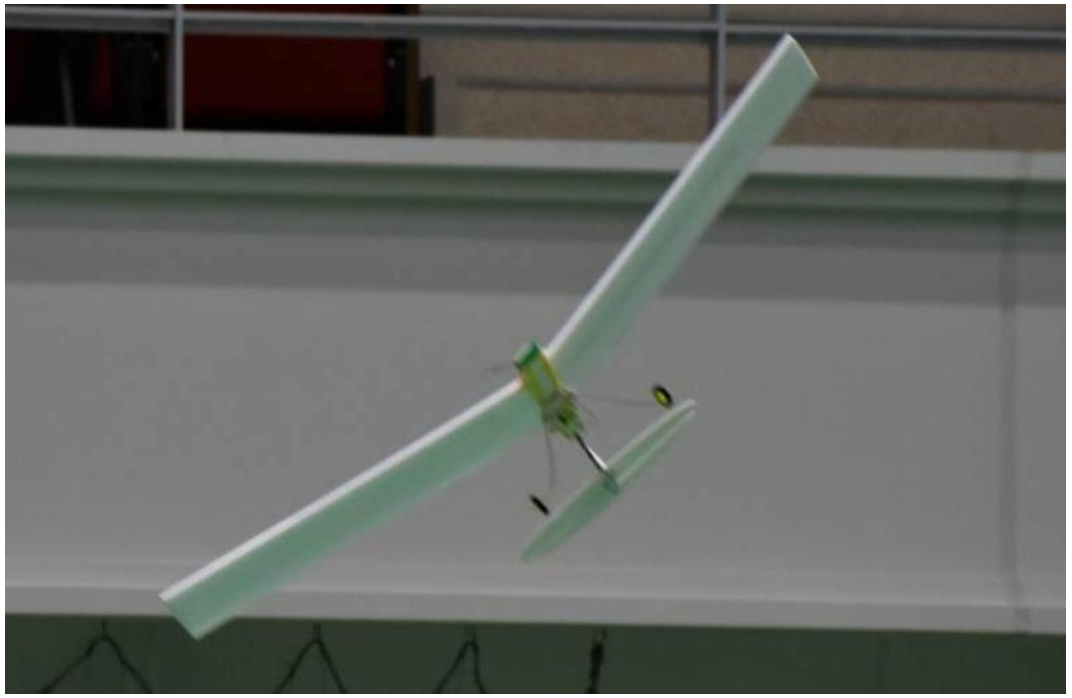
Result

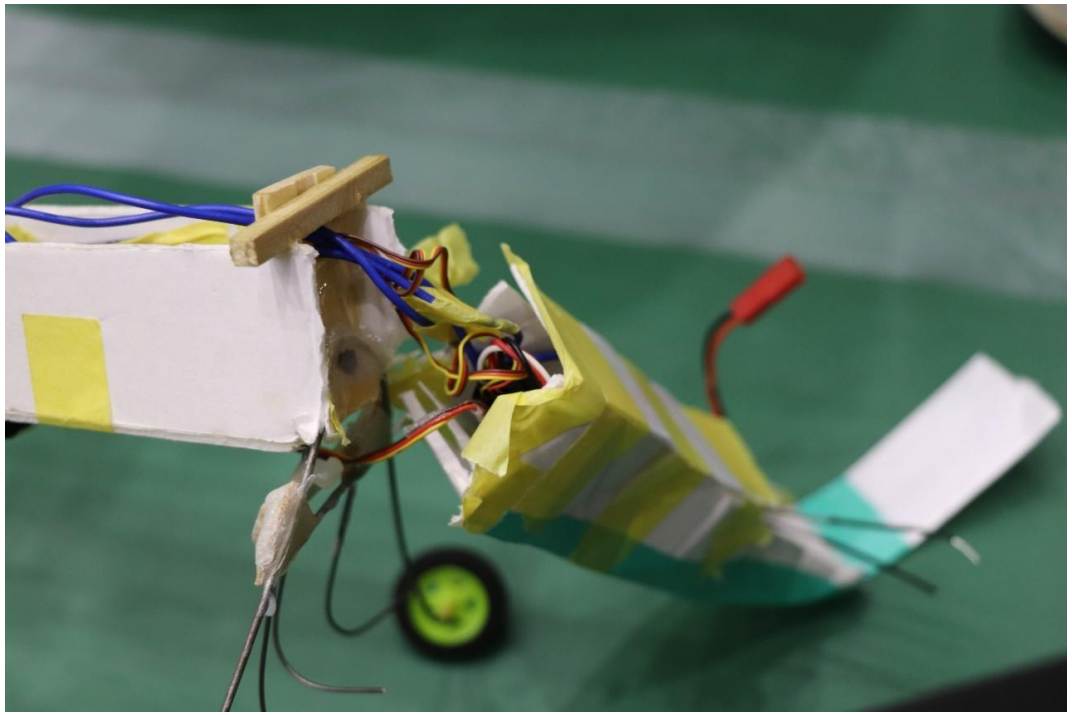
- Passed the qualifying round
- Crashed in the final round → Retired

Causes

- Pilot error
- Insufficient handover from last year

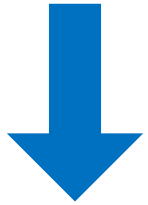
  (A little heavier and not good aerodynamics)





POINTS OF IMPROVEMENT

- Pilot error
- Insufficient handover from last year



Lack of comprehensive knowledge

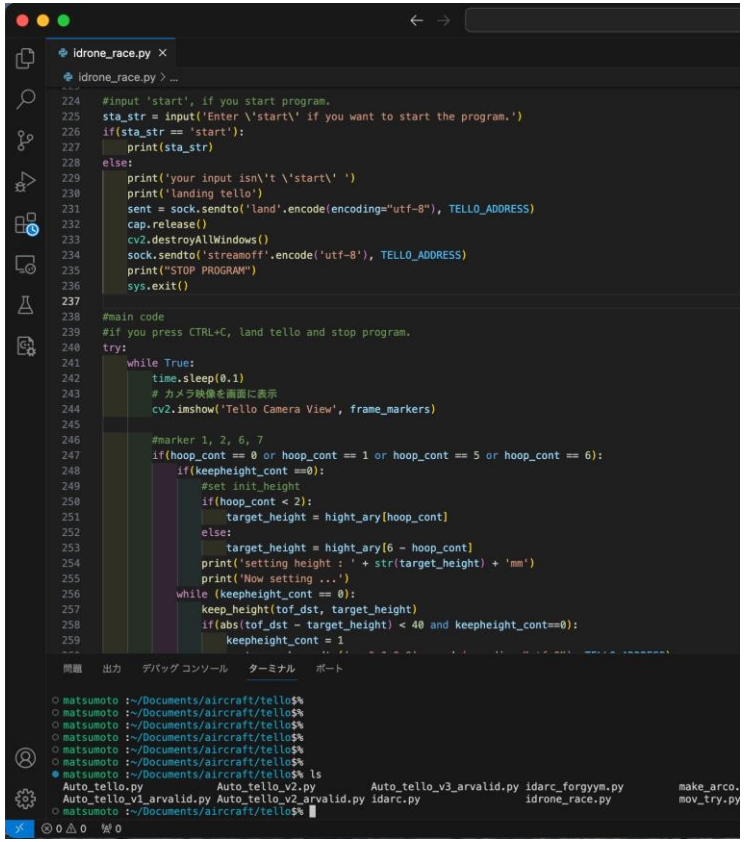
Acquire comprehensive knowledge through daily activities

CURRENT ACTIVITIES

Participated in a drone pre-competition on

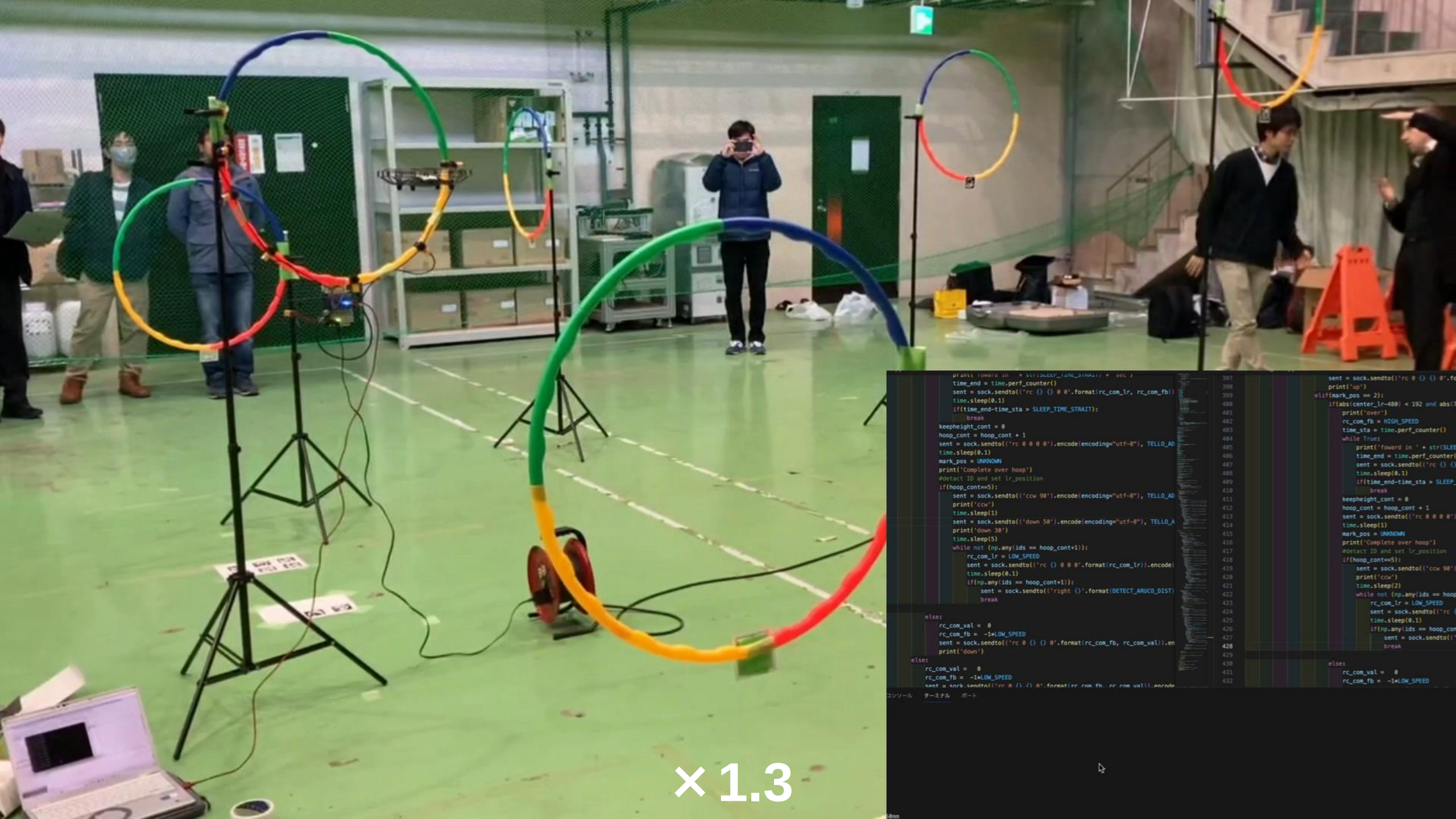
December 9, 2023

- Use DJI Tello EDU
- Make Programs for missions on AP



Program Code

DJI Tello EDU


time_end = time.perf_counter()
sent = sock.sendto(('rc {} {} 0 0'.format(rc_com_lr, rc_com_fb)).encode(encoding="utf-8"), TELLO_AD
time.sleep(0.1)
if(time_end-time_sta > SLEEP_TIME_STRAIT):
break
keepheight_cont = 0
hoop_cont = hoop_cont + 1
sent = sock.sendto(('rc 0 0 0 0').encode(encoding="utf-8"), TELLO_AD
time.sleep(0.1)
mark_pos = UNKNOWN
print('Complete over hoop')
#detact ID and set lr_position
if(hoop_cont==5):
sent = sock.sendto(('ccw 90').encode(encoding="utf-8"), TELLO_AD
print('ccw')
time.sleep(1)
sent = sock.sendto(('down 50').encode(encoding="utf-8"), TELLO_A
print('down 30')
time.sleep(5)
while not (np.any(ids == hoop_cont+1)):
rc_com_lr = LOW_SPEED
sent = sock.sendto(('rc {} 0 0 0'.format(rc_com_lr)).encode(
time.sleep(0.1)
if(np.any(ids == hoop_cont+1)):
sent = sock.sendto(('right {}'.format(DETECT_ARUCO_DIST)
break
else:
rc_com_val = 0
rc_com_fb = -1*LOW_SPEED
sent = sock.sendto(('rc 0 {} {} 0'.format(rc_com_fb, rc_com_val)).en
print('down')
else:
rc_com_val = 0
rc_com_fb = -1*LOW_SPEED
sent = sock.sendto(('rc 0 {} {} 0'.format(rc_com_fb, rc_com_val)).encode
print('up')
elif(mark_pos == 2):
if(abs(center_lr-480) < 192 and abs(
print('over')
rc_com_fb = HIGH_SPEED
time_sta = time.perf_counter()
while True:
print('foward in ' + str(SLEE
time_end = time.perf_counter(
sent = sock.sendto(('rc {} {
time.sleep(0.1)
if(time_end-time_sta > SLEEP_
break
keepheight_cont = 0
hoop_cont = hoop_cont + 1
sent = sock.sendto(('rc 0 0 0 0'
time.sleep(1)
mark_pos = UNKNOWN
print('Complete over hoop')
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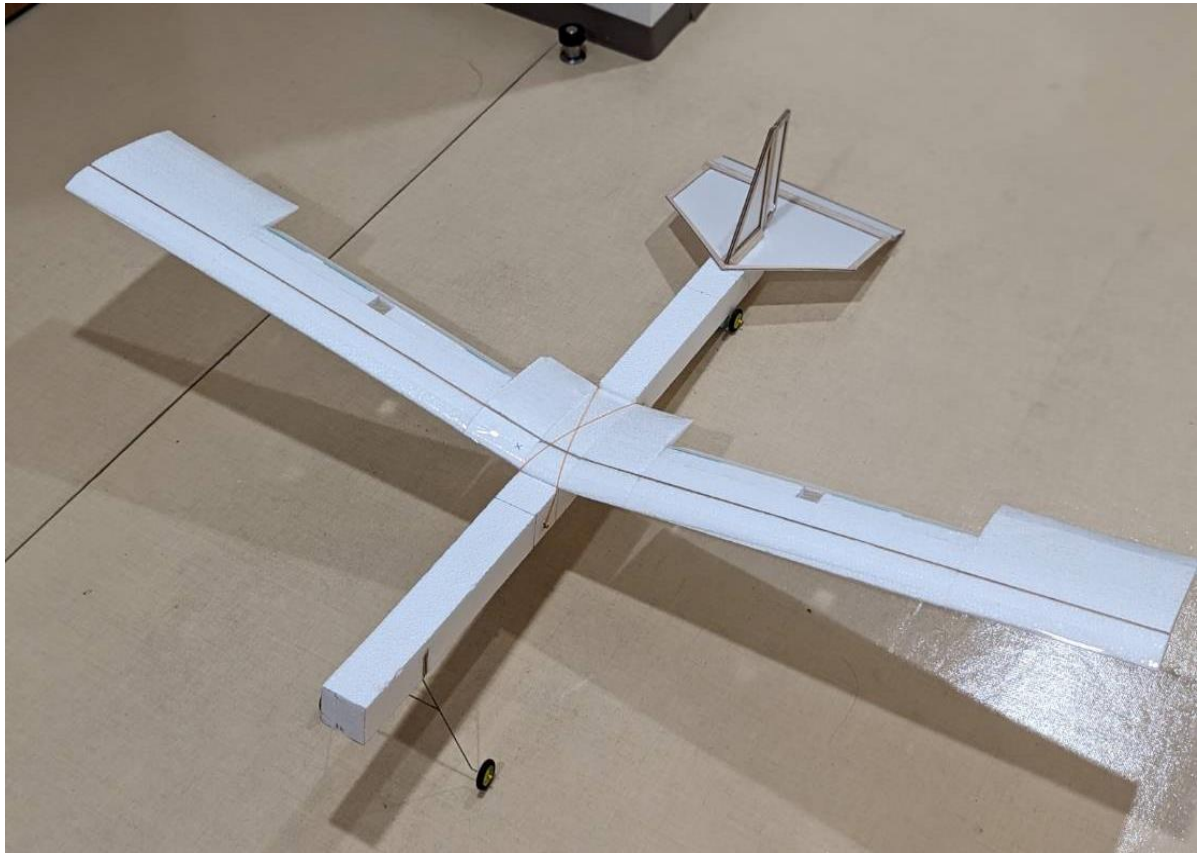
if(hoop_cont==5):
sent = sock.sendto(('ccw 90'
print('ccw')
time.sleep(2)
while not (np.any(ids == hoop
rc_com_lr = LOW_SPEED
sent = sock.sendto(('rc
time.sleep(0.1)
if(np.any(ids == hoop_con
sent = sock.sendto(('
break
else:
rc_com_val = 0
rc_com_fb = -1*LOW_SPEED
コンソール
ターミナル
ポート
×1.3

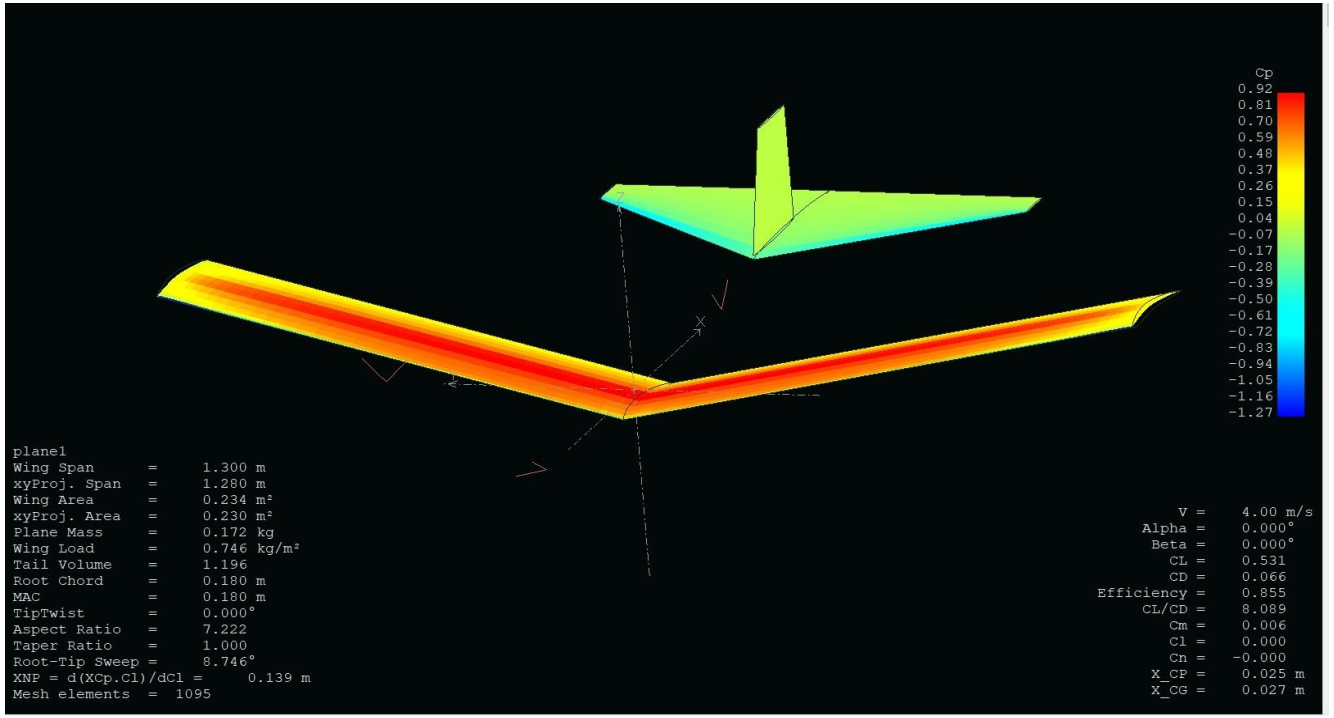
CURRENT ACTIVITIES

Design and make new UAV

- Reflect the points of improvement
- Aim to win the flying robot contest 2024



New UAV in progress



New UAV in analysis software

OUTLOOK

Planning to …

make our club a place for many students to learn about aerodynamics and craftsmanship

participate in General division and Multicopter division in the indoor flying robot contest 2024

Thank you for your kind attention !!