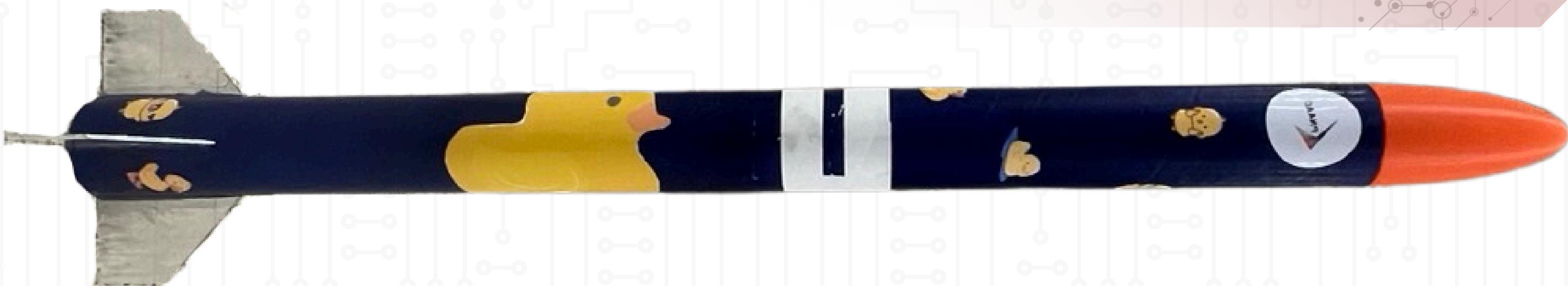
 **uduck**

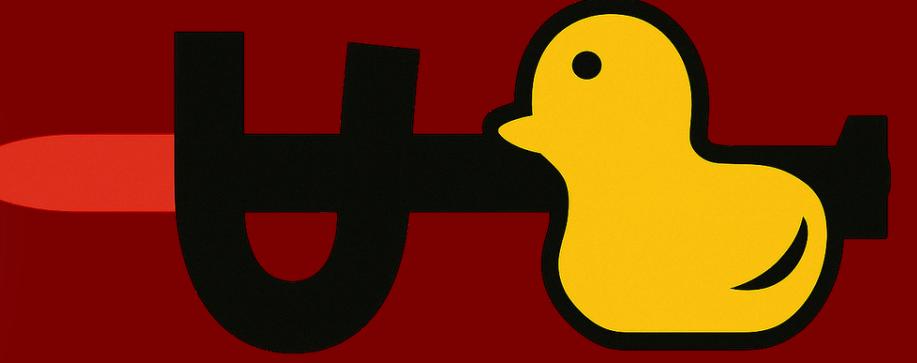


# Presentation

THAILAND CANSAT - ROCKET COMPETITION 2025

princess chulabhorn science high school  
nakhon si thammarat

# MEMBER



กั้นตินันท์ สวัสดิ์วงศ์

PROGRAMMER

ภัทรพล นวลลั้น

MISSION

คณิศร ย้อนนวล

SAFETY

นวพล คงรัตนธรรม

MECHANIC

ชวนกร ทิพจันงค์

ELECTRONICAL



# ROCKET OVERVIEW



# ROCKET(DESING)

Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Motor Wt	Size
H190	219 N	1.08 s	363 N	238 Ns	11.72:1	210 g	76/300 mm

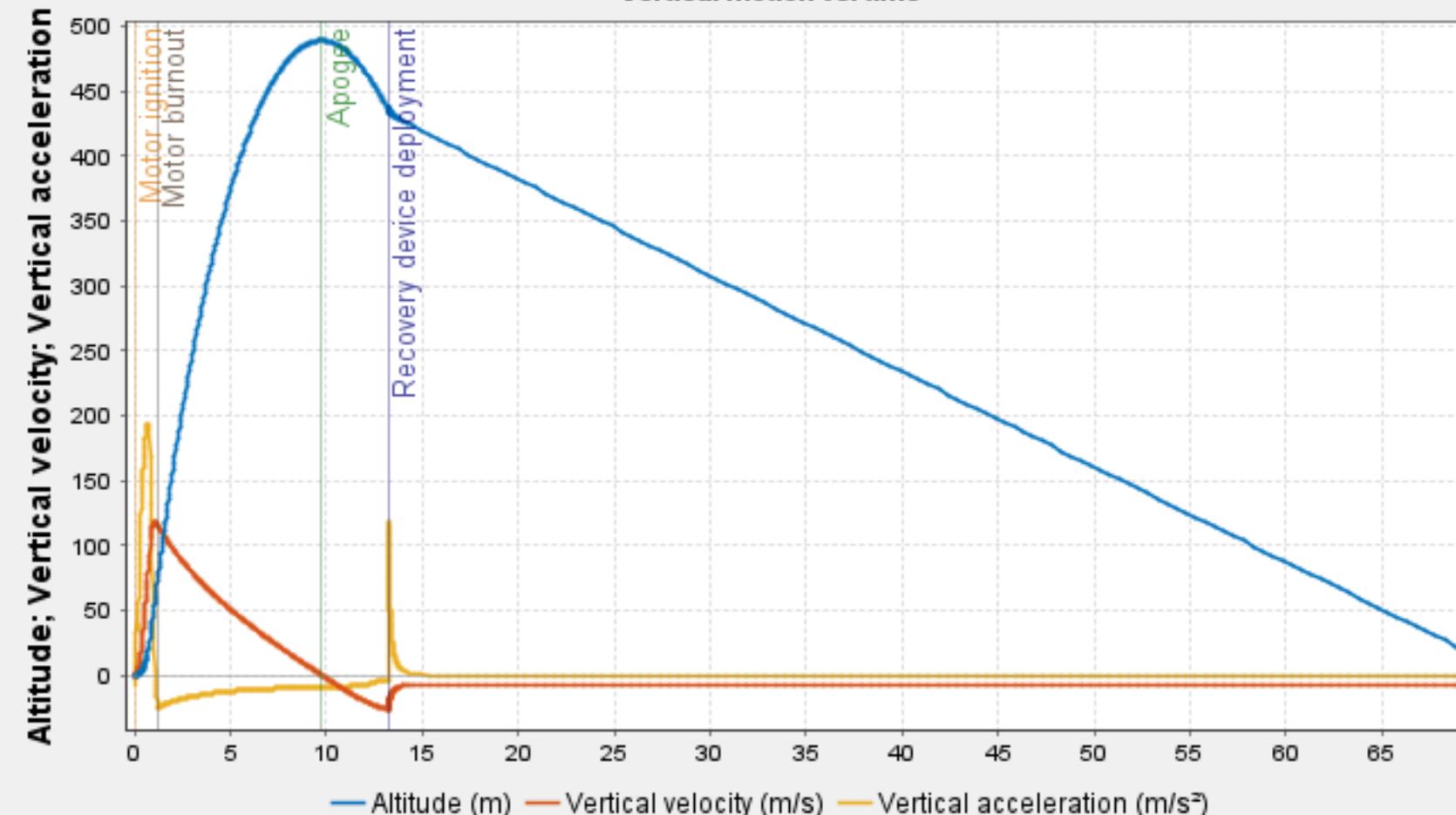
 Apogee(482 m)

**H190-12**

Altitude 482 m  
 Flight Time 70.1 s  
 Time to Apogee 9.71 s  
 Optimum Delay 8.51 s  
 Velocity off Pad 71 m/s  
 Max Velocity 116 m/s  
 Velocity at Deployment 28.9 m/s  
 Landing Velocity 7.35 m/s

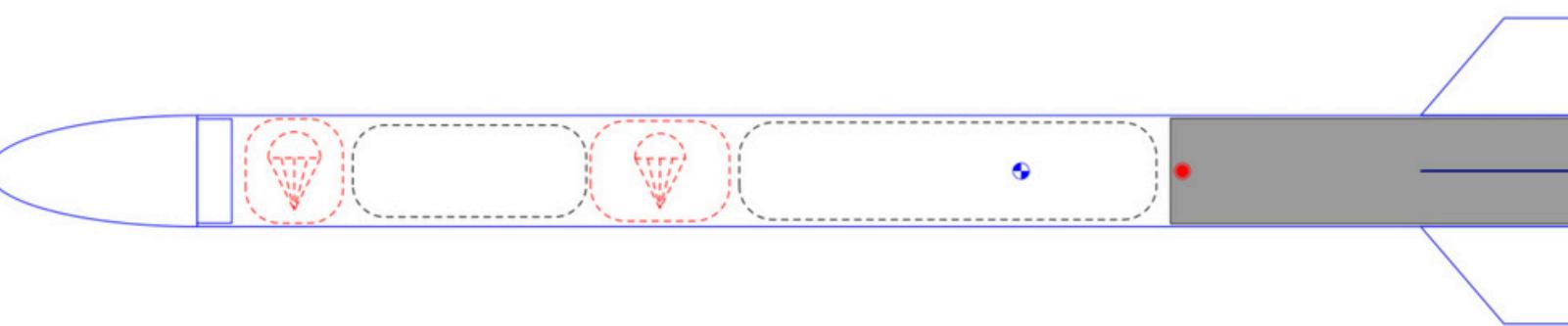
## Simulation 1

Vertical motion vs. time



Rocket  
 Stages: 1  
 Mass (with motor): 1901 g  
 Stability: 1.35 cal / 9.37 %  
 CG: 75.1 cm  
 CP: 85.9 cm

	Nose Cone	ABS - 100% infill (1.05 g/cm³)	Ellipsoid	Len: 15 cm	Mass: 73.5 g
	Body Tube	Cardboard (0.68 g/cm³)	Dia <sub>in</sub> 7.6 cm Dia <sub>out</sub> 8 cm	Len: 100 cm	Mass: 333 g
	Parachute	Polyethylene (heavy) (40 g/m²)	Dia <sub>out</sub> 60 cm	Len: 7 cm	Mass: 20.4 g
	Shroud Lines	Elastic cord (round 2 mm, 1/16 in) (1.8 g/m)	Lines: 6	Len: 84 cm	
	Parachute	Polyethylene (heavy) (40 g/m²)	Dia <sub>out</sub> 66 cm	Len: 10 cm	Mass: 22.8 g
	Shroud Lines	Elastic cord (round 2 mm, 1/16 in) (1.8 g/m)	Lines: 6	Len: 84 cm	
	Mass Component		Dia <sub>out</sub> 6.6 cm		Mass: 250 g
	Mass Component		Dia <sub>out</sub> 7 cm		Mass: 330 g
	Trapezoidal Fin Set (4)	Balsa (0.17 g/cm³)	Thick: 0.5 cm		Mass: 21.4 g



# ROCKET test

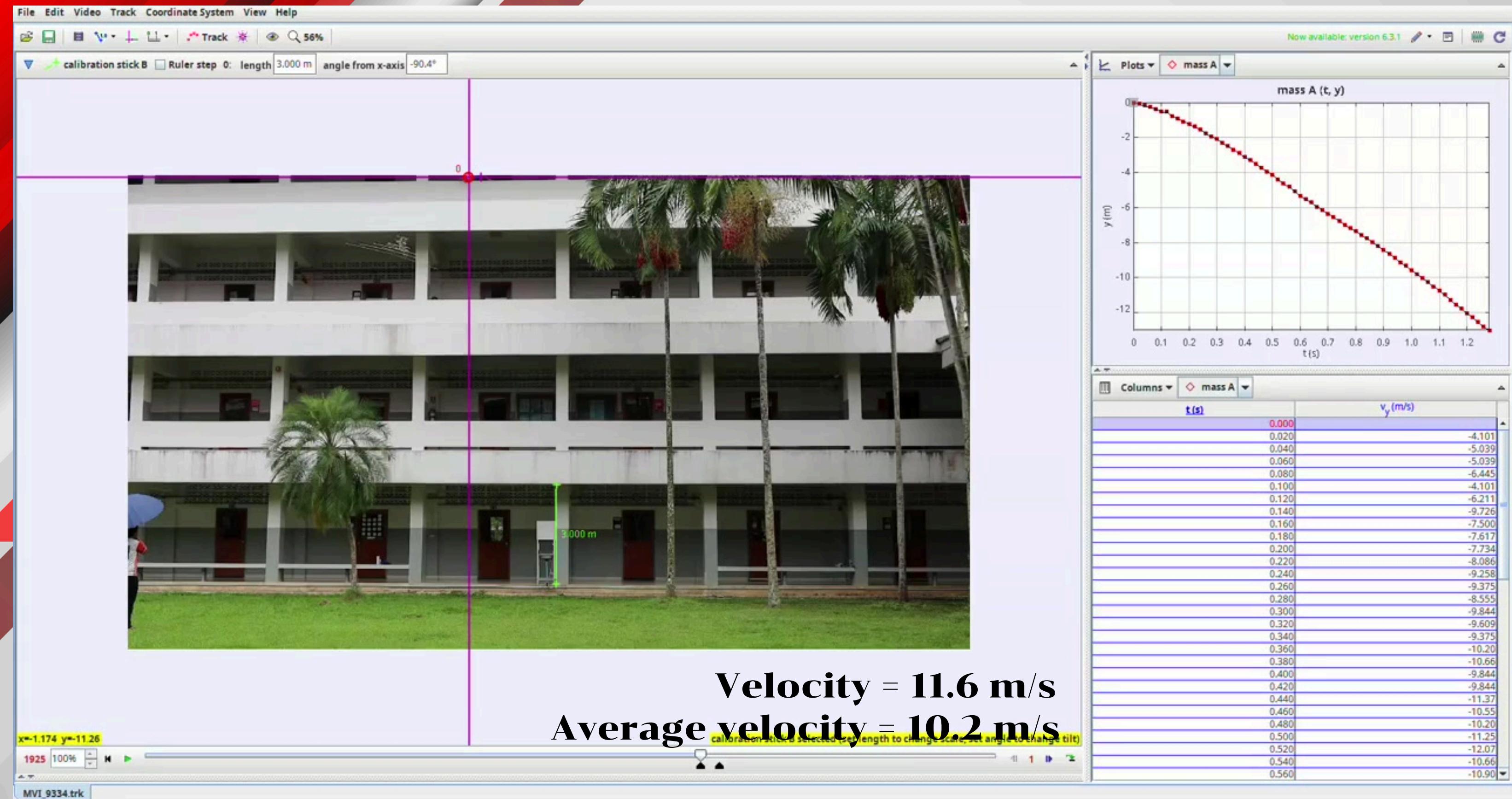
SWING TEST



# ROCKET test



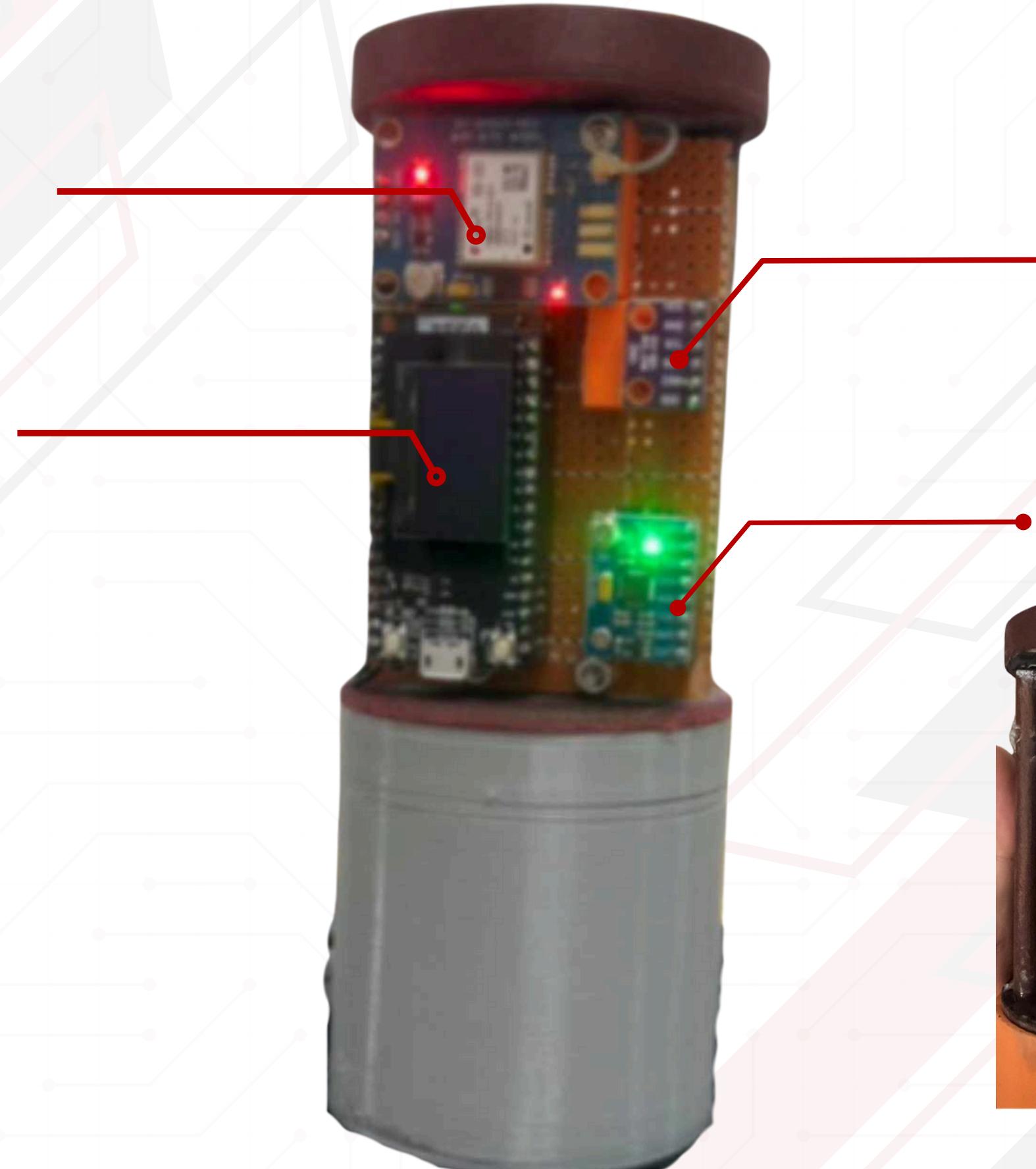
# ROCKET testing drop test (Parachute)



# CANSAT OVERVIEW

GPS Module  
GY-NEO-6M

TTGO SX1276 V1.3  
LoRa32 915MHz



BME280

MPU6050



3.7v 1200mah  
103040 Li-Po  
li ion

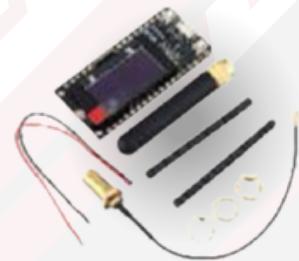
Antenna

# MISSION

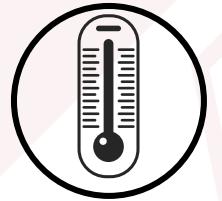
## MAIN MISSION



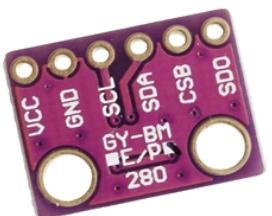
รายงานสถานะการทำงานของ  
ตัวcansatกับสถานีภาคพื้น



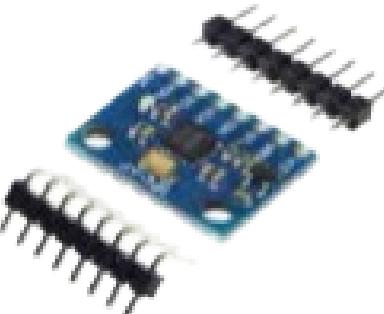
TTGO SX1276  
LoRa32 915MHz



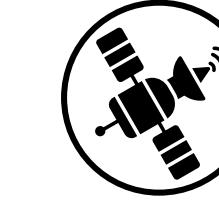
วัดสภาพแวดล้อมระหว่างปฏิบัติการกิจ



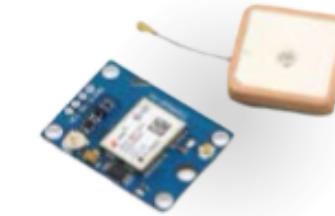
BME280



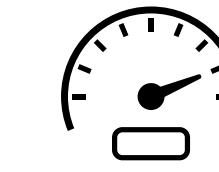
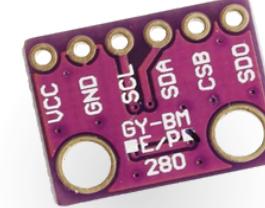
GY-521 IMU 3-axis  
Accelerometer/ Gyro  
Module(MPU6050)



ยืนยันตำแหน่งของ  
cansat กับสถานีภาคพื้น



BME280



วัดความเร่งขณะลงจอดได้



GY-521 IMU 3-axis  
Accelerometer/ Gyro  
Module(MPU6050)

# MISSION



บรรจุไข่โดยมีอย่างน้อยหนึ่งฟองอยู่ใน  
สภาพสมบูรณ์หลังลงจอด



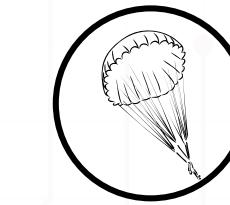
Hyper petg+bubble กันกระแทก



โฟมEVA



TPUรูปไข่



ทำการกิจในอากาศไม่ต่ำกว่า 90 วินาที

**57.09cm.**



**5.709cm.**

## Descent Rate Calculator Results

You entered:

- Rocket mass: 9.171214 ounces
- Parachute shape/type: circular
- Parachute size: 22.476333 inches measured by diameter

## Calculation Results

Descent rate:

- 14.89 ft/sec
- 4.53 meters/sec
- 16.33 km/hr
- 10.15 mph

Estimated descent time, assuming ejection at 1443 feet: 96 seconds

# SUB MISSION

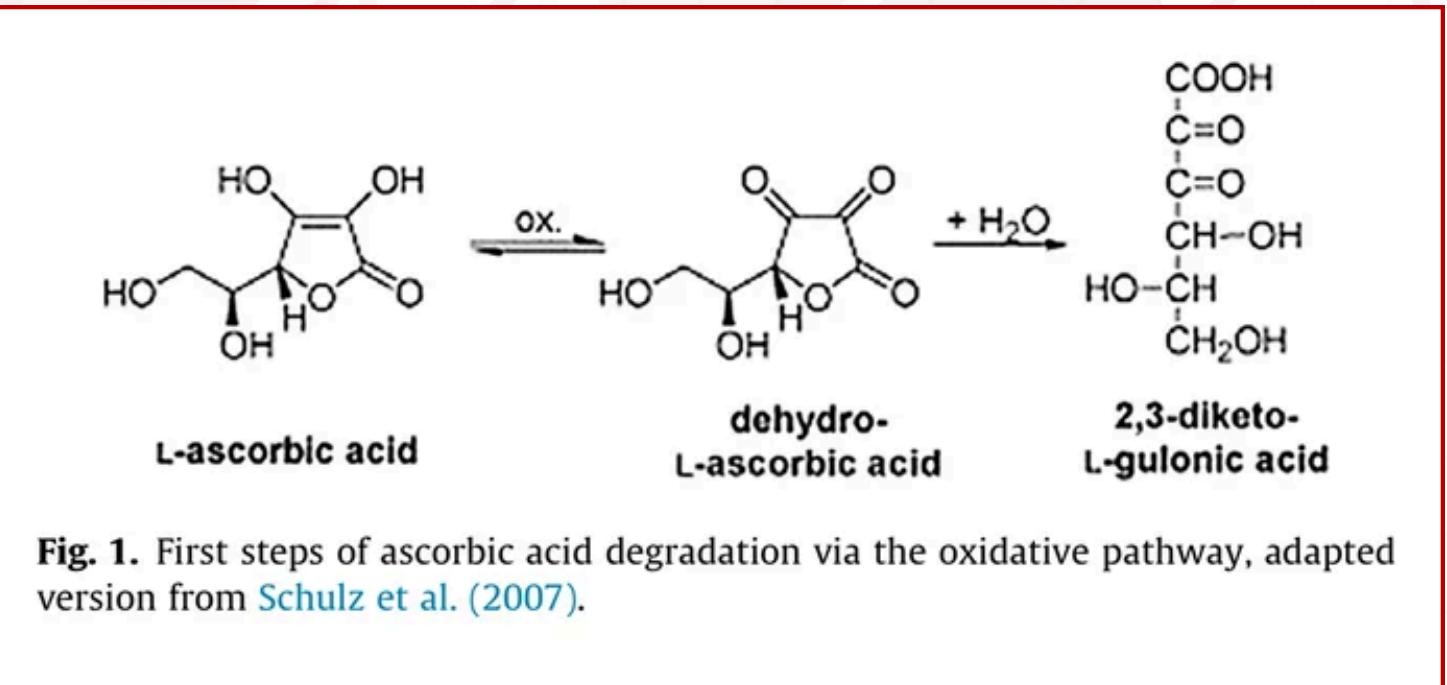
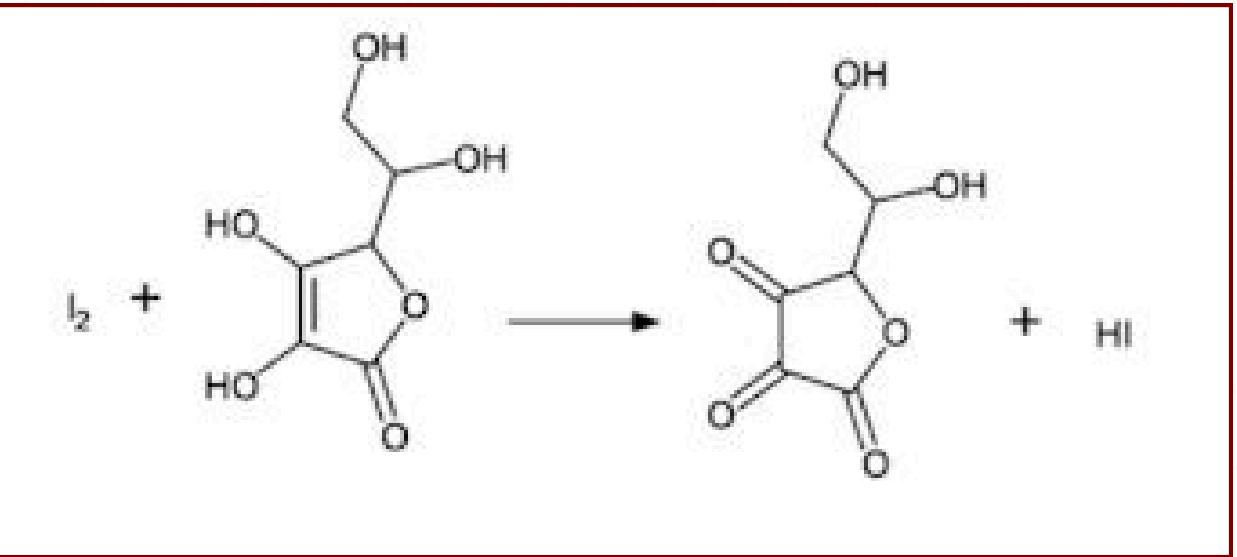
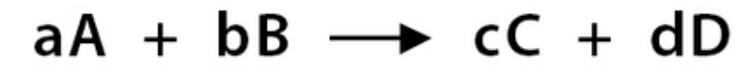


Fig. 1. First steps of ascorbic acid degradation via the oxidative pathway, adapted version from Schulz et al. (2007).



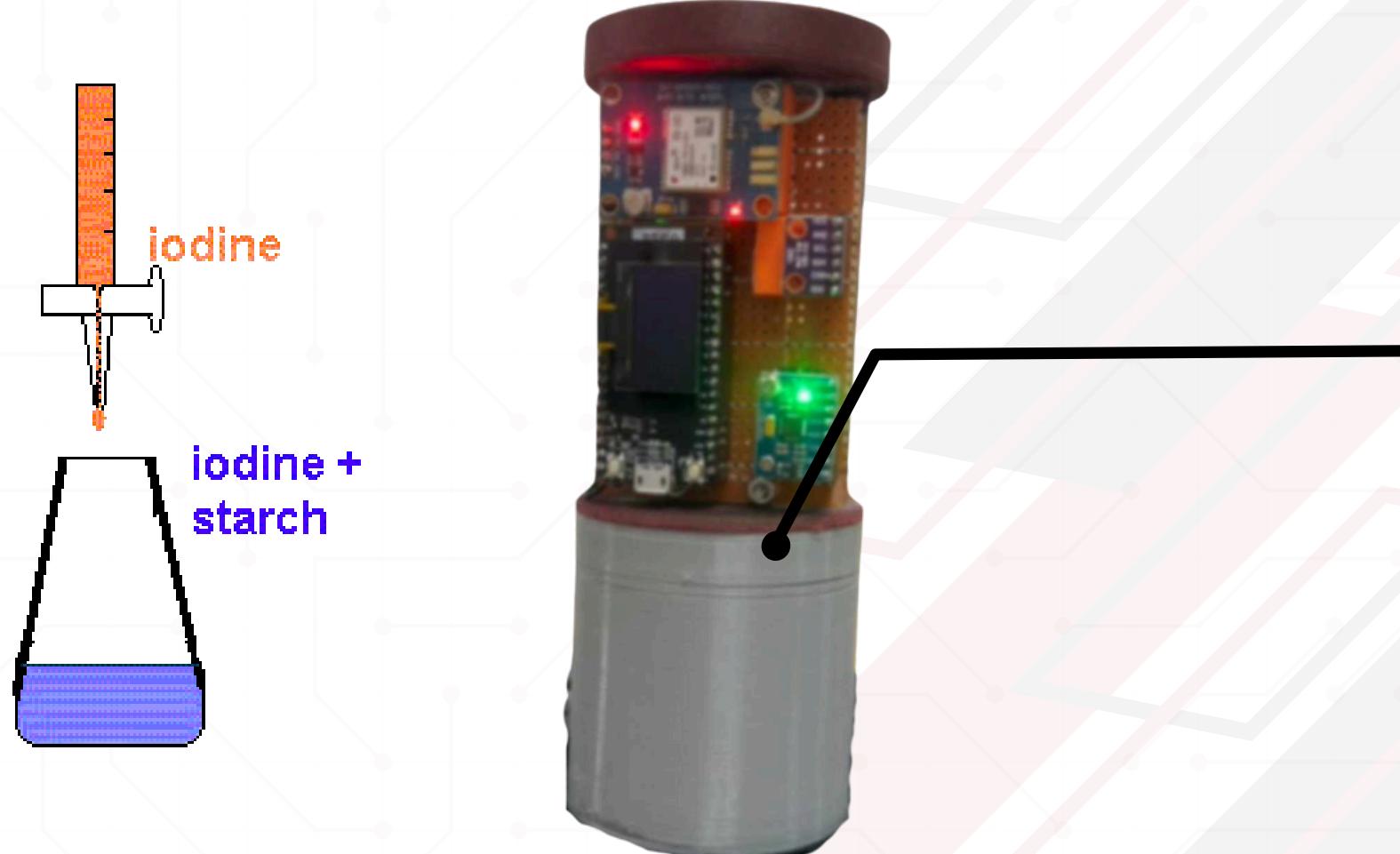
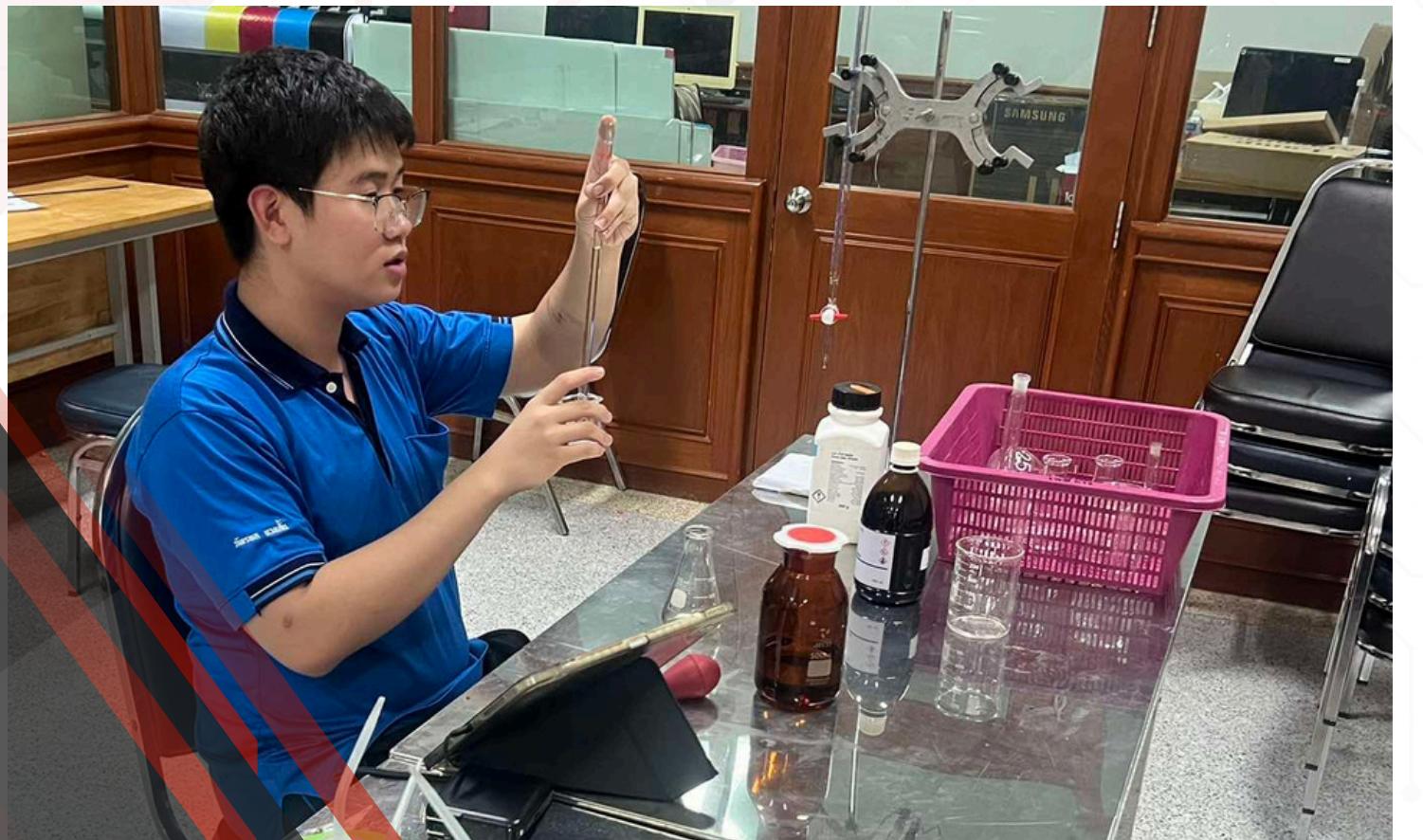
## Reaction Rate (r) Equation



$$r = -\frac{1}{a} \frac{d[A]}{dt} = -\frac{1}{b} \frac{d[B]}{dt} = \frac{1}{c} \frac{d[C]}{dt} = \frac{1}{d} \frac{d[D]}{dt}$$

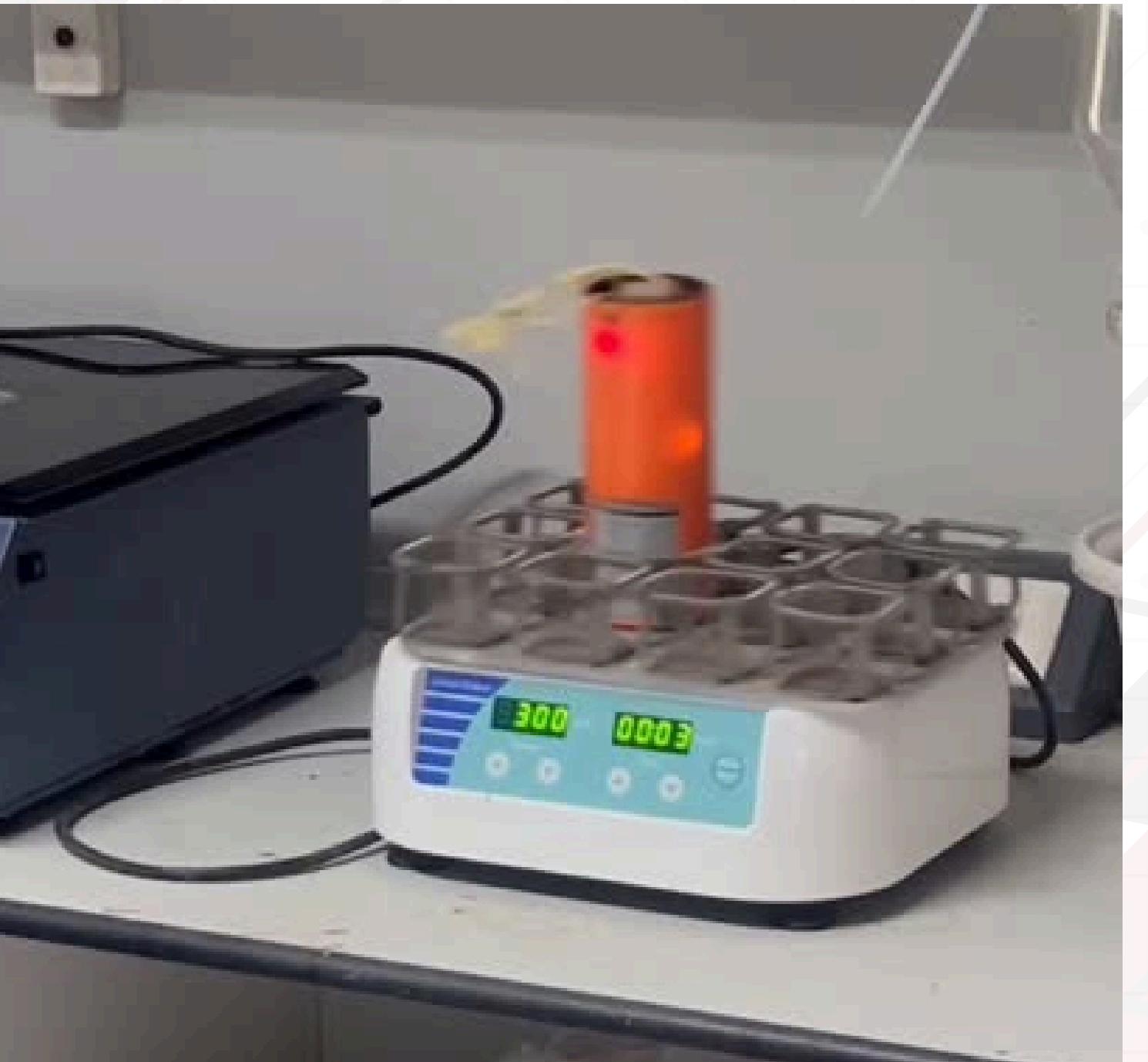
[A], [B], [C], [D]: Concentrations of A, B, C, and D, respectively

ChemistryLearner.com

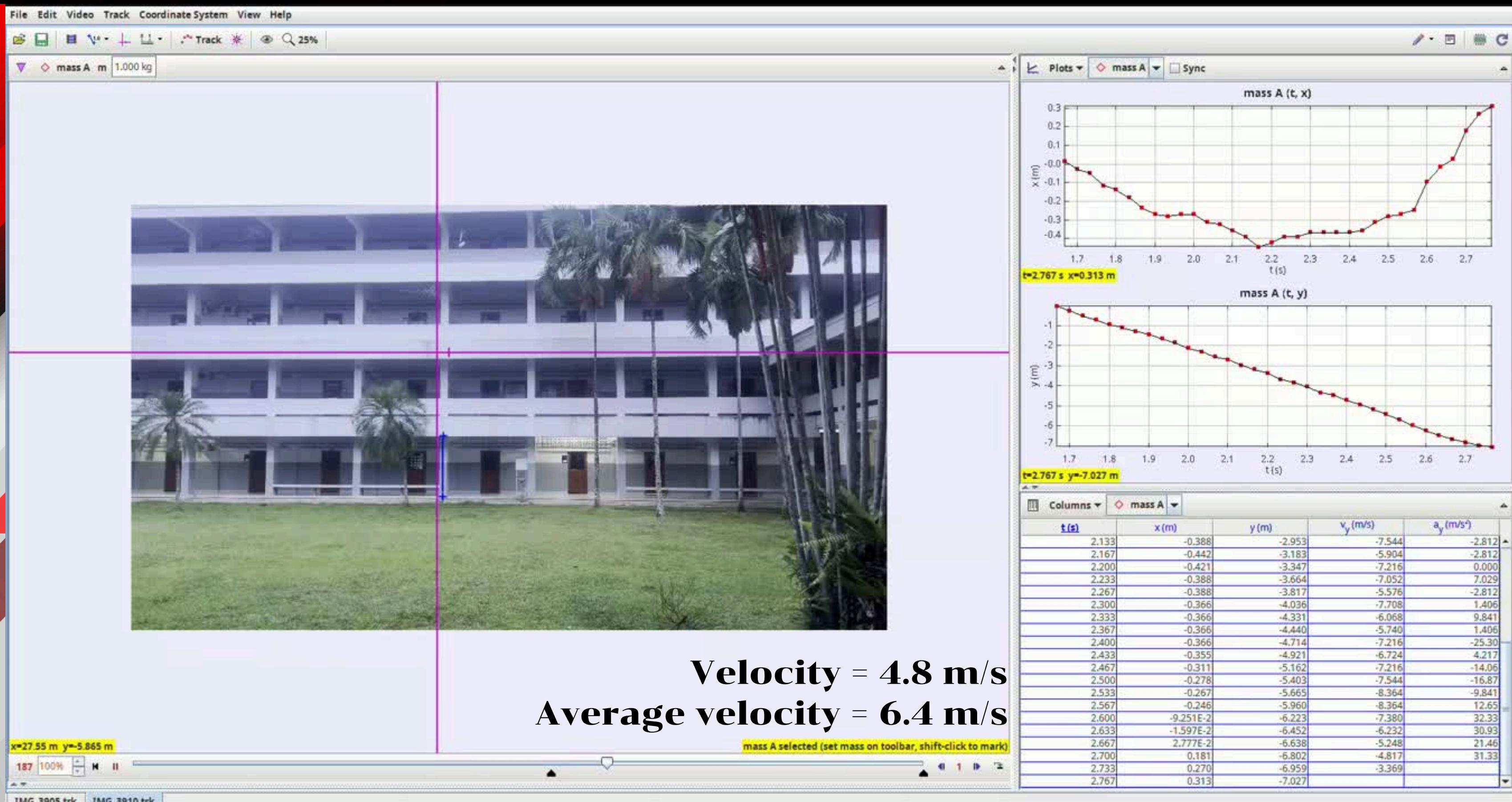


# CANSAT TESTING

## Vibration test



# CANSAT TESTING drop test (Parachute)



# CANSAT TESTING

drop test(egg)



# CANSAT TESTING

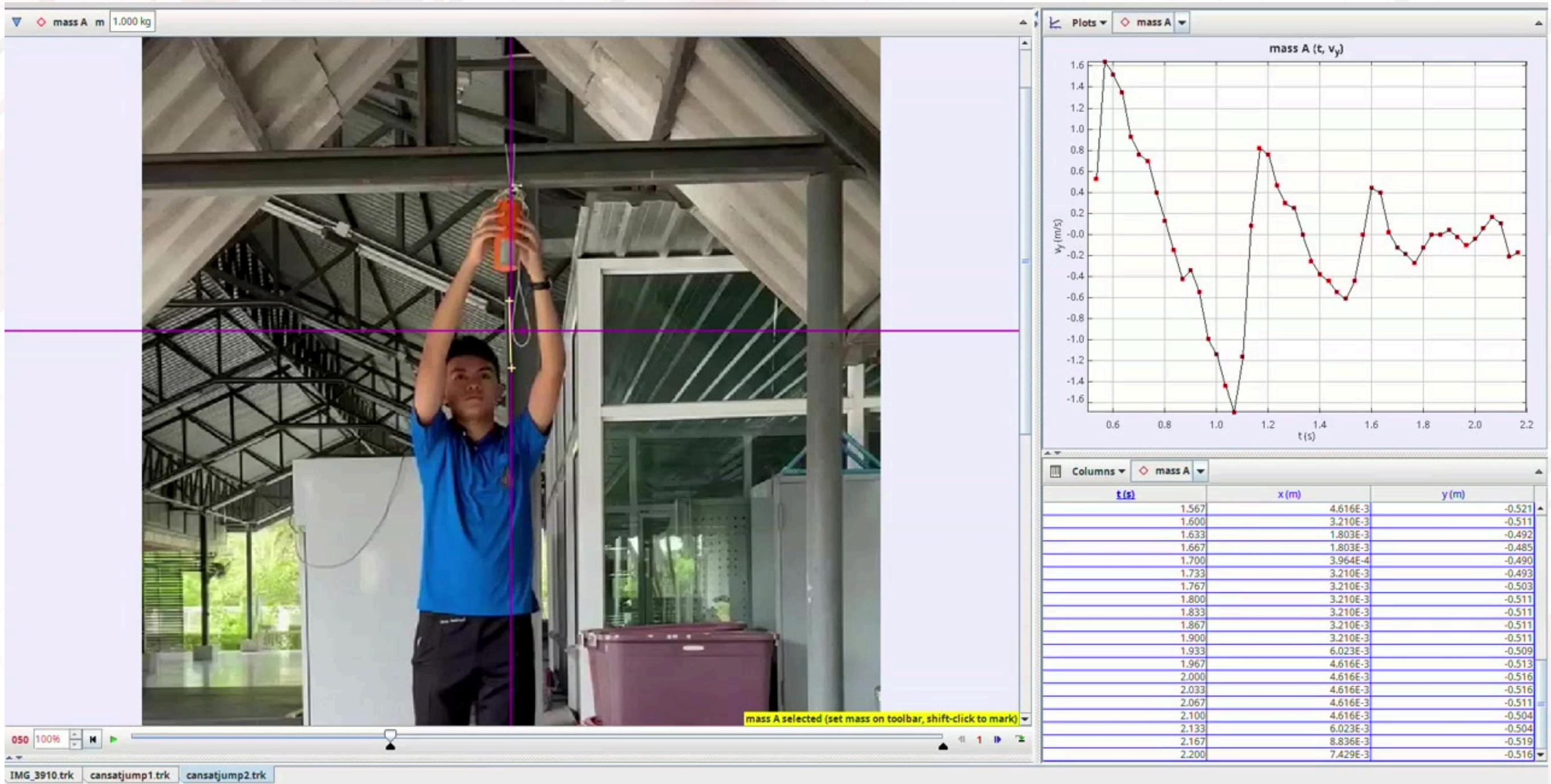
drop test cansat



# CANSAT TESTING

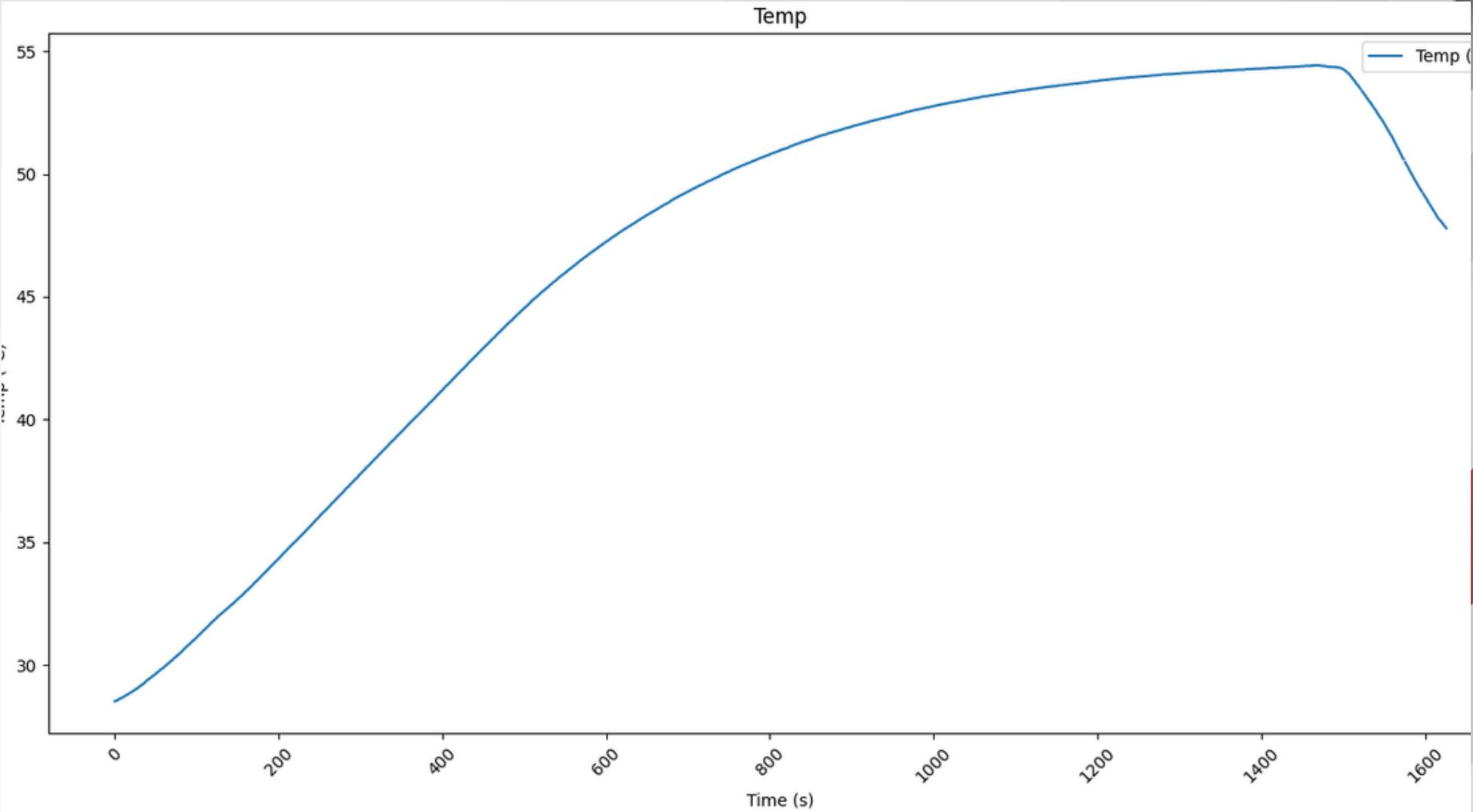
## ແຮງກະໜາກຈາກຈຳນູ່ມູ້ຫີ່ພ

Average Velocity =  $0.36\text{m/s}$   
 $t=0-0.6\text{ s}$



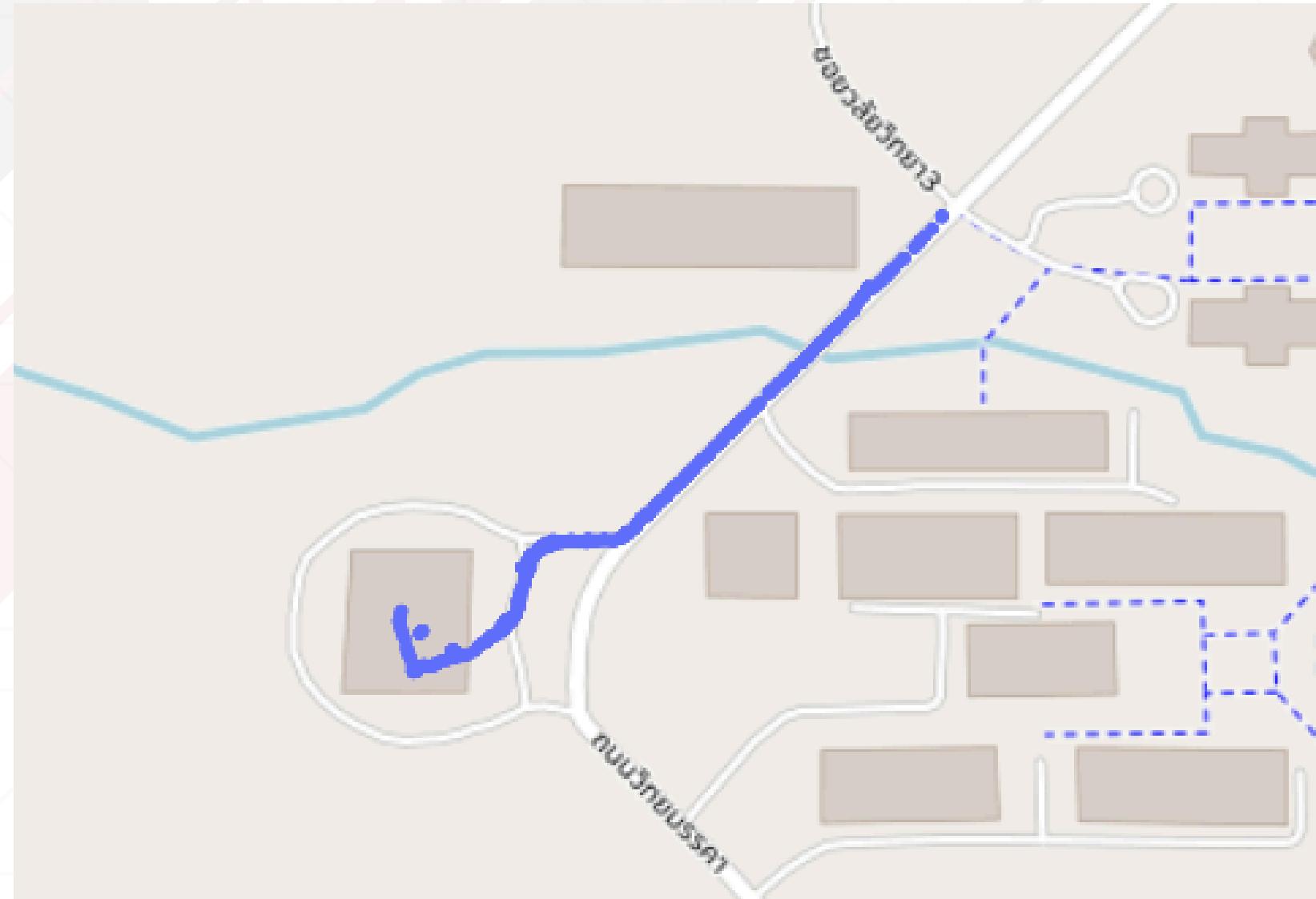
# CANSAT TESTING

## THERMAL test



# CANSAT TESTING

## communication



**473 m.**

Point 1: 8.641881 , 99.8913

Point 2: 8.644365 , 99.8948

Distance: 0.4736 km (to 4 SF<sup>2</sup>)

Initial bearing: 054° 19' 35"

Final bearing: 054° 19' 37"

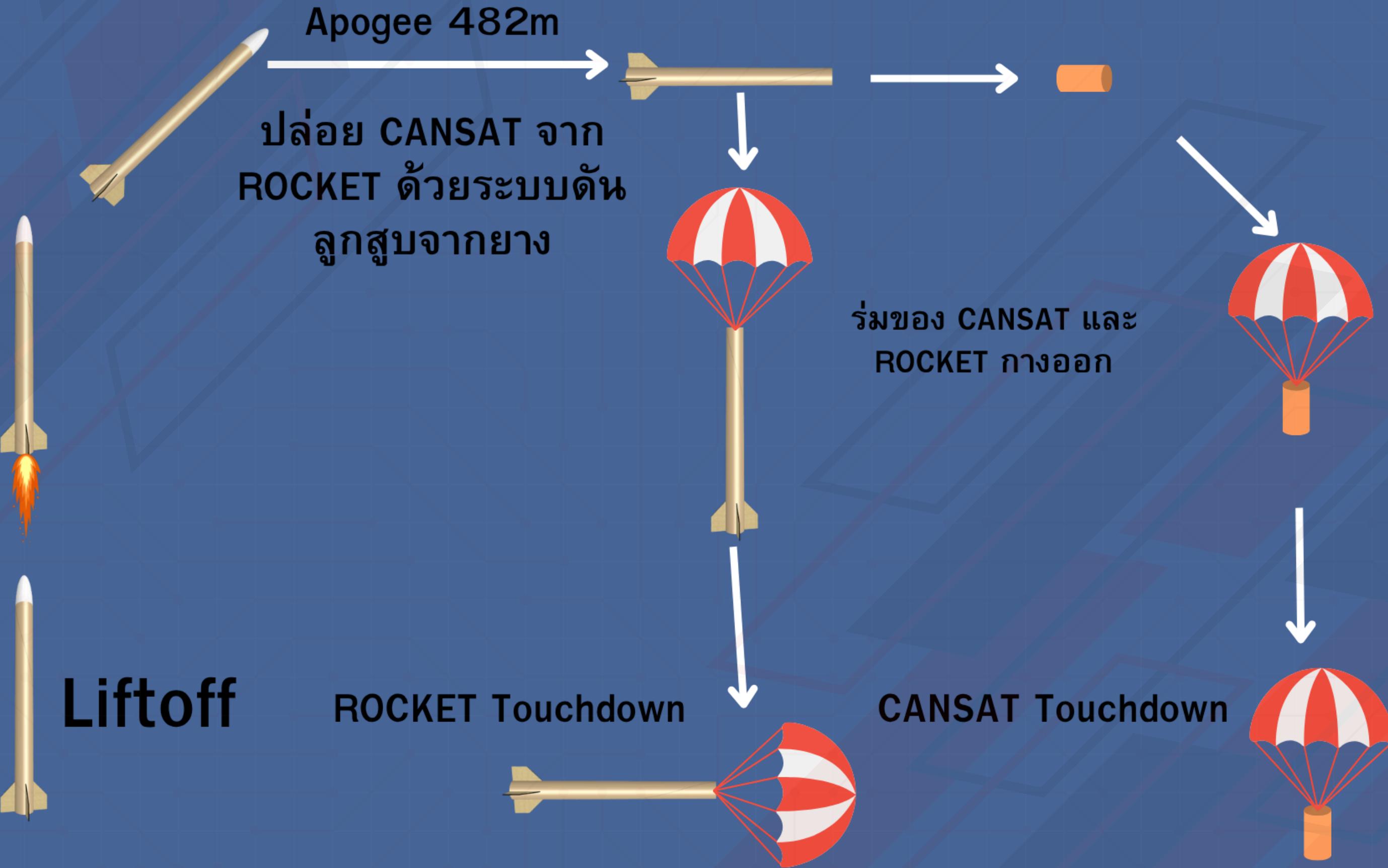
Midpoint: 08° 38' 35" N, 099° 53' 35" E



# Eject system



# FLIGHT PLAN





uduck

THANK YOU

# Q & A