

# The Motion of the Object with an Eccentric Rotor

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## Introduction

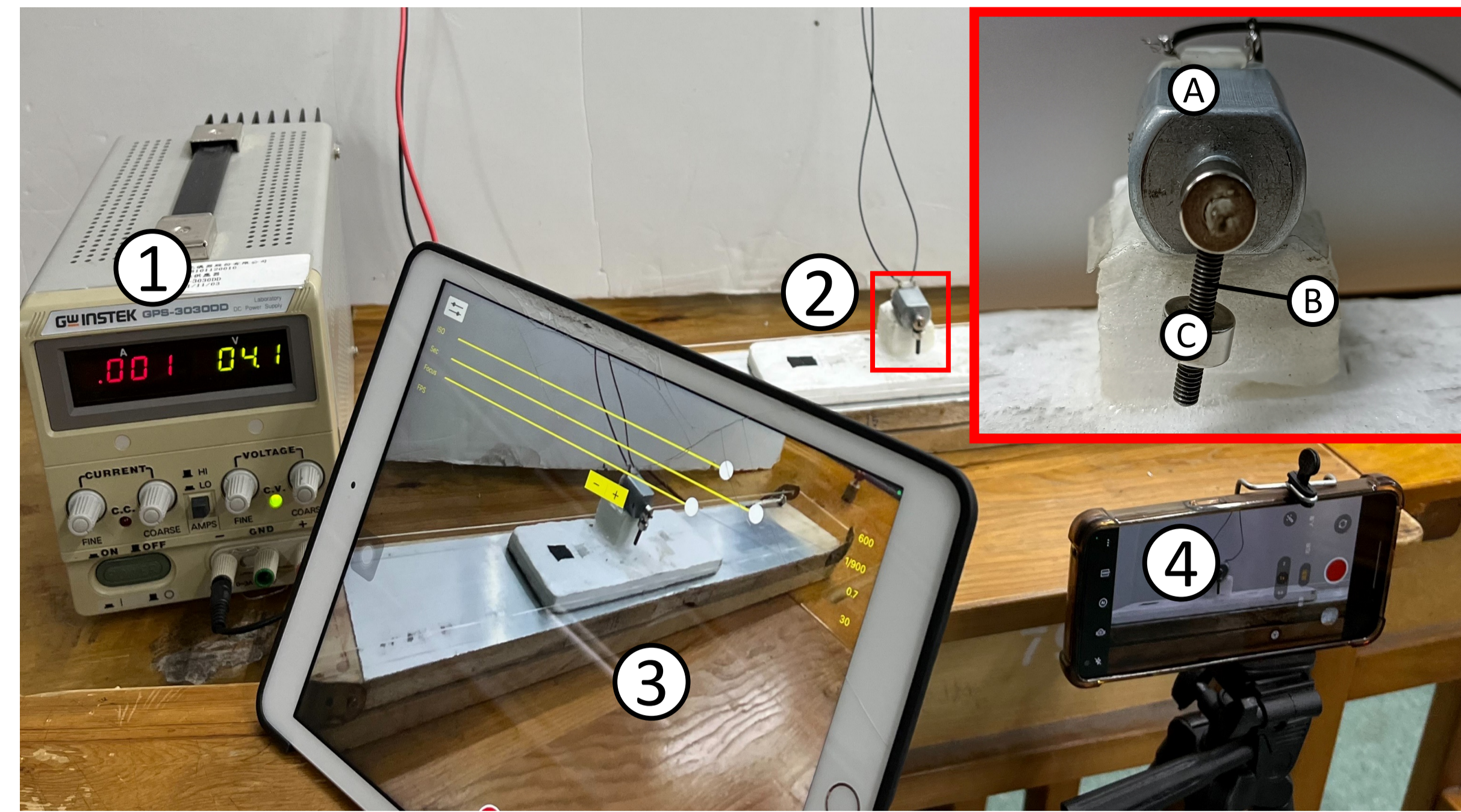
In industry, the technology of vibration cutting is used to improve the cutting efficiency of the tool or workpiece by giving it an appropriate direction, we talk deeply about this from a physics point of view, mainly observed how a thing slides and are limited by friction with vibration.

## Purposes

- The relationship between the speed of an eccentric motor and this object's motion
- Establish a theoretical model with Desmos math software and compared it with experimental values



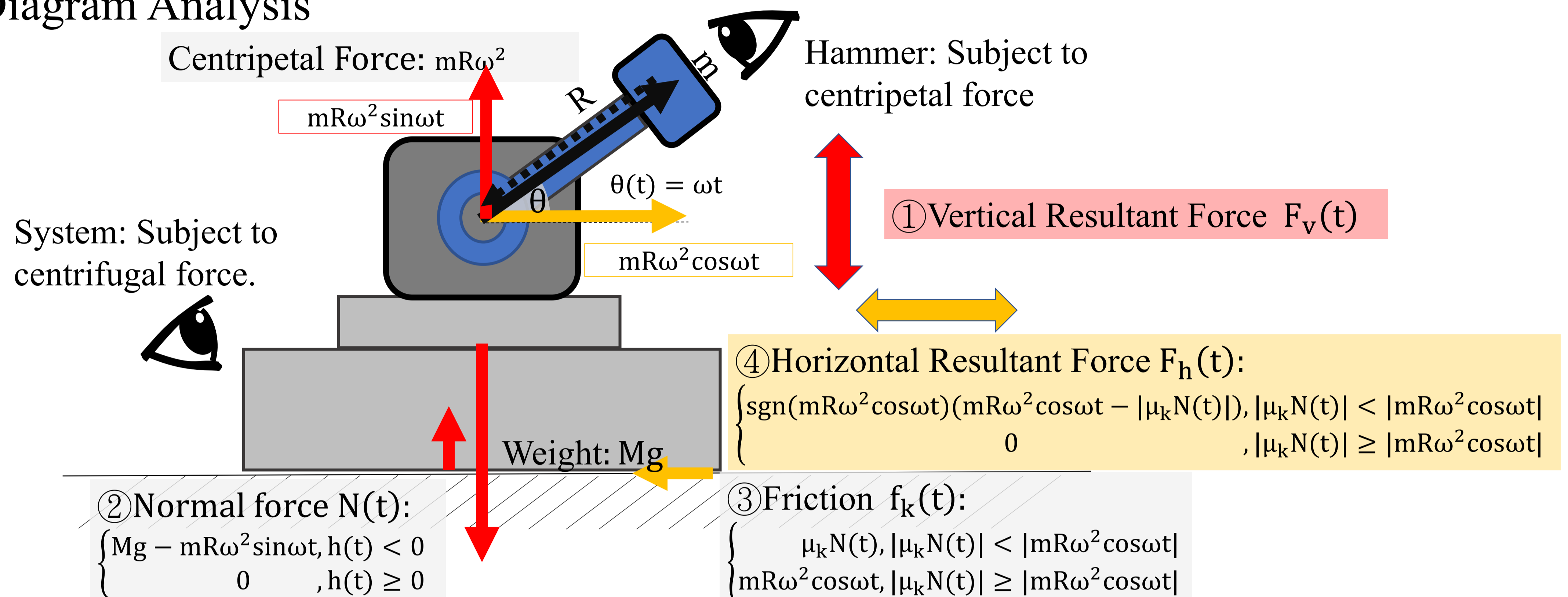
## Method & Material



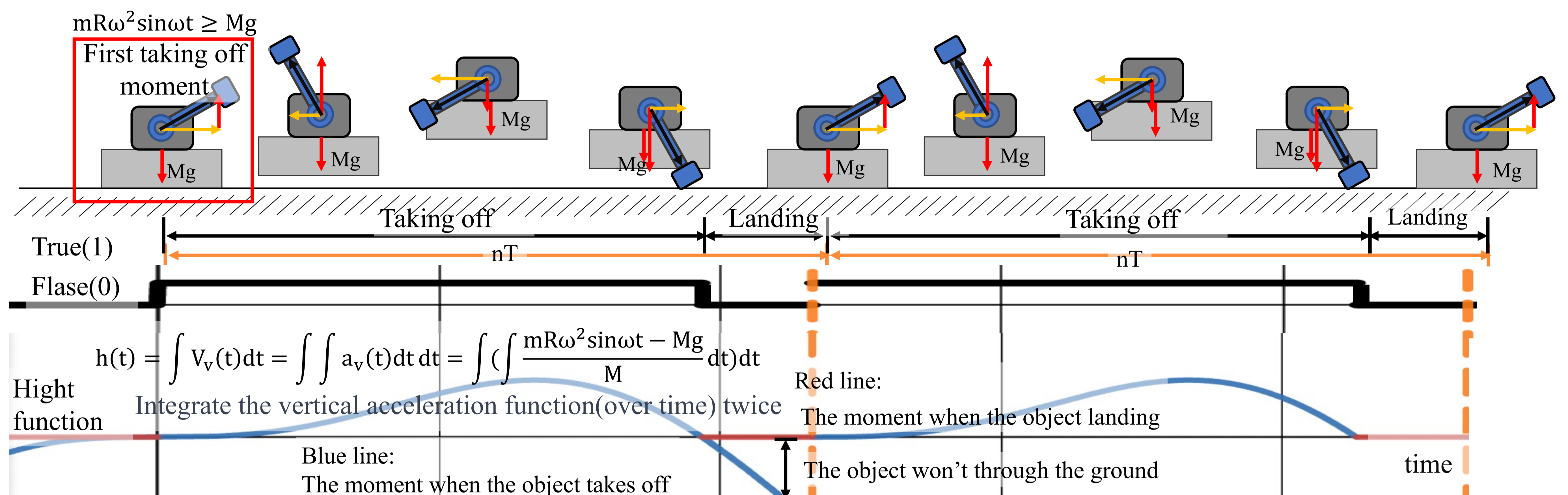
- DC power sensor
- Object
  - Ⓐ motor
  - Ⓑ Cup Point Set Screw
  - Ⓒ Wheel Collar
- StroboScope
- Video Physics
- Graphical

## Method/ Force Diagram Analysis

	Constant of the object
R	1.00 cm
m	1.00 g
M	92.00 g
$\mu_k$	0.455



## Method/ The Vertical Component and Height Function



Middle figure: The state function.

Lower figure: The altitude function, the two integrations of vertical acceleration over time.

Base figure: The vertical movement status of the motor at each time.

## Results & Discussion / The horizontal velocity of the object

