

Module B: Development

1.Diagrams of system requirement

System requirement	Category	Function
Abseil	Mechanical Component	Drop or lift the rope
Mechanical Arm	Mechanical Component	Grab or drop relief goods
Delivery Box	Mechanical Component	Store relief goods
Solidworks	Software	Design components of drone
Qground Control	Software	Debug the drone
Clover Blocks	Software	Realize automatic tracking function

2.Prototype

(1) Abseil:

1) Drawings:

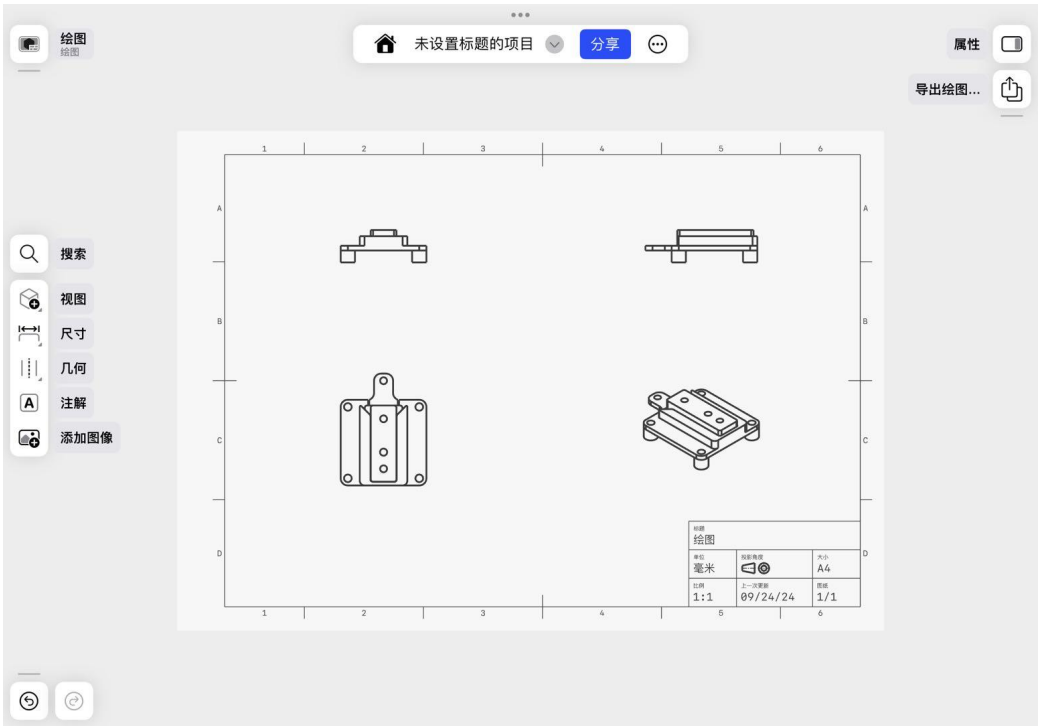


Fig.1 Drawings of Closed Abseil

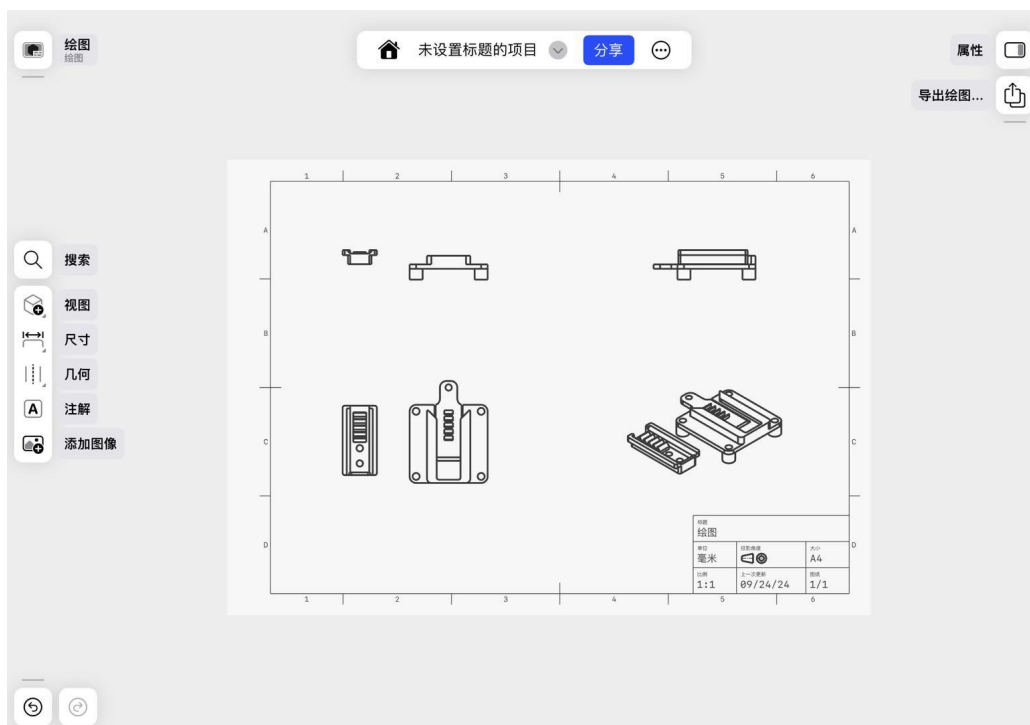


Fig.2 Drawings of Opened Abseil

## 2)Mockups



Fig.3 Mockups of closed Abseil

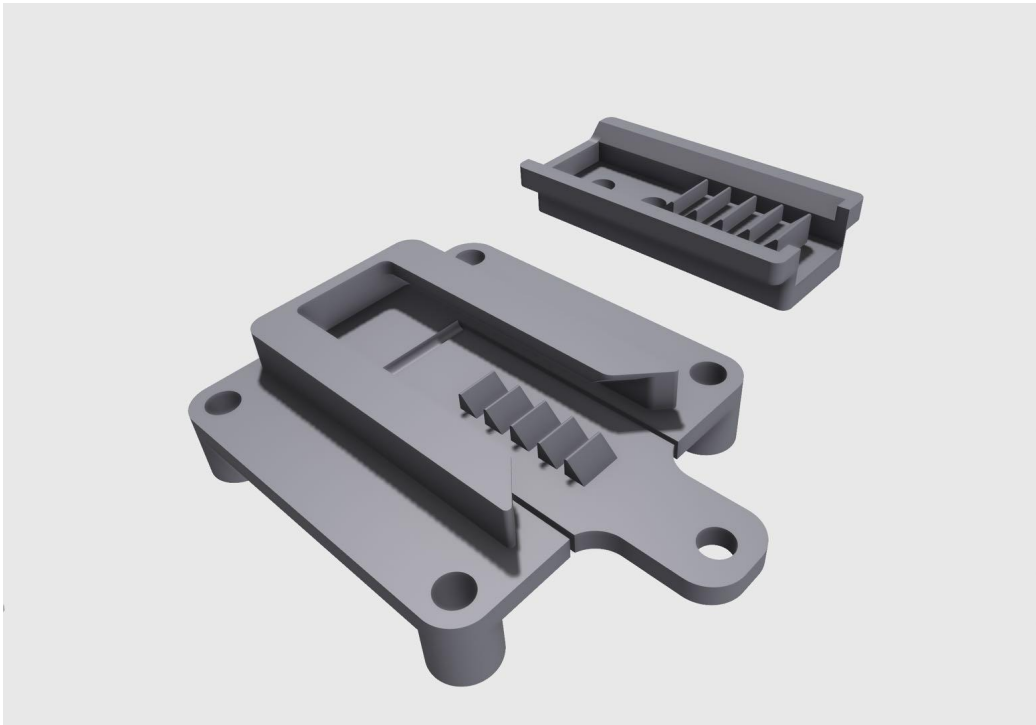


Fig.4 Mockups of opened Abseil

(2) Mechanical Arm:

1) Drawings:

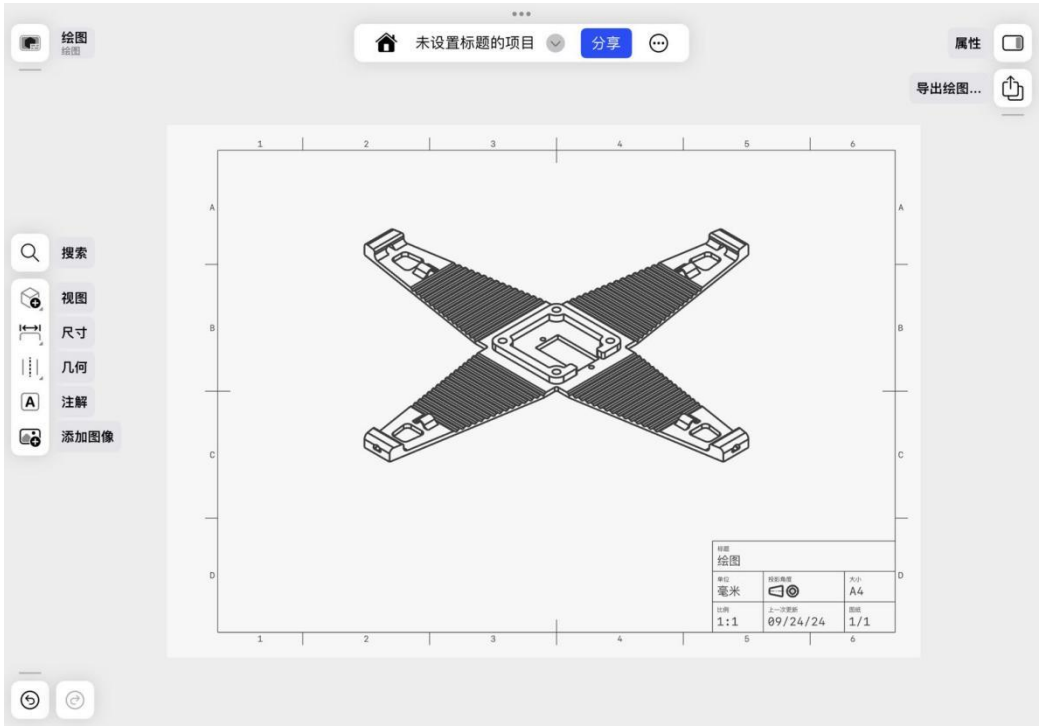


Fig.5 Drawings of Mechanical Arm

## 2) Mockups



Fig.6 Mockups of Mechanical Arm

## (3) Delivery Box:

### 1) Drawings:

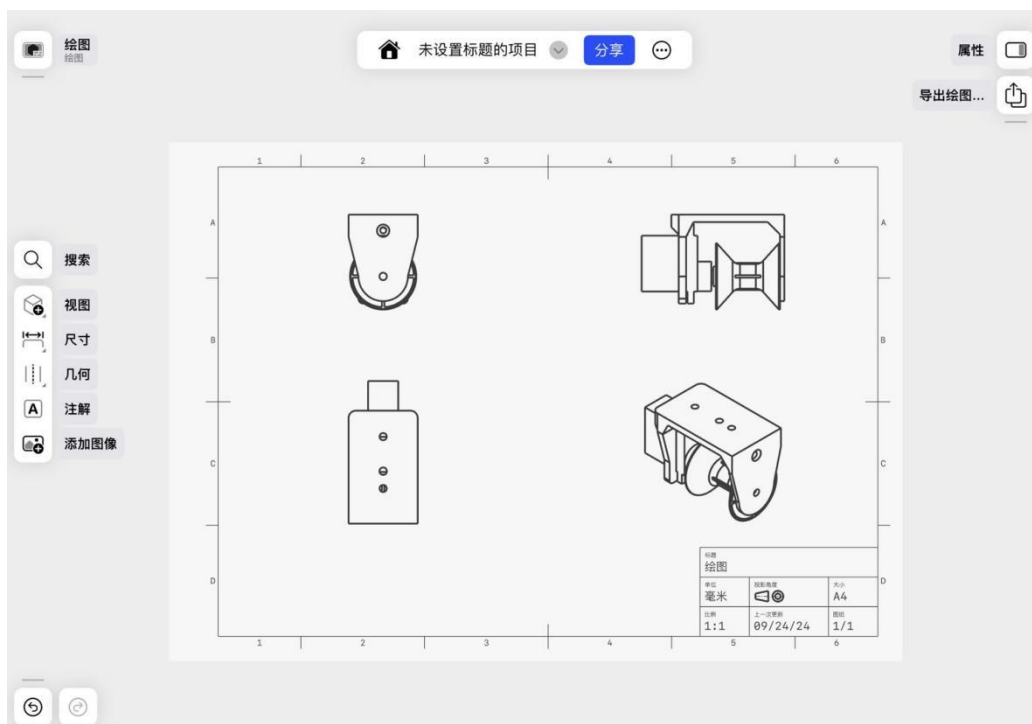


Fig.7 Drawings of Delivery Box

### 3) Mockups

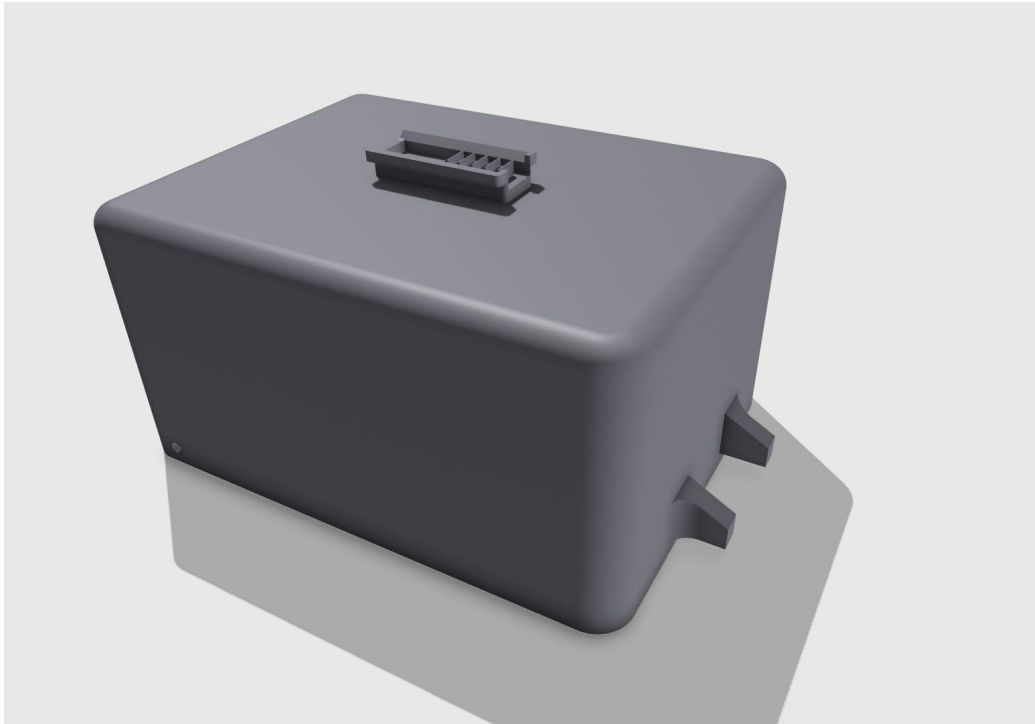


Fig.8 Mockups of Delivery Box

### 3.Code

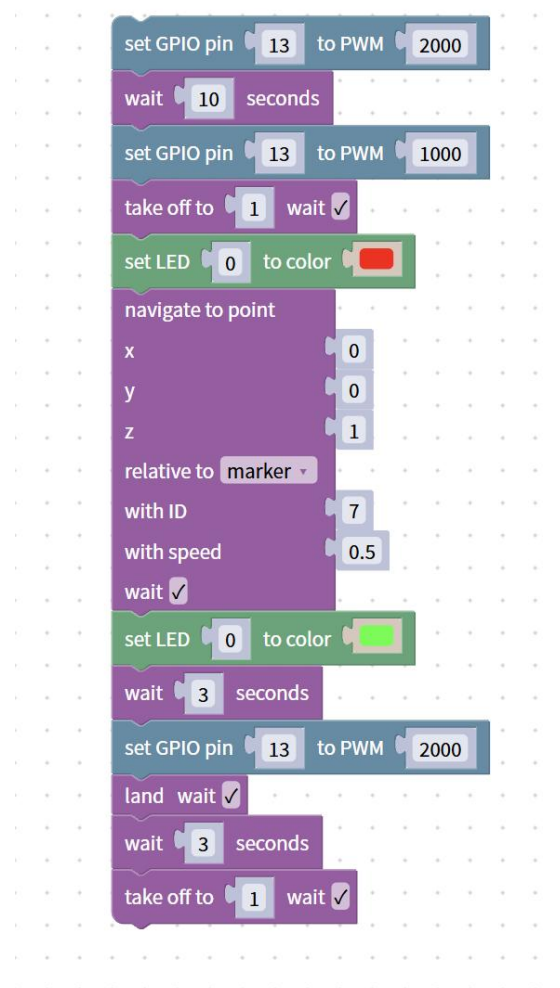


Fig.9 Code1-1

Blocks

Python

Flight

State

LED

GPIO

Logic

Loops

Math

Text

Lists

Colour

Variables

Functions

take off to 1 wait

wait 3 seconds

set LED effect fill with color

navigate to point

x 0

y 5

z 1

relative to marker

with ID 62

with speed 0.5

wait

wait 3 seconds

set LED effect fill with color

navigate to point

x 6.5

y 0

z 1

relative to marker

with ID 89

with speed 0.5

wait

wait 3 seconds

set LED effect fill with color

navigate to point

x 0

y -5

z 1

relative to marker

with ID 27

with speed 0.5

wait

wait 3 seconds

set LED effect fill with color

navigate to point

x -6.5

y 0

z 0

relative to marker

with ID 0

with speed 0.5

wait

wait 3 seconds

set LED effect fill with color

land wait

Fig.10 Code1-2

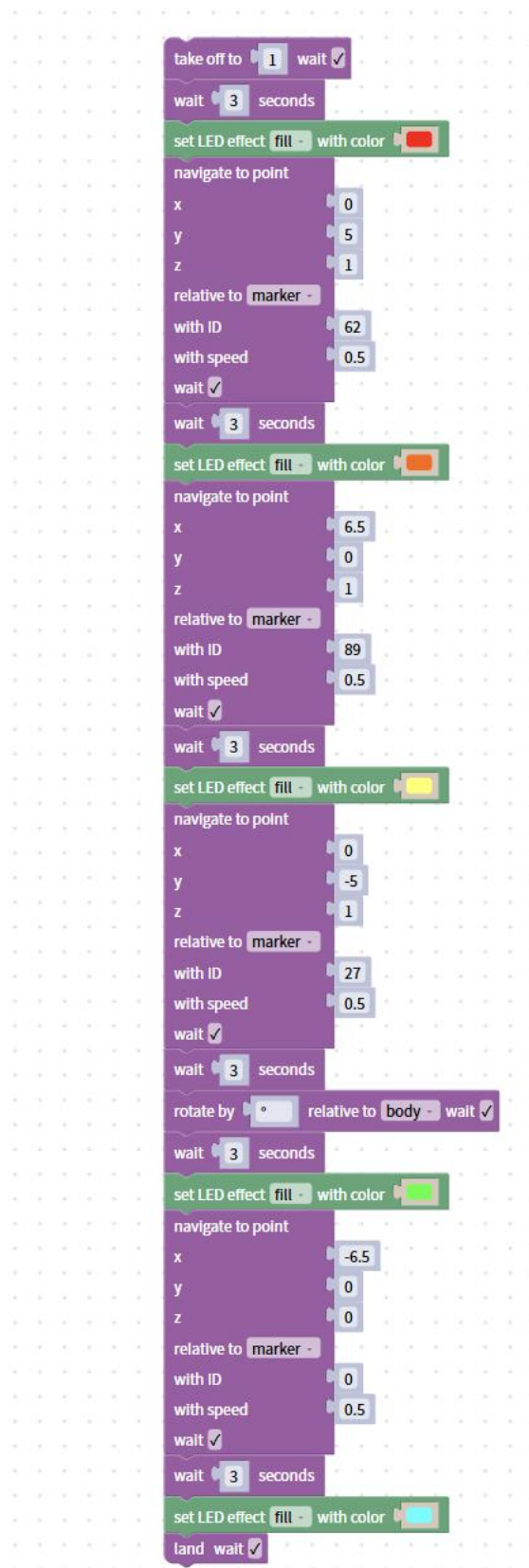


Fig.11 Code1-3



Fig.11 Code1-4