SKFF

Team15

Bee Protecting Mobility (BPM)

Introducing an autonomous car that protects bees from hornets.
It detects hornets in real-time and sends notifications to beekeepers.

Demonstration Video
PART 01

Member Introduction & Roles
PART 02

Design Part
PART 03

Development Process
PART 04

Conclusion
CONCLUSION

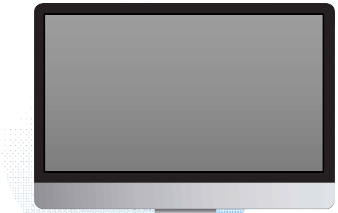
SKFF

PART 01.

Demonstration Video

Watch a demonstration video of the results produced by TEAM15.

CLICK HERE!



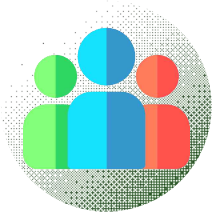
Demonstration Video 1

SKFF

PART 02.

Member Introduction & Roles

Introduce the team members and explain our Roles.



CLICK HERE!

Song Kyoung Keun

Leader/ Project Planner

Kim Ju Hyeon

Developer/ Technical Manager

Pakonkait Wangsawas

UX Designer / Hardware Design

SKFF

Members & Roles

Song Kyoung Keun

Leader/ Project Planner

Kim Ju Hyeon

Developer/ Technical Manager

Pakonkait Wangsawas

UX Designer / Hardware Design

SKFF

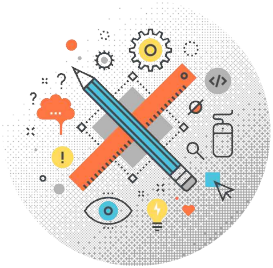
PART 03.

Design Part

It is a part that introduces the part designed by our team in vehicle development.

Architectural design, Functional Definition, Flowchart Design

CLICK HERE!



Functional Definition
1

Flowchart Design
2

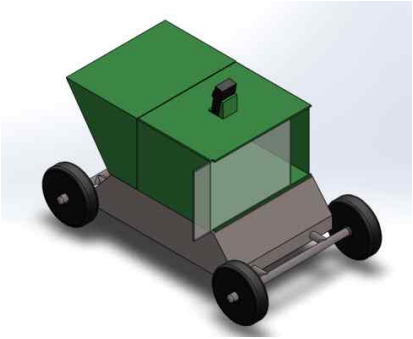
Architectural Design
3

SKFF

3D Design

Design By Folk

UX Designer / Hardware Design



SKFF

Functional Definition

Func1 : Self-Driving Car

It is a self-driving vehicle using Raspberry Pi that moves around the Beekeeping to watch over the area in front of the beehives.

Func2 : Bees & Hornets Distinguished AI

It analyzes video using OpenCV and uses YOLO to distinguish between honeybees and hornets.

OpenCV & YOLOv5

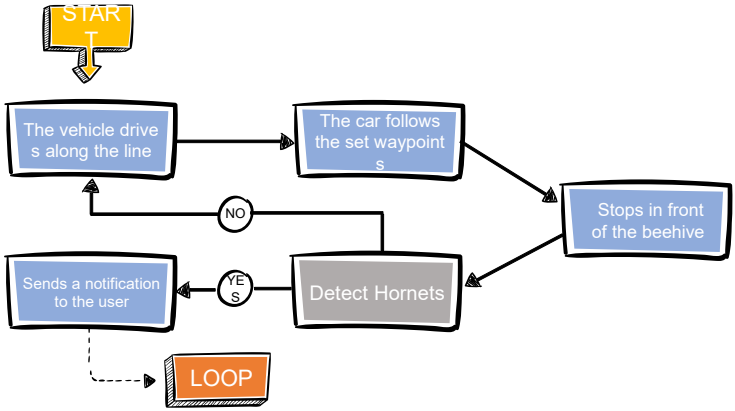
Func3 : UI using the website

The beekeeper can easily monitor the area around the beehives in real-time through the website.

& HTML

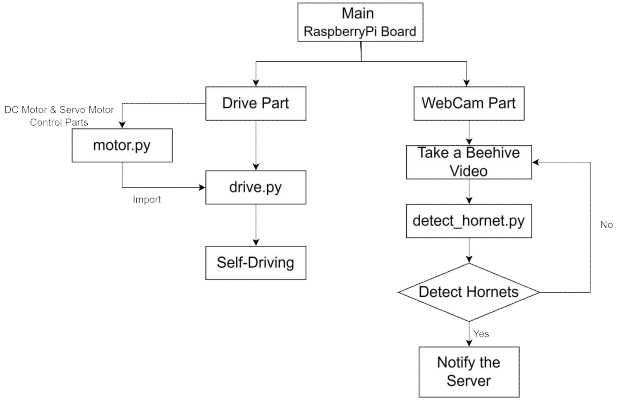
SKFF

Flowchart Design



SKFF

Architectural Design



SKFF

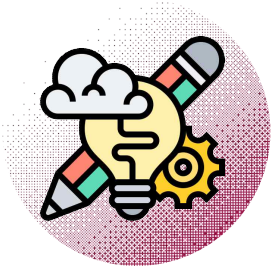
PART 04.

Development Process

This part introduces the development process.

Talk about communication and difficulties during development.

CLICK HERE!



Self-Driving Devlopment

1

Data labeling

2

Difficulties in the Development Process

3

SKFF

Development

Process

Self-Drive

We used a Raspberry Pi board. The car was designed to move using line tracing, stop at designated points, and then resume. It was challenging because we wasn't familiar with the board.

#RaspberryPi #Line-Tracing

Data Labeling

Getting good data was the most important task. To improve hornet recognition, we labeled the hornet's head, chest, and abdomen separately for training.

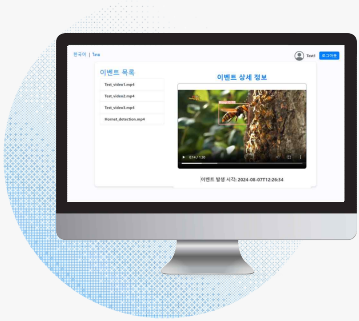
#Data Labeling #Find Data

Difficulties

There were difficulties in transmitting the video captured by the camera to the server.
In the process of recognizing hornets, external factors often interfered with recognition. For example, lighting conditions, the speed of the hornet, and the angle all had an impact.

#Network-Conn #Hornet recognizing

SKFF



TEAM 15. SKFF

THANK YOU FOR LISTENING

This has been TEAM 15.

Thank you for listening to the presentation.