

Smart Human Tracking Rotating Platform Based on STM32+Rd-03D

Open Source License: GPL 3.0



Description

1. Project Overview

This project is a smart human tracking rotating platform designed based on the STM32F103C8T6 and Rd-03D. It can adjust the rotating platform to the corresponding angle according to the movement position of a person within a space.

2. Project Features

- Automatic Rotation Function:

The Rd-03D radar can detect the trajectory of human movement in real-time to obtain the corresponding spatial coordinates. By calculating the angle from these coordinates and driving the stepper motor, the platform rotates to the correct position without manual operation.

- Unmanned Calibration Function:

When there is no one in the space, the stepper motor automatically returns to the initial central position.

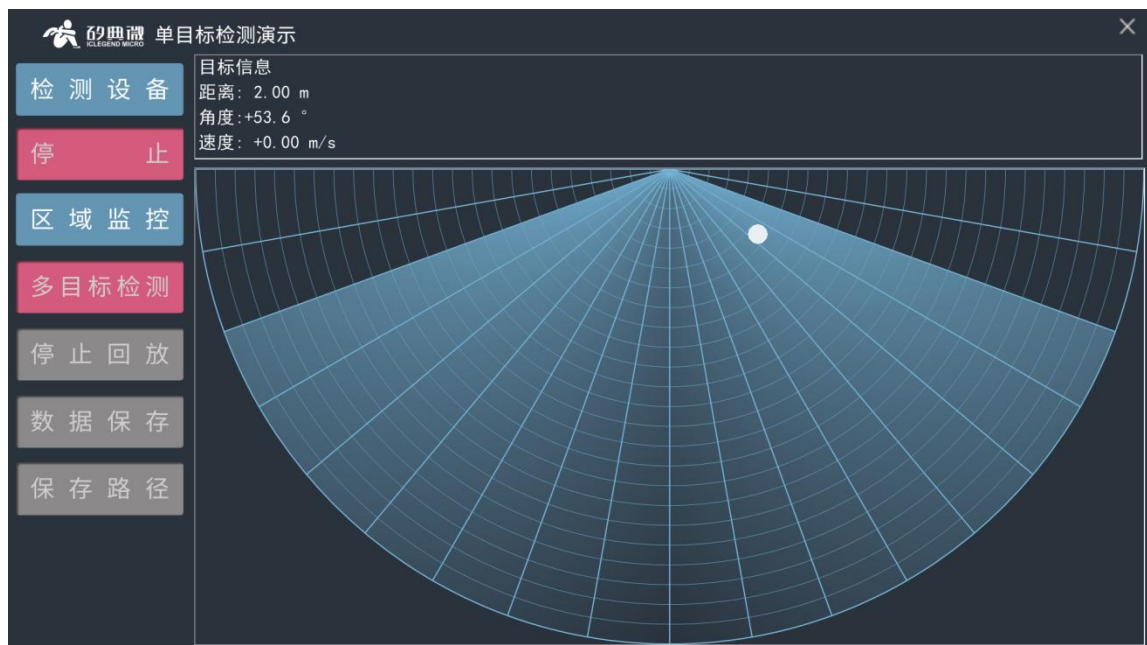
3. Project Specifications

- Utilizes the AI-Thinker 24G millimeter-wave radar module — Rd-03D, which includes an intelligent positioning and tracking algorithm capable of detecting multiple targets in a designated area and reporting results in real-time. It accurately perceives human

and area motion states, with integrated smart algorithms for motion trajectory recognition and tracking, enabling speed and distance measurement of targets within the area.

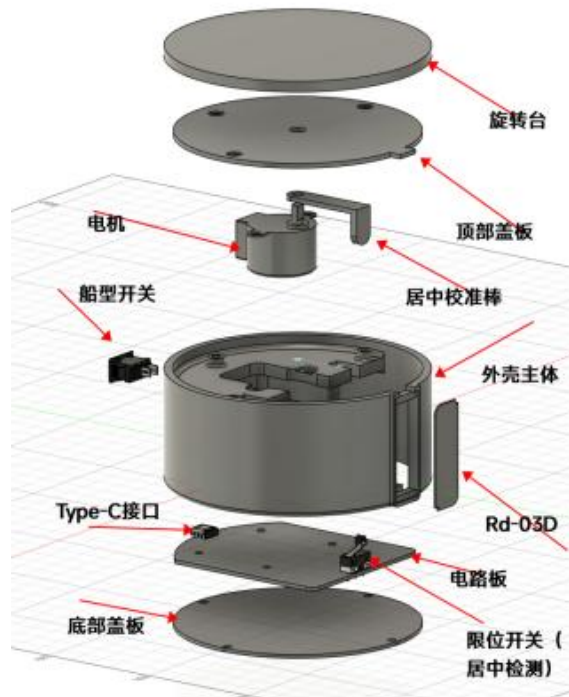
- Features the STM32F103C8T6 chip, a classic and versatile MCU with comprehensive documentation.
- Equipped with a stepper motor, four-phase five-wire, controlled by pulses.
- Powered by a Type-C interface, simple wiring.

4. Radar Upper Computer Interface



5. Structural Design

This project consists of the following parts: a bottom cover, main body (including circuit board), top cover, and rotating platform. 3D casing files are available in the attachment.



6. Precautions

- When multiple people are present, it detects the target with the greatest movement energy.
- Position the radar to face the space to be monitored.
- Keep the detection area as clear as possible.

7. Physical Images

Figure 1: Top View without Rotating Platform



Figure 2: Top View without Top Cover

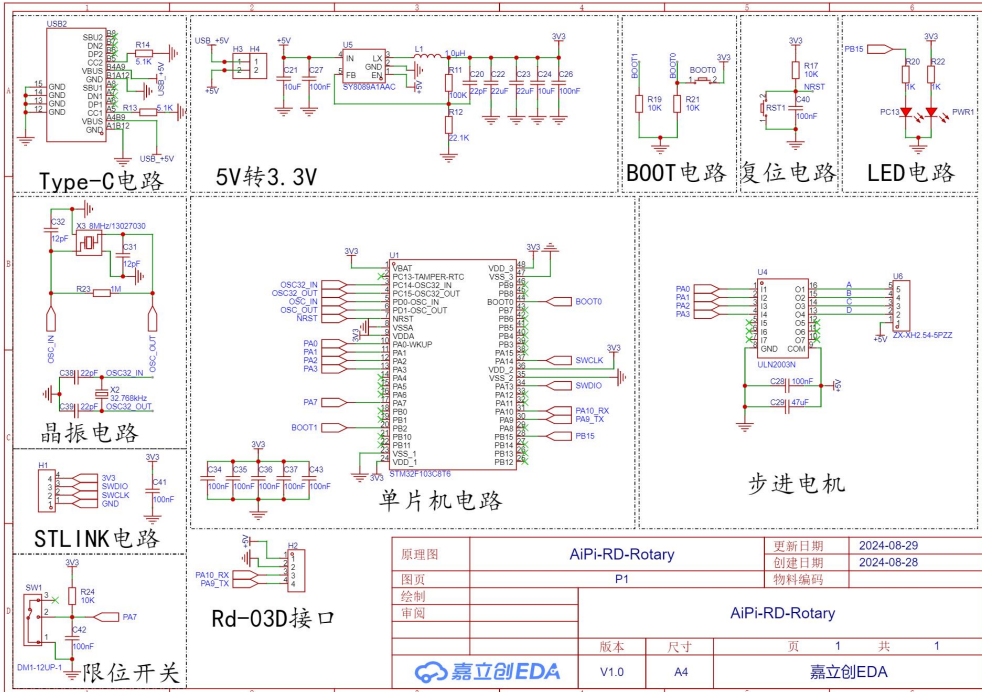


Figure 3: Complete Display



8. Design Drawings

Board1: Schematic Diagram



PCB: Preview of the Printed Circuit Board design

