

CROW – V0.1

CROW

项目总体说明书

版本号 V0.1

2024 年 4 月 20
三月雨开发团队

文档变更历史记录

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1. 项目概述

1.1 软件项目概述

项目名称：CROW 无人机系统

简称或代号：CROW

开发单位：三月雨开发团队

开发人员名单：张国玺 白稹

大致功能和用途：CROW 系统是一款无人机系统，包括无人机的硬件设计与组装，软件的设计与开发，通过该系统，用户可以方便快捷地进行无人机的组装与使用。

1.2 术语定义

序号	术语名称	术语定义
1	无人机	可以通过远程通信进行操纵的飞行器，包括但不限于四轴飞行器，单飞行器等。
2	飞控系统	用于控制飞行器飞行姿态和运动的系统。包括软件系统和硬件系统
4	通信系统	用于在终端机之间负责信息传递的系统
5	模块	具有功能独立 能被调用的信息单元叫做模块
6	内部接口	软件系统内部各子系统指点，各部件之间，各模板之间的接口叫做内部接口，接口描述包括：调用方式，入口信息，出口信息等。
7	相关文件	相关文件是指当本文件内容变更后，可能引起变更的其他文件，如需求分析报告，详细设计报告等
8	开发单位	负责开发该项目的个人或者组织成为开发单位
9	用户界面	与用户进行交互的可视化部分称为用户界面，包括但不限于导航栏，菜单，按钮，图标等

2. 项目的一般性描述

2.1 软件产品与其环境

1. 飞行器硬件环境：飞行器的硬件环境包括但不限于主板，电子调速器，螺旋桨，机架，各类传感器，通信模块，摄像头。
2. 飞行器软件环境：飞行器的测试和运行环境当前还未确定。
3. 服务器硬件环境：服务器使用 debian12 操作系统的软件服务器
4. 控制端环境：测试阶段控制端选用 web 端控制。

2.3 假设与前提条件

在开发和使用 CROW 系统时，我们基于以下假设和前提：

- 用户具备基本的计算机操作和互联网使用能力。
- 用户拥有稳定的网络连接和适当的浏览器环境。
- 用户具备基本的经济水平用于部署该系统。
- 外部软件系统和数据资源能够稳定、可靠地提供所需的服务和数据。
- 用户使用该系统会遵守有关法律法规，不扰乱社会秩序。

3. 系统功能需求描述

3.1 软件功能概述

硬件功能概述：

- 一．飞行器可以进行正常的飞行，包括上升，下降，前进，后退，转弯等。
- 二．飞行器可以与控制终端进行远程通信，接收控制终端的指令进行对应的操作

软件功能概述：

- 一．控制终端软件可以与飞行器进行通信，发送操作指令。
- 二．通信服务器可以进行信息转发，为控制终端和飞行器建立通信线路

3.2 可行性分析

为了软件项目开发的流程顺利进行，我们对 CROW 做了如下的可行性分析

战略可行性：该项目对于无人机产业具有一定的推进作用，通过用户自己组装无人机，降低使用成本和入门门槛，达到间接增加无人机玩家的目的，具有良好的战略可行性。

操作可行性：无人机飞行技术在软件方面目前日趋成熟，有丰富的经验用于借鉴，硬件方面也有众多厂家进行生产，具有良好的操作可行性。

计划可行性：该项目的开发周期长，学习周期长，不具有良好的计划可行性，为此我们选择使用螺旋开发，提高项目的计划可行性。

技术可行性：该项目需要大量的软件开发和硬件设计的基础，具有较高的技术难度，

目前不具备良好的技术可行性，为此我们选择一边学习技术一边进行项目开发。

社会可行性：该项目满足法律要求，具有良好的社会可行性。

市场可行性：该项目为开源项目，不具有经济市场可行性。

经济可行性：该项目的为开源项目，无经济收入，开发、升级和维护需要的经济条件大，具有很差的经济可行性。

风险可行性：该项目后续可能会因为资金问题，时间问题导致项目中止，风险可行性较差。

可行性研究结论：应使用螺旋开发模型进行开发，每个开发周期要再做详细的可行性分析，确保每个周期都可以顺利进行，最后推进整个项目的进行。如果周期可行性分析结论不尽人意，需要尽快考虑终止项目，确保经济和时间的损失降到最小。

4.系统版本记录

版本号	父版本号	立项日期	发布日期	更新内容	功能介绍	测试情况	已知问题
V0.1	Null	20240420	未发布				

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