

Project Scope for Drone Design using PyCatia

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Objective:

The goal of this project is to develop a fully functional drone model in CATIA using PyCatia, incorporating a user-friendly graphical interface (GUI) to input design specifications. The project will utilize CATIA for real-time design visualization and must be completed within a strict 7-day timeline.

Detailed Project Components:

1. Backend Development (PyCatia Drone Design):

- Drone Design Automation: Use PyCatia to automate drone component generation based on user input parameters.
- Modular Structure: Scripts will be structured for modularity, allowing easy updates and modifications for different drone components such as body, rotors, and wings.
- Data Integration: Ensure real-time integration of data between the drone model and user inputs, allowing for immediate updates to the design.

2. Front-End Development (User Interface):

- GUI Design: Develop a graphical user interface where users can input specifications like dimensions, material properties, and functional parameters (e.g., weight, range, and payload capacity).
- Data Communication: Ensure seamless communication between the GUI and PyCatia backend so that user inputs directly control the CATIA design environment.
- Error Handling: Implement input validation mechanisms to detect and manage incorrect or out-of-bound user inputs, enhancing data reliability and system stability.

3. CATIA Visualization:

- Live Design Updates: Link PyCatia with CATIA for real-time design updates as the user modifies input parameters.
- Visualization Optimization: Guarantee compatibility and fluid interaction between the GUI and CATIA to enable uninterrupted visualization of design changes.

Timeline (7 Days):

- **Day 1-2**: Initial setup for backend development and automation of drone component modeling.
- **Day 3**: Development and testing of the user interface for input specifications.
- **Day 4**: Ensure communication between the PyCatia backend and the GUI.

- ****Day 5-6****: Integration of the GUI with CATIA for live design updates.
- ****Day 7****: Final testing, debugging, and preparing documentation for project handoff.

Outcome:

By the end of the project, the deliverables will include a fully functional drone design viewable in CATIA. Users will be able to modify the design via a GUI interface, inputting specific parameters such as dimensions, materials, and drone capabilities.

Gantt Chart:

