AIRMAN
AERONAUTICS

CONTRACT AGREEMENT

DESIGN AND DEVELOPMENT OF THE XB-70 FLIGHT COMPUTER

This agreement is made between:

Client: **Airman Aeronautics Pvt. Ltd., India**

Contractor: **Khandoker Mohd Mazidul H**

1. Overview

This contract establishes the agreement between Airman Aeronautics Pvt. Ltd., India, and Khandoker Mohd Mazidul H for the design, development, programming, integration, and testing of the XB-70 Flight Computer. The project involves both hardware interfacing and software development to meet FAA-compliant standards for exam aids and pilot usability in real-world flight conditions.

2. Scope of Work

A. Hardware Integration

The Contractor agrees to:

1. Configure and integrate the following hardware components:
    - Microcontroller: STM32H747 series
    - Sensors: Bosch BHI360 (IMU), Bosch BMM350 (Magnetometer), Bosch BMP585 (Pressure Sensor), Sensirion SHT45AD1-F (Temperature & Humidity Sensor)
    - Display: 3.5” MIPI IPS LCD 640 x 480 with OCA lamination
    - Power Supply: 3000mAh Li-ion/Li-po battery
    - Keypad: Design and integrate a robust keypad layout capable of withstanding vibrations.
2. Ensure all hardware components operate cohesively with minimal latency, particularly in GUI updates (e.g., AHRS, altitude, and vertical speed).

B. Software Development

The Contractor agrees to:

1. Develop a dynamic GUI with a 2x3 matrix structure for major classes:
    - General Navigation (GEN NAV)
    - Radio Navigation (RAD NAV)
    - Takeoff & Fuel Calculations (T/O & Fuel)
    - Calculator Mode (Calc)
    - Cockpit Mode (FLY): GUI to replicate Garmin G1000 layout.

- Settings Mode (Sett): Includes options for theme color and font customization (excluding Cockpit Mode).
- Dedicated Navigation mode with Aerial 2-D view with Zoom In/out.
- Memory Card to store Flight data & Map information.

2. Implement six subclasses for each major class to cover essential functions and calculations.
3. Program the following calculation modes:
    - General Navigation (GEN Nav)
    - Radio Navigation (RAD NAV)
    - Mass & Balance (M&B)
    - Takeoff/Fuel
4. Develop a USB-C interface for charging & connecting the XB-70 to external devices (laptop or iPad) for:
    - Software updates via Airman's website.
    - Flight data sharing for 2D/3D visualisations and pilot log generation.
5. Ensure FAA compliance according to FAA AC 60-11C.
6. Optimise for low-latency operations to meet real-time flight data requirements.

C. Testing and Validation

The Contractor agrees to:

1. Conduct thorough testing of:
    - Sensor readings and real-time data processing.
    - GUI responsiveness and functionality.
    - USB-C connection and website integration.
2. Deliver a detailed report documenting testing outcomes and compliance certifications.
3. Ensure the battery meets industry safety standards.

3. Deliverables

1. Fully functional XB-70 Flight Computer prototype, including hardware and software.
2. User-friendly GUI with all defined classes and subclasses.
3. Documentation:
    - Technical manual for software functions and hardware integration.
    - FAA compliance report.
    - User guide for system operation and data analysis tools.
4. Source code with detailed comments.
5. A roadmap for future updates/integration with the XB-30.

4. Timeline

The project will be completed in the following milestones:

- Week 1-2: Hardware assembly and initial sensor integration.
- Week 3-4: GUI development and implementation of major classes.
- Week 5-6: Programming of calculation modes and features.
- Week 7: Testing and debugging.
- Week 8-9: Final delivery and handover.

5. Payment Terms

- Total Budget: **$2,500**
  Payments will be made in the following milestones:

1. Milestone 1: $100 upon completion of hardware integration (Test & Validate Sensors).
2. Milestone 2: $500 upon Testing & Validation using Development Board.
3. Milestone 3: $650 upon completion of Design & Delivery of PCB Files.
4. Milestone 4: $750 upon completion of Testing & Debugging the Product.
5. Milestone 5: $500 for Post-Design Support & Testing.

6. Intellectual Property Rights

1. The Client will retain full ownership of the XB-70 Flight Computer's hardware, software, and associated intellectual property upon final payment.
2. The Contractor agrees not to use or distribute the software or hardware design without prior written consent from the Client.

7. Confidentiality

The Contractor agrees to maintain strict confidentiality regarding the XB-70 project, including proprietary designs, software, and user data.

8. Revisions and Support

1. The Contractor will provide up to five rounds of revisions post-delivery at no additional cost.
2. Support for troubleshooting and updates will be available for [time period] after delivery.
3. The Contractor will serve as the Head of Design for this project, guiding and mentoring the AIRMAN product development team throughout the entire development phase.

9. Governing Law

This agreement will be governed by the laws of Upwork & Indian Judicial System.

10. Signatures

Client:
Name: _____
Signature: _____
Date: _____

Contractor:
Name: _____
Signature: _____
Date: _____