

## MFE PROJECT: DRONE ASSEMBLY KIT

**PROJECT IDEA:** A DIY Drone assembly kit that can be assembled at home and can be programmed with ease for educational or recreational purposes.

### FEASIBILITY:

**1) Technical Feasibility:** The drone assembly kit will be designed to be user-friendly, with clear instructions and minimal technical expertise required for assembly. All components included in the kit will be sourced from reliable suppliers, ensuring compatibility and quality.

**2) Financial Feasibility:** Cost analysis will be conducted to determine the feasibility of sourcing components, packaging, and distribution while maintaining competitive pricing. Initial investment requirements for manufacturing setup, marketing, and distribution will be evaluated against projected returns on investment.

**3) Operational Feasibility:** Training materials and support resources will be provided to assist users with assembly and troubleshooting. Supply chain logistics will be optimized to ensure timely delivery of components and kits to customers.

**4) Schedule Feasibility:** A realistic timeline will be developed for the design, prototyping, testing, and production phases of the project. Contingency plans will be developed to address potential delays or obstacles that may arise during the project's lifecycle.

**5) Legal and Regulatory Feasibility:** Compliance with aviation regulations, safety standards, and licensing requirements will be ensured throughout the design and production process. Intellectual property rights for the design and components will be protected through patents and trademarks where applicable.

### RESOURCES REQUIRED:

#### Components & Materials Required:

For Drone:

- (1) Drone Frame Body with Canopy (Plastic)
- (2) Flight Microcontroller Chipset FC-01
- (3) 2 sets of propellers (each set has 4 wings)
- (4) Battery (5v) (600MAH) (Lithium Polymer)
- (5) Small plastic screwdriver for assembly
- (6) Propeller guards.
- (7) Dampers & screws
- (8) 4 DC motors with connectors

For Remote Control:

- (1) Cardboard body (9cm x 15cm x 6cm)
- (2) Rudder & Throttle Joystick

- (3) Elevator & Aileron Joystick
- (4) NRF-24L01 Printed circuit board
- (5) 5mm LED
- (6) Battery (1.5v)

For Packaging:

- (1) Thermocol cutouts
- (2) Cardboard box (27cm × 20cm × 9cm)
- (3) Printed paper for manual (2× A4)
- (4) Printed paper for cardboard box (2×A4)

### **Supply Chain for Materials:**

From Amazon.in (Retail).

- (1) Drone Frame Body
- (2) 2 sets of Propellers
- (3) Propeller Guards
- (4) Flight microcontroller chipset

From Computer hardware stores (wholesale).

- (1) NRF-24L01 printed circuit board.
- (2) Flight microcontroller Chipset

From Electrical hardware stores (wholesale)

- (1) Battery 5v
- (2) 4 DC motors with connectors
- (3) Both Joysticks
- (4) 5mm LED
- (5) Battery 1.5v

From general hardware stores (wholesale)

- (1) Smare plastic screwdriver
- (2) Dampers & screws

From Packaging stones (Custom)

- (1) All packaging done is with a custom Contract made with 3rd party packaging business.

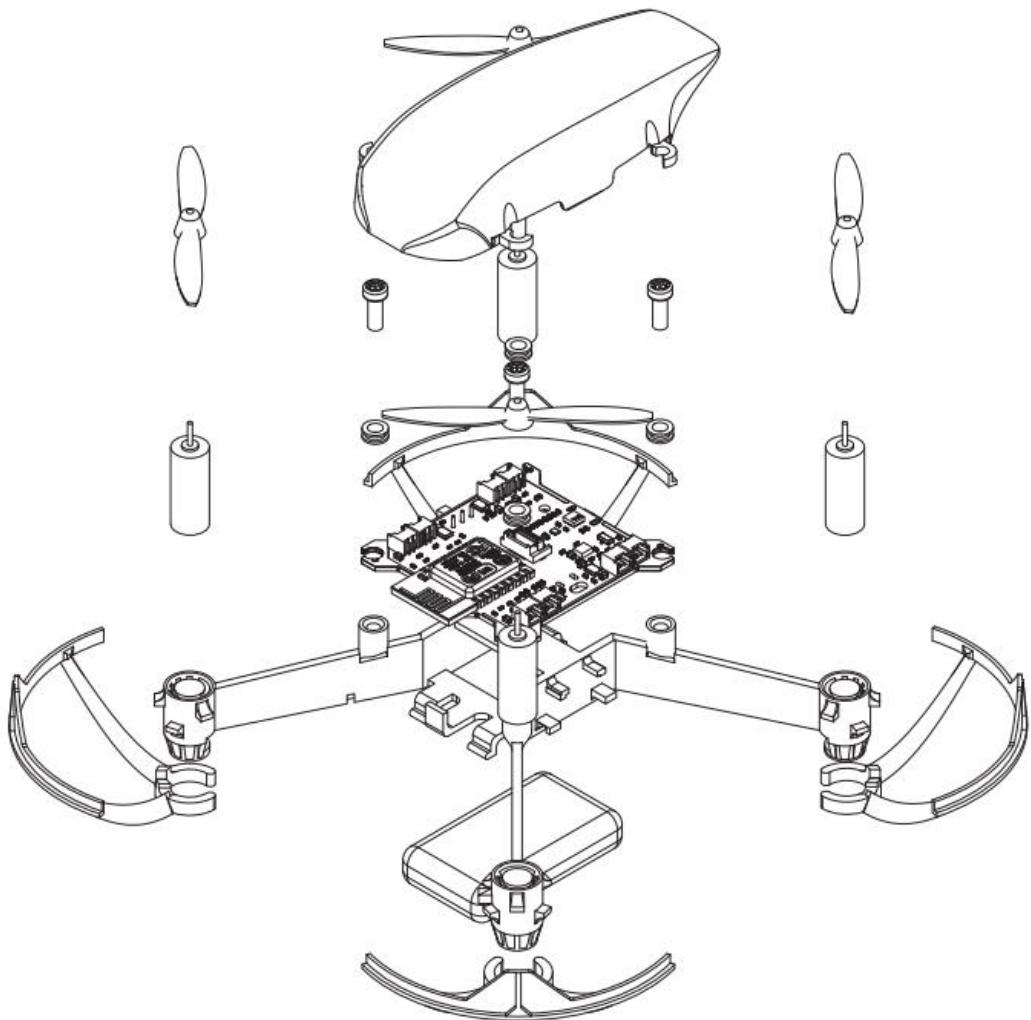
### **MANPOWER REQUIRED:**

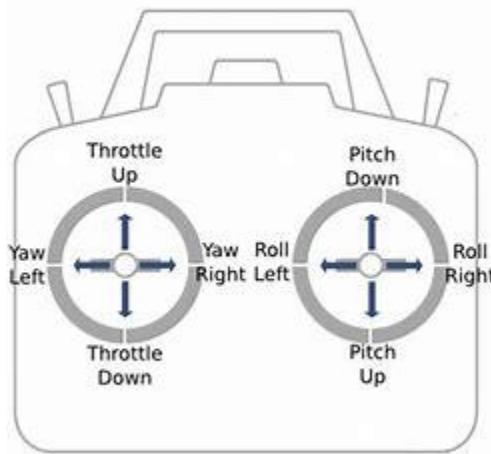
**1) Designer/Engineer:** Engineers and designers responsible for developing the assembly kit components, including the drone frame, motors, electronic components, and packaging.

**2) Manufacturing and Production Team:** To physically put together the drone components according to the instructions provided for testing. Quality control inspectors to ensure that assembled drones meet specified standards and criteria. Managers to package and to track component inventory levels and reorder supplies as needed.

- 3) Logistics and Supply Chain Team:** To source components from suppliers, negotiate contracts, and manage supplier relationships. Warehouse personnel to receive, store, and organize incoming component shipments.
- 4) Customer Support and Administration:** Project managers to oversee the entire drone assembly kit project, including planning, scheduling, budgeting, and coordination of resources. Administrative staff to handle paperwork, invoicing, payroll, marketing, and other administrative tasks. Technical support representatives to assist customers with assembly questions, troubleshooting, and product inquiries. Customer service agents to handle orders, process returns, and address any issues or concerns raised by customers.

### **PROJECT STRUCTURE DIAGRAM:**





## **TIMELINE:**

- **Phase 1: Pre-Production (3-6 months)**

- Month 1-2: Research and Design: Conduct market research to identify customer needs and preferences. Design drone components and assembly instructions. Develop packaging design and branding materials.
- Month 3-4: Prototyping and Testing: Produce prototype drone assembly kits for testing and evaluation. Conduct testing of prototypes for reliability, durability, and performance. Gather feedback from test users and make necessary design revisions.
- Month 5-6: Supplier Engagement and Procurement: Identify and establish relationships with component suppliers. Negotiate contracts and finalize pricing agreements. Procure initial inventory of components and materials for production.

- **Phase 2: Production Setup (1-2 months)**

- Month 7: Manufacturing Infrastructure Setup: Set up manufacturing facility or production line. Install assembly equipment and tools. Train staff on assembly processes and quality standards.
- Month 8: Process Optimization: Fine-tune assembly processes to improve efficiency and minimize waste. Implement quality control measures to ensure consistent product quality. Conduct trial production runs to validate manufacturing processes.

- **Phase 3: Full-Scale Production (Ongoing)**

- Month 9-12: Initial Production and Launch: Ramp up production to meet initial demand. Launch marketing and promotional campaigns to promote the drone assembly kit. Monitor production output and quality, making adjustments as needed.
- Month 13 and Beyond: Scaling and Continuous Improvement: Scale up production capacity to meet increasing demand. Continuously monitor customer feedback and make product improvements as necessary. Explore opportunities for product diversification or expansion into new markets.

## **PROJECT DESCRIPTION:**

A comprehensive solution designed to empower enthusiasts, hobbyists, and educators with the opportunity to build and customize their own drones with ease and precision.

- Specifications of drones:
  - 1) Programming and rechargeable
  - 2) Flight times: 15 + minutes
  - 3) Speed: 3 m/s
  - 4) Charge time: 40 m/s
  - 5) Max range: 80 meters
  - 6) Dimensions: 20 cm × 20 cm × 5 cm
  
- Content in the box:
  - 1) Frame body + cover
  - 2) Microcontroller
  - 3) Propeller and guards
  - 4) 2 batteries
  - 5) 4 dampers and 6 screws
  - 6) 4 Dc motor with connection
  - 7) Cardboard cutout for remote
  - 8) 2 joysticks
  - 9) Printed circuit board
  - 10) LED
  - 11) An instruction manual
  - 12) Warranty card
  - 13) Plastic screw drive

## **PROJECT COMPLETION:**

- **Testing:**

- (1) Phase 1: Assembly: -It will be assembled & tested, if it works properly then it will be dismantled and packaged for selling.
- (2) Phase 2: Defect: -If a defect is detected, it will be sent for repair. If the product is beyond repair, it will be discarded for recycling.
- (3) Phase 3: Report: -All defects that are reported, will be checked thoroughly to avoid it in the future.
- (4) Phase 4: Testing for improvements: -The product will be tested for adding new features or improving the already added features.
- (5) Phase 5: Submission: -Category wise submission will be done for defected, improved & ready to sell product.

## PROJECT COSTING:

NO.	LIST	COST
1	Body Frame + Top cover	1000
2	Microcontroller chipset's	2000
3	Motors + Connectors	220
4	Propellers, Guards, Dampers, Screws	200
5	Battery (5v)	420
6	Plastic screwdriver	10
7	Joysticks	100
8	Printed circuit board	1000
9	LED	2
10	Battery (1.5v)	20
11	Thermocol	4
12	Cardboards	25
13	Printed manuals	10
14	Printed cardboard cover	10
	(Manufacturing cost) = TOTAL=	5021
	Profit Margin = 25%	1255
	Retail GST =5%	251
		6600

Total selling price = 6600

## PROJECT MARKETING:

- Will develop compelling marketing materials that effectively communicate to potential customers. This could include a project website, brochures, presentations, videos, and social media content.
- Using the most effective marketing channels to reach the target audience. This could include online channels such as social media, email marketing, and content marketing, as well as offline channels such as events, workshops, and print media.
- Establishing and nurturing relationships with key stakeholders, influencers, and partners who can help promote the project. This could include industry associations, media outlets, bloggers, and community leaders.
- Planning and executing marketing campaigns to generate awareness and interest in the project. This could involve hosting launch events, webinars, or online promotions to showcase the project to the target audience.

- Engaging with the target audience through social media platforms, online forums, and community groups. Encouraging discussions, answering questions, and soliciting feedback to build trust and credibility.
- Monitoring the performance of your marketing efforts using key performance indicators (KPIs) such as website traffic, engagement metrics, lead generation, and conversion rates. Analyzing the data to identify areas for improvement and optimizing the marketing strategies accordingly.