

Outline:

1. Standard Project Phases
2. Project Plan
3. Scope of Work
4. Additional Services

Standard Project Phases:

1. Initial Prospective Client Meeting
 - 1.1. Phone call, remote video meeting (zoom, teams, etc.) to discuss overall project/idea, clients' timeline, goals with development, funding, project requirements.
 - 1.2. Rough estimate of timing and cost for said requirements
 - 1.3. NDA Execution
 - 1.4. Contract of Work review and execution.
 - 1.4.1. Upwork Contract review – “Manual Time Entry Allowed” - Hiring
2. Concept Development Phase
 - 2.1. Client provides are project/product/idea related materials previously generated (i.e., Drawings, hand sketches, pictures videos, etc.)
 - 2.2. Rough Concept Design
 - 2.2.1. Proof-of-concept calculations (hand calculations)
 - 2.2.2. Detailed hand sketches or rough CAD models produced
 - 2.2.3. Meeting to discuss rough concept design, establish vision and tracking.
 - 2.3. Concept Design
 - 2.3.1. CAD models and rough manufacturing drawings
 - 2.3.2. Industrial Design Review
 - 2.3.3. Concept Design Review Meeting
 - 2.3.3.1. Meeting with customer to discuss concept development and request approval to begin prototype phase
 - 2.3.4. Design for prototype manufacturing
 - 2.3.5. Prototype Bill of Materials (BOM)
3. Prototype Phase
 - 3.1. Prototype Procurement Phase
 - 3.1.1. Gather quotes based on prototype BOM
 - 3.1.2. Prepare files for various prototype manufacturing processes
 - 3.1.3. Contact Suppliers
 - 3.1.3.1. RFQ
 - 3.1.3.2. Gather supplier quotes – cost and timing
 - 3.1.4. Generate Costed BOM
 - 3.1.4.1. Costed BOM Review Meeting
 - 3.1.4.2. Client Approval for Prototype Purchase
 - 3.1.5. Purchase components for prototype.
 - 3.2. Prototype Assembly
 - 3.2.1. Take delivery of prototype parts and hardware
 - 3.2.2. Measure & quality inspection of manufactured parts

- 3.2.2.1. Repurchase parts if not to specification
- 3.2.2.2. Benchmark electronics, motors,
- 3.2.3. Test fitting of parts
 - 3.2.3.1. Modifications to improve fit and finish
- 3.2.4. Finishing
 - 3.2.4.1. Sanding, primer, paint, etc.
 - 3.2.4.2. Final assembly
- 3.2.5. Overall testing of final assembly
 - 3.2.5.1. Pictures, videos, marketing materials, etc.
- 3.2.6. Prototype Demonstration
 - 3.2.6.1. Ship Prototype to Client
- 4. Manufacturing Phase
 - 4.1. Value-added/Value-engineered Design
 - 4.1.1. Cost Reductive Design
 - 4.2. Manufacturing Kick-off
 - 4.2.1. Material Selection
 - 4.2.1.1. Mat'l sourcing and quotes
 - 4.2.2. Tooling Design
 - 4.2.3. Tooling Procurement
 - 4.2.4. Sample Runs
 - 4.2.4.1. Sample validation
 - 4.2.4.2. Tooling modifications if necessary
 - 4.2.5. Production Run
 - 4.2.6. Distribution
- 5. Marketing and Fundraising
 - 5.1. Marketing and Fundraising firm referral

Project Plan:

Actions items and estimated hours based on initial project consultation meeting outlined in the table below. Please see attached formal estimation quote for cost. Project timeline is estimated based on 5-10/wk and is subject to change.

Action Items		Hours
1		
2		
3		
4		
5		
6		
7		
8		
Total		

Project Timeline Date	Action Item No.							
	1	2	3	4	5	6	7	8
8/8/2022								
8/15/2022								
8/22/2022								
8/29/2022								
9/5/2022								
9/12/2022								
9/19/2022								

Scope of Work:

In-Scope Work

Tasks	Resources		
CAD Modeling	Justin B	ME Design Intern 1	ME Design Intern 2
Detail Design	Justin B	ME Design Intern 1	EE Design Intern
Electronics Design	Parker P	EE Design Intern	
Prototyping/Build	Justin B	Other	
Testing	Justin B	ME Design Intern	EE Design Intern
Drawings	Justin B	Kal S	ME Design Intern
CAM Development	Mason M	Justin B	
Project Updates/Meetings	Justin B	Client	
Project Planning	Justin B	Client	
Procurement/Purchasing	Justin B	Other	

Out-of-Scope Work

1. Animations
2. Outside Laboratory Testing
3. Purchasing Additional Software Licenses
4. Travel (outside of 15 miles)
5. Tooling Design
6. Manufacturing Process Improvement

Additional Services:

1. Structural Finite-Element Analysis
 - 1.1. Linear Static Analysis
 - 1.2. Non-linear Dynamic Analysis
 - 1.3. Life-Cycle Estimates
2. Patent Services
 - 2.1. Preliminary “Prior Art” Patent Search
 - 2.2. Patent Attorney Referral
 - 2.3. Novelty & Innovation Enhancement
 - 2.4. Detail Patent Drawings
3. General Business Consulting
 - 3.1. Navigating the Product Landscape
 - 3.2. Referrals and Connections to specific Manufacturers
 - 3.3. Referral to Marketing Services
 - 3.4. Patent Sales Strategy