

New Product Development: An Entrepreneurial Approach

Sample Project

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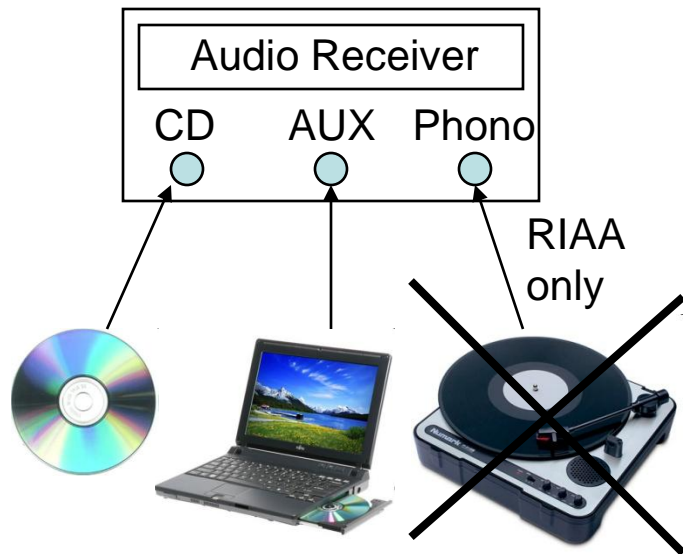
www.stephansorger.com

Sample Project: AddPort™

Project: AddPort™ adds iPhone port to existing receiver by using phono input
Function: Implements inverse RIAA filter (Recording Industry Assoc. of Amer.)

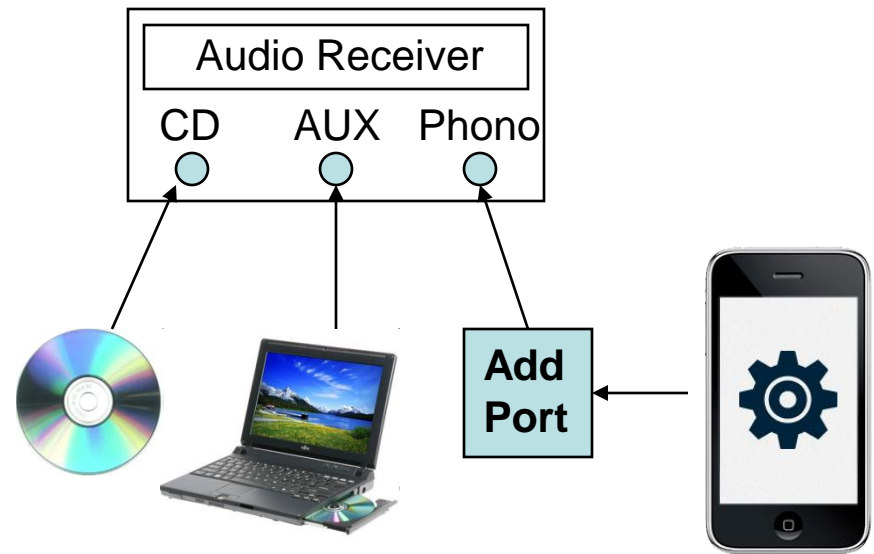
Problem

Too many devices; Too few ports

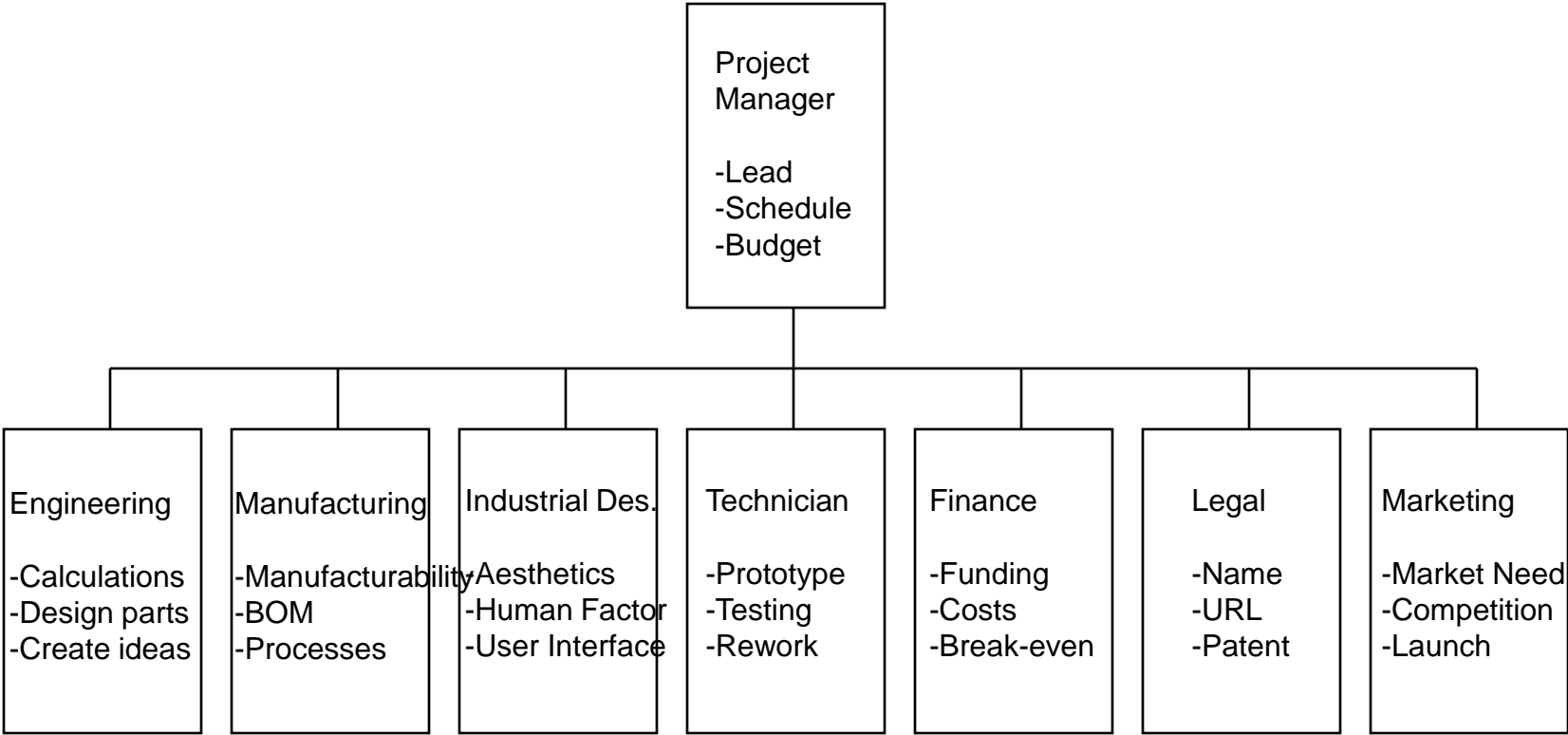


Solution

AddPort: Frees up Phono input port



Process



Team Members: (Enter names)

Structure: Functional/ Project/ Matrix

Special Processes: Standard/ Expedited/ Think Tank/ Other

Market Need

Need Identification

Example

Find needs & wants

Consumers need place to plug in iPhone

Improve on existing

Existing solutions unattractive, inconvenient

Identify trends

Growing use of vinyl records

Solution Alternatives

Description

How solved now

Buy unit/ Make unit/ Go without

Competitors

HagTech, Electronic Design Labs

Substitutes

Do It Yourself (DIY)

Segments

Description

iPod Owner

Convenience: Plug iPod into unused phono input

Affluent Audiophile

Quality: Test performance of receiver

Budget Audiophile

Hobbyist: Debug & Burn-in phono preamp

Competition

Electronic Design Lab, \$48
www.esdl.co.uk/2/invriaa.shtml



Hagerman IRIAA, \$49
www.hagtech.com/iriaa.html

Concept Generation

Methods	Description
Brainstorming	Meet in conference room; shout out ideas
Competitive Study	Evaluate competitors' designs
User Input	Interview extreme users of product (affluent audiophile)
Storyboard	Day in the life of a product; Great for services too
Decomposition	Break down problem into chunks

Concept	Description
PCB	Printed Circuit Board (PCB) with parts soldered to it
Box	Build stand-alone box/enclosure (like ESDL)
Cable	Incorporate parts in interconnect cable
Surgery	Open receiver; Modify existing input circuitry

Insights	Description
Users	Connect many different devices, not just iPhone
Competitors	HagTech offers complete phono product line
Methods	User input method gave valuable insights
Team	Team much more creative on 2 nd meeting

Concept Evaluation

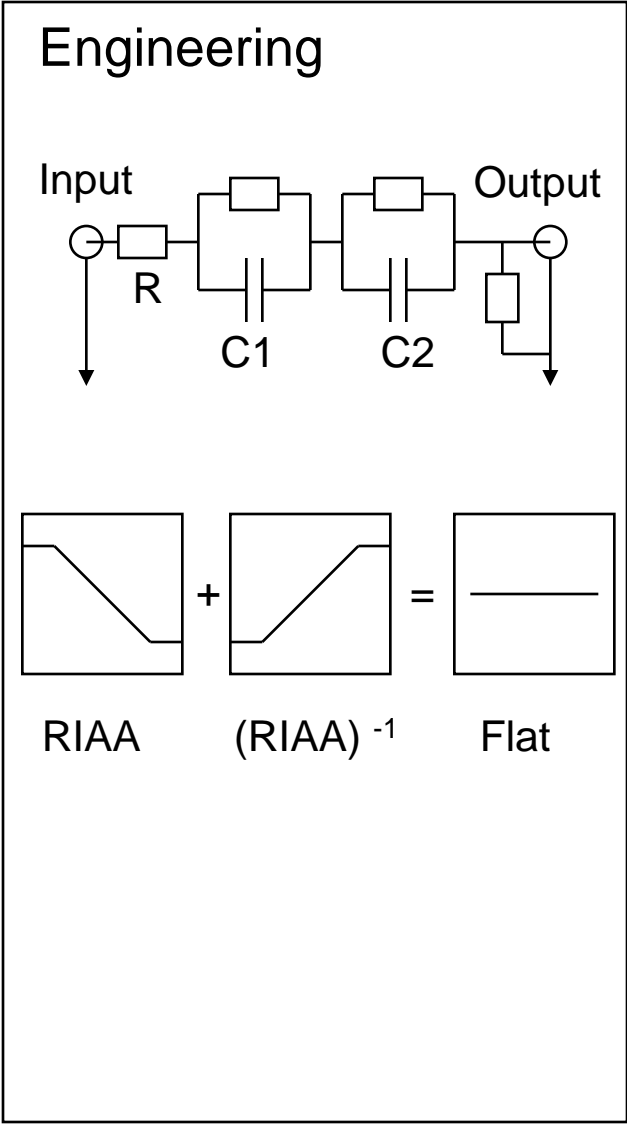
Selection Criteria: +; 0; -	Cable	PCB	Box
Accuracy (follows RIAA curve)	0	0	0
Noise (no electrical noise)	0	-	0
Power (no batteries)	0	0	0
Installation (standard RCA)	+	0	-
Size (small size)	+	-	-
Weight (low weight)	0	+	0
Operation (intuitive)	0	-	0
Aesthetic (style)	+	-	0
Purchasing (ordering)	0	0	-
Price	\$39 (+)	\$49 (0)	\$48 (0)
Total (+ = +1; 0=0; - = -1)	+ 4 (winner)	- 4	- 3

Improvements	Description (Use ideas from “losing” concepts)
PCB source ohms	Consider 2 versions: Standard & Audiophile
PCB low weight	Study if weight hanging off input jacks is an issue
Box ruggedness	Reinforce parts within cable assembly for protection

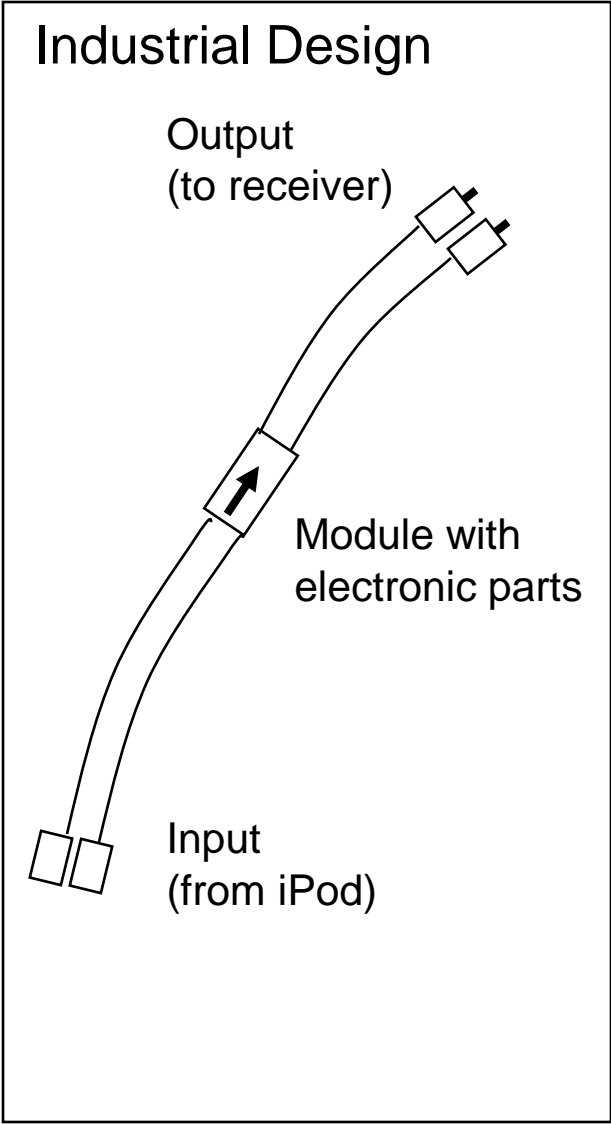
Architecture and Development Specifications

Discipline	AddPort	HagTech	ESDL
Technical: Electrical - Accuracy (10Hz-100kHz) - Power Source - 50 & 600 ohm sources - Connections	+/- .25dB No batteries No Std. RCA	+/- .25dB No batteries Yes Std. RCA	? No batteries No ¼" phono (?)
Technical: Mechanical - Size (w x d x h, inches) - Weight - Heat: Self-cooling	2 x 1 x 1 <1/2 pound Yes	4 x 2 x 1 <1/2 pound Yes	3 x 3 x 1 <1/2 pound Yes
Design - Intuitive Operation - Convenience Factors - Aesthetic Design	Yes Cable-based Yes	No Case req'd? No	Yes Enclosure Yes
Cost	\$12.00	\$8.00 (?)	\$15.00 (?)

Architecture and Development



Industrial Design



Economics

Cost (Start-Up)

Development	\$2,000
Ramp-Up	\$1,000
Marketing	\$2,000/yr

Revenue (per unit)

Unit Price	\$39.99
Unit Cost	<u>\$12.40</u>
Contribution	\$27.59

Cost (Product)

Bill of Materials

(8ea) Resistors @0.25:	\$2.00
(4ea) Capacitors @0.5:	\$2.00
(4ea) Connectors @0.6:	\$2.40
(1ea) Labor, Assembly	<u>\$6.00</u>
Total	\$12.40

Reduce Costs:

- Economies of Scale: Quantity
- Experience Curve: Time
- DFM: Design for Manufacturing

Economics

Pro-Forma Income Statement

Element	Year 1	Year 2	Year 3
Revenue	\$3,999	\$7,998	\$4,799
(Units x Price)	(100 x \$39.99)	(200 x \$39.99)	(120 x \$39.99)
- COGS	\$1,240	\$2,480	\$1,488
(Units x Variable Cost)	<u>(100 x \$12.40)</u>	<u>(200 x \$12.40)</u>	<u>(120 x \$12.40)</u>
Gross Margin	\$2,759	\$5,518	\$3,311

Break-Even

$$\begin{aligned}\text{Break-Even} &= (\text{Fixed Cost}) / (\text{Price} - \text{Variable Cost}) \\ &= \$5,000 / (\$39.99 - \$12.40) = \underline{181 \text{ units}}\end{aligned}$$

Funding

Funding Criteria	Description
Business Overview	We build devices to ease connections of iPhones to old stereos
Management Team	Founder skilled in electronics manufacturing and audio
Product	Connection cable with built-in inverse RIAA filter
Market	500M iPhones produced in total as of 2014
Competition	Boutique audio and accessory companies
Business Model	Generate \$20+ in contribution for each unit sold
Strategic Relationships	Went to school with buyer at Best Buy
Barriers to Entry	Distribution channels; Getting them to carry product
Finances	Break-even in about 1 ½ years
Use of Proceeds	Spend proceeds to build initial order of 1000 units to sell
Capital & Valuation	\$100,000 to obtain 10% of ownership

Intellectual Property

USPTO Trademark Availability

The screenshot shows the USPTO TESS search interface. At the top, it says "United States Patent and Trademark Office" with a navigation menu including Home, Site Index, Search, FAQ, Glossary, Guides, Contacts, eBusiness, eBiz alerts, News, and Help. Below this is the "Trademarks > Trademark Electronic Search System (TESS)" header. A message states "TESS was last updated on Fri Mar 12 04:06:49 EST 2010". There are navigation buttons for TESS HOME, STRUCTURED, FREE FORM, BROWSE DICT, SEARCH OG, BOTTOM, and HELP. A prominent warning reads: "WARNING: AFTER SEARCHING THE USPTO DATABASE, EVEN IF YOU THINK THE RESULTS ARE 'O.K.,' DO NOT ASSUME THAT YOUR MARK CAN BE REGISTERED AT THE USPTO. AFTER YOU FILE AN APPLICATION, THE USPTO MUST DO ITS OWN SEARCH AND OTHER REVIEW, AND MIGHT REFUSE TO REGISTER YOUR MARK." Below the warning is a "View Search History:" dropdown menu. There are radio button options for "Plural and Singular" (selected), "Singular", "Live and Dead" (selected), "Live", and "Dead". The "Search Term:" field contains "ADDPORT". The "Field:" dropdown is set to "Combined Word Mark (BL, TM, MP, TL)". The "Result Must Contain:" dropdown is set to "All Search Terms (AND)". There are "Submit Query" and "Clear Query" buttons. At the bottom, there is a "Logout" button and a note: "Please logout when you are done to release system resources allocated for you."

Registrar URL Availability

The screenshot shows the GoDaddy.com website. The logo at the top left says "Go Daddy .COM The web is your Domain!". A user is logged in as "Stephan" with a "Sign Out" link. There is a "Deals of the Day" section. A navigation menu includes HOME, Domain Auctions, Marketplace, Support & Community, Domains, Hosting, Email, Site Builders, Business, and SSL Certificates. Below the navigation, there are buttons for "Manage", "Renew", and "Upgrade". A "MY PRODUCTS" section lists "Domains", "Domain Manager", "Free Products", "Hosting", and "Show All My Products". A "Get your domain in 3 easy steps!" section shows "Search", "Customize", and "Checkout" steps. A green checkmark icon is next to the text "Stephan, addport.com is available!" and "Select the domain names below that you would like to register:".

Patent Strategy

Description

Patent Type

Provisional; United States only

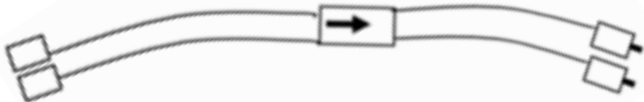
Patent Class

Art 2614; Class 381 Electrical Audio Signal Processing

Risk Management

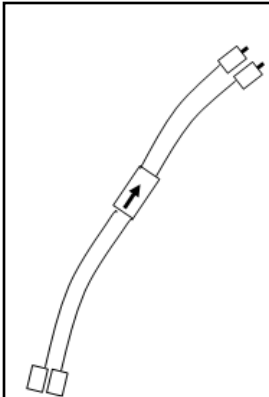
Prototyping

- Gauge market reaction
- Test industrial design



Market Testing

Ad



Announcing the AddPort™

- Value Prop
- Segment(s)
- Messaging

Market Test	Results
Survey	50% would buy Expect at BestBuy
Interview	Easy to use Work with iPhone?
Segments	Music lovers Audiophiles Hobbyists

Launch: Product

Product	Description
Value Proposition	Extra port/ Test amplifier/ Burn-in amplifier
Positioning (Internal)	Convenient, elegant extra port at lower price
Messaging (External)	3 Messages for 3 market segments

Launch: Price

Price	Description
Retail	\$39.99 List price
Competition	\$48.00 - \$49.99
Discounts	8% (Amazon) – 40%+ (BestBuy & other channels)

Launch: Place

Place	Description
Amazon	Quick Start Guide: 4 Steps to Becoming a Merchant
BestBuy	Broaden reach, but large discounts expected
Fry's	Last resort; store positions product as commodity

Promotion

Promotion	Description
Google Search	Ask prospects for search terms
Google AdWords	Ask prospects for keywords
Channel	Online keywords search; Placement in store

Conclusion

Conclusion	Description
Lessons Learned	Do market testing earlier; Needed market feedback Make cable longer Talk to more distribution channels
Marketability	Limited market based on initial test results Market may improve once iPhone X launches
Observations	Team late to start but rallied at end Difficult to meet with distribution channel members More work to get survey results than anticipated