Project Proposal

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Product Proposal

Project Description:

- The name of the product is "**Hobby Project Generator**".
- The product is a web application.
- New users will have to answer a mandatory questionnaire for what tools, skill sets, skill level, and interests they have.
  - Each of these answers will be changeable within the user settings later.
- The intended audience are hobbyists with physical crafting skills, but want new ideas for projects.
  - The age range will be limited to 18 and older, due to disclaimers regarding personal safety and accountability.
- The value of our product is that it will show new curated projects based on the user's physical skill set, skill level, and available physical tools.
  - Each project will have a small summary to go with it, in order to give the user a brief description of what the project entails.
- The vision for this product is to be a hub for discovering new ideas for projects from hobbyists and/or professionals based on the specific resources available to each user.
  - We will curate projects with recommendations to useful tools that would allow the user to take advantage of their current skill sets.
  - Users will also have the option to search for a specific project on the discovery page.
  - At the same time, we want the product to become a social community where new ideas can be discussed and improved upon with each new user.

Expansion Points:

- As user base grows and more projects are submitted, we will ask users for skill level and time completed for projects
- As our product and user base grows, we will add a "Software Skill Set", opening our application to a wider range of users and skills
  - This will be hobbyists or professionals in computer programming, databases, and other software related fields.
  - A category for anyone familiar with an Arduino will be added for programming implementations.
  - Skill Sets
    - Programming Languages
    - Databases

- ■ Operating Systems
- ■ Computer Design and Architecture
- ■ Office Suite

Website Scope:

Our website will be region locked to the **United States of America only**, for the sake of simplicity.

- We will support these browsers that are compatible with .Net 5/6:
  - We will target support for the latest Chrome version as of **05/20/22**.
- Beta versions and all other browsers will not be supported.
- The current application version will be tested for comparability with the new browser version, then if everything works, it will go live.
- **Expansion Points**:
- We plan on supporting more languages and countries over time.
- We also plan on expanding support for other browsers like Firefox, Safari, and Edge.

Competitors and What Makes Our Project Different:

- *List of competitors and our advantages over them:*
  - **iFixit** - Include steps and guidance on how to clean and repair electronic products. Also inform users of tools that will be needed for the repair as well as the product specifications.
    - ■ Our product would recommend projects based on the user references and the available tools instead of the other way around where the user already had a project in mind and then look for the necessary tools and resources.
  - **Instructables** - Community style website where users post their projects with written tutorials.
    - ■ Our product would recommend tutorials/projects based on the user's individual profile.
  - **WikiHow** - Wiki-based hub where users and experts post tutorials detailing how to do common everyday tasks/projects (e.g. building a deck; changing a tire). The site is limited to mostly practical "general know-how" projects.
    - ■ Our product pulls projects from a variety of sources to curate not only practical tutorials (such as those provided by WikiHow), but also those posted on sites with a more creative basis (e.g. Instructables, Hackaday) in order to provide a much larger and holistic pool of

possible projects that can optimally curated based on each user's individual motives, preferences, skills, and resources

- ○ **Pinterest** - Provides idea/project recommendations based on user profile, but the profile is like-based; it only takes into account the user's previously liked posts from the site.
  - ■ Our site's user profile would be much more holistic - including the user's previously completed projects, the physical resources they have (e.g. what tools they have access to, etc.), skills they have already learned, and any additional skills they are wanting to learn - so the recommendations would be tailored toward much wider criteria.

Expansion Points:

- ○ After scope is expanded to software:
  - ■ CodeAcademy - a site offering free coding courses in various programming languages
  - ■ Khan Academy - lessons, lectures, and tutorials on various software skills
  - ■ YouTube - tutorials in software with recommendations based on watched videos
    - ● Our project would be more specific in terms of the user skill level
  - ■ GeeksforGeeks - provide written tutorial, documentation and code examples for different languages such as C, C++, Java, Python, ...
  - ■ W3Schools: - provide written tutorial, documentation and code examples for different languages such as C, C++, Java, Python, ...

Features:

- ● **Applicable to all image uploads and characters on the site:**
  - ○ Can be JPG, PNG, BMP, PDF, GIF
  - ○ JPG, PNG, BMP, GIF uploads will be limited to a size of 5 MB per file at any resolution.
    - ■ Files above this limit will be compressed, resized, or converted to a JPG
  - ○ PDF files will be limited to 15 MB per file.
  - ○ Valid characters will include the non-extended ASCII table.
    - ■ The website itself will be in American English.
      - ● Users will be able to **post, search, and comment** in any language so long as the characters are within the ASCII table.
- 1. **Pooling projects from WikiHow and Instructables**

a. Will refresh weekly at 12:00 A.M. PST because the average time to complete a project will take a long time.

b. Dealing with differential data
   i. **Adding projects**:
      1. If the project is new, then it will be added to the database list with the correct link.
   ii. **Deleting projects**:
      1. Removing projects that are no longer legal or possibly outdated based on the link's existence.
   iii. **Updating Projects**:
      1. Updates to the title and contents of the project on the external website will not change the link from "Hobby Project Generator".

2. **Skill Set , Skill Level Categories, and Interest will be predefined with the list below**
   a. **Skill sets will be based on user selection of available skill sets listed**
      i. Skill sets
         1. Carpentry
            a. This skill options include:
               i. Wood cutting
               ii. Sanding
               iii. Painting
               iv. Sculpting
         2. Blacksmith
            a. This skill options include:
               i. Welding
               ii. Cutting
               iii. Sanding
               iv. Painting
               v. Polishing
         3. Electrical requires the ability to solder, cut and strip wires.
            a. This skill options include:
               i. Soldering
               ii. Cutting wires
               iii. Stripping wires
               iv. Crimping wires
         4. Pottery
            a. This skill options include:
               i. Clayworking

ii.   Molding/modeling of the clay
                                      iii.   Baking
                          5. Landscaping
                                a. This skill options include:
                                      i.   Gardening
                                      ii.   Plumbing
                          6. Masonry
                                a. This skill options include:
                                      i.   Working with bricks and stone
                                      ii.   Knowing how to use mortar
                                      iii.   Working with concrete
            b. **Skill Level Categories will be based on a rating that the user assigns
                to each skill selected. Ratings will be:**
                    i.   **Beginner** - Little to no experience in skill set.
                    ii.   **Intermediate** - Some experience so that the user is familiar with
                          the skill.
                    iii. **Advanced** - User has had plenty of experience with skill and is
                          more than comfortable taking on difficult tasks.
            c. **Interest availability will be the same as skill set:**
                    i.   Carpentry
                    ii.   Blacksmith
                    iii. Electrical
                    iv.   Pottery
                    v.   Landscaping
                    vi.   Masonry
3. **Customized recommendations for projects and tools that depend on the
    users' references**
        a. Recommendations will be based on our "special sauce"(see below).
        b. Simple tools will be recommended.
                i.   The goal is to recommend one or two tools that the user could
                      benefit from having in order to take on even more projects with
                      their current skills.
        c. Project recommendations will be limited to 5, based on the interest of
            the user.
        d. Current recommendations will be restricted to American English only
            for now.
        e. All tools in the recommendations will be in metric units.
4. **Uploading/Removing projects from your personalized profile**
        a. Users will need to sign in to upload or remove a project.

b. If a user publishes a software related project, the post will go through, but it will not be recommended by the search engine currently and it will not show up in the discovery page.
c. Users will only be able to publish 1 project at a time but are not limited to the number of projects they can work on or post in total:
   i. Users will be able to upload multiple media and text files together in order to customize the presentation of their posts.
   ii. Users will have the option to save a project as a draft before publishing on the site.
   iii. Text content within a project will be limited to 10,000 characters.

5. **Rating for projects (1 - 5 stars and amount of user ratings)**
a. Will be presented as 5 empty stars and the user fills stars to their satisfaction to "grade" that specific project.
b. Users will need to sign in to rate the project, unregistered users would need to sign up to have this feature.
c. User project rating will only count once, but can be updated an unlimited amount of times.
d. Number of viewing users that rated the project will be displayed.

6. **Search and Discovery Page**
a. Page will have a text search field at the top and will have photo thumbnails of featured projects arranged below.
   i. Search is not case sensitive.
   ii. Search for specific projects by project titles.
      1. Titles that match searched content most closely to a project will be displayed first.
      2. Search Filters **-** one filter may be selected at a time**:**
         a. Skill sets
         b. Available hardware
         c. Star rating
            i. Default is highest to lowest
            ii. Option to select from lowest to highest
         d. Number of votes.
            i. Default is highest to lowest
            ii. Option to select from lowest to highest
         e. Date posted - Range will be all time.
            i. Default newest to oldest.
            ii. Option to select oldest post to newest.
   iii. Featured projects page will be updated based on projects' star rating and display upon discovery based on categories below:

1. Categories include time constraints: daily, weekly, and monthly top-rated projects, most rated projects.
        iv. Text search field must be at least 1 and at most 100 characters
            1. Can be any of the characters listed on the ASCII table.
            2. Can be in any language so long as the characters are in the ASCII table.
        v. Images cannot be placed in the search field.
        vi. All tools will need to be in **metric units** to be valid for searching.
    b. Users do not need an account to access this portion of the website.
    c. Logged in users alone will have a new category, the "recommended section" where top rated projects will be personalized for the user.
7. **Comment section (for each project, upvote and downvote for comments)**
    a. Users will need to sign in to comment on the project with a text limit up to 500 characters.
    b. The comment section will be similar to a forum, where each project will have separate sections for users to ask questions or make comments on a specific project.
    c. Comments can be upvoted/downvoted and will be reflected numerically with green/red color.
        i. Can be updated an unlimited amount of times.
    d. Logged in users would be able to post pictures of their completed projects in this subsection.
    e. Users can also post pictures in the comments. Users will gain new ideas of how to make the project more personalized for them from the pictures and will also incentivize the community to post and share, thereby growing the product and social aspects of the application.
    f. Images uploaded can be PDF, PNG, JPEG with a total limit of 25 MB for all images.
8. **Notifications**
    a. Users will be able to access a small listing of the 5 most recent notifications.
        i. Notification detail will include the project name and ID, the type of notification, and the name of the other user
            1. Daily project notification will be identified as "Top Projects Today"
        ii. Each listed item will serve as a link to the individual notification.
    b. A notification for the top 5 daily projects that the user is interested in will be sent every day when the user first logs in.
        i. The time of 12:00 A.M. PST will be the start of a new day.
    c. The Notification page will have all comments from the past 30 days.

   i. Any comments longer than 30 days ago will be removed from the notifications page based on when the user first views it.

Expansion Points:

9. **Product Recommendations**
   a. If a user does not have a specific item i.e hammer, they would have the option to be linked to a list of that item from Amazon
      i. Link will open in a new tab and user can pick and choose items they want to buy
   b. Author of a project listing can embed personal links of their items or recommended items they want the user to try using
      i. This will allow authors to profit off recommended items if Hobby Project Generator users use their promo code if they have one
      ii. Possible adverts:
         1. "Partnered" links to recommended tools or materials will allow us to get a commission each time someone makes a purchase.
10. **Professional (Skill level Category)** - User is able to take on very complex projects that would require a professional license to complete.
11. **ASCII** - **Extended** will be implemented later on when the user base expands to require more languages.
    a. Emojis will also be added as well.
12. **Email notification**
    a. Emails will be **enabled by default**, but users can **opt-out** at any time through their settings.
       i. An email settings option under user settings will contain a list of checkboxes for available email notifications. Users can check each individually to enable or disable each type.
          1. Email Types:
             a. Weekly Featured Projects
                i. Email will contain 10 projects selected (how are we selecting?) from the user's discovery page that link to the project page on the site
             b. Comments
                i. Any comments posted on any of the user's projects
             c. Upvotes

            i.   Daily email detailing listing the count of upvotes for each project, with links to each project

13. **Direct Messages**
    a. One to one direct messages

Matching Formula for Recommending Projects:

- Weights will vary for user interest and skill sets, but not tools:
    - Recommendations formula will have Tools as the heaviest priority weight with value of 2 and skillset and interest with an equal value of 1. This value will be implemented in the backend and the user will not be able to see it.
        - Tool sizes will be in <u>metric units.</u>
    - **User interest** will use a value of 1- 3
        - 1: Not interested
        - 2: Mildly interested
        - 3: Very interested
    - **Available set of interest:**
        - Carpentry
        - Blacksmith
        - Electrical
        - Pottery
        - Landscaping
        - Masonry
    - **User skill set**: Users will be able to choose between a yes and no to indicate their capability in a given skill set.
    - **User available tools** are important because certain projects would be difficult or impossible to complete without them.
        - Each tool will have the same weight because the priority of the tools needed for each project varies.
        - See at the end of the document for the tool list.

Questionnaire:

- The user will be able to choose from a predefined list for each of the three categories and select the options:
    - User tools - Will be displayed in metric units.
        - List of tools is defined at the bottom of the document.
        - Each tool will be displayed in alphabetical order so that the user can easily find the tools they own.

- User interest/skill set:
  - The list of predefined interests/skill sets will be shown for users to rate each one on a scale of 1 to 3 based on their preference.
    - A second rating for skill sets will have the option of yes or no to find out if the user has that skill or not.
  - Each skill set will have options of sub skills that the user will be able to specify that they have. List of interests/skill sets are:
    - Carpentry
      - This skill options include:
        - Wood cutting
        - Sanding
        - Painting
        - Sculpting
    - Blacksmith
      - This skill options include:
        - Welding
        - Cutting
        - Sanding
        - Painting
        - Polishing
    - Electrical requires the ability to solder, cut and strip wires.
      - This skill options include:
        - Soldering
        - Cutting wires
        - Stripping wires
        - Crimping wires
    - Pottery
      - This skill options include:
        - Clayworking
        - Molding/modeling of the clay
        - Baking
    - Landscaping
      - This skill options include:
        - Gardening
        - Plumbing
    - Masonry
      - This skill options include:
        - Working with bricks and stone
        - Knowing how to use mortar
        - Working with concrete

Data Sources:

- **Initial chunk of projects**:
  - Using a search engine tactic of WikiHow and Instructables in order to initially create an extensive enough list.
    - We will use separate copyright free images to represent the visuals of the project.
  - There are no issues with crediting and linking directly to the source found because there are no monetary gains for us and we are still diverting traffic to the original page.
- **How will obsolete projects be removed**?
  - We will be using the sources below to match against current projects on the site and remove them.
  - Sources for illegal materials:
    - EPA for list of chemicals that are illegal:
      - [Chemicals under the Toxic Substances Control Act (TSCA) | US EPA](#)
    - IMRA for list of industrial materials that are illegal:
      - [IMRA List of Prohibited Substances and Components](#)

Expansion Points:

- As our user base and the number of user submitted projects grows, we will remove our initial data source pulling system and focus on curating user submitted projects
  - This will put more focus on the use of our application and its available functionality, making us a better competitor with similar applications.
  - Also opens up the path for us to partner with companies in order to make monetary gains.

Possible Legal Issues:

- **There are no issues with the data we are utilizing from each website**
  - **Creative Commons License protects all users**
    - Generic photos will be pulled from a copyright free image source search engine
    - Disclaimer for own responsibility of using legal materials in terms of service

- - ■ User base can be content creators further down the line, as product becomes used more
  - ○ **Terms of Service Regarding Monetary Gains**
    - ■ There is no promotion because only the tools recommended will not have links to companies of where to purchase them

List of available tools to choose from:

When specific sizes (in metric units) of each are available, types will contain sub-category of sizes

Wrenches(Sizes at the end):

- Adjustable
- Key
- Socket
- Combination
- Allen
- Open-End
- Box-Ended
- Ratcheting
- Torque
- Alligator
- Armorer's
- Bionic
- Cone
- Bung
- Flare Nut
- Hammer
- Monkey
- Pliers
- Plumber's
- Spanner
- Spud
- Short-Body or Stubby
- Crowfoot
- Impact
- Basin

Screwdrivers:

- Phillips
- Hatchet
- Plane
- Scraper
- Phillips Head
- Flat Head
- Star
- Insulated
- Torque
- Tri-Wing
- Pozidriv
- Hex
- Square
- Electric
- Impact
- Precision
- Triangle
- Allen

Pliers:

- Crimping
- Diagonal
- Horse Clamp
- Needle Nose
- Slip Joint

- Pipe
- Hex Key/Allen
- Star-Head Key/Torx Key
- Strap

Hammers:
- Ball Peen
- Dead Blow
- Rubber Mallet
- Blacksmith
- Blocking
- Brass
- Bushing
- Cross Peen
- Cross Peen Pin
- Brick
- Joiner's
- Lineman's
- Power Hammer
- Claw
- Drywall
- Electrician
- Framing
- Sledgehammer
- Tack
- Trim
- Rip
- Scutch
- Shingle
- Soft-Faced
- Stone Sledge
- Straight Peen
- Welding

Hand Saws:
- Hack
- Coping
- Crosscut

- Snap Ring
- Tongue and Groove
- Bail Making
- Angled
- Bent Nose
- Brake Spring
- Canvas
- Chain Nose
- Combination
- Eyelet
- Fencing
- Flat Nose
- Grommet Pliers
- Horse Grip
- Linesman
- Locking
- Nail Puller
- Oil Filter
- Piston Ring
- Push Pin
- Round Nose
- Running
- Sheet Metal
- Split Ring
- Soft Jaw
- Spark Plug
- Welding
- Wire Twisting

- Bow Cut
- Fret
- Keyhole
- Japanese
- Rip-Cut
- Back
- Pruning
- Veneer
- Wallboard
- Camping
- Bone
- Power
  - Circular
  - Miter
  - Compound Miter
  - Jigsaw
  - Band
    - Stationary
    - Portable
  - Table
  - Chainsaw
  - Chop
  - Flooring
  - Panel
  - Oscillating
  - Radial
  - Scroll
  - Pole
  - Wet Tile
  - Reciprocating
  - Rotary
  - Track

- Electric drill
- Circular saw
- Soldering iron
- Electric screwdriver
- Chainsaw
- Nail gun
- Hammer
- Screwdriver
- Mallet
- Axe
- Saw
- Wrench
- Monkeywrench
- Chisel
- Pliers
- Hacksaw
- Phillips screwdriver
- Hatchet
- Plane
- Scraper
- Bradawl
- Coping saw
- Wire
- Spirit level
- Tape measure
- Spade
- Shovel
- Hoe
- Trowel
- Lawnmower
- Pruning shears
- Toolbox
- Paint thinner
- Anvil
- Sandpaper
- Workbench
- Sharpening stone
- Vise / clamp
- Stepladder
- Crimpers

- **Standard Metric Combination Wrenches (6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 , 21, 22, 23, 24) mm**

Expansion:
1. Tools will be updated over time to accommodate new or missing tools.

Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char
0	00	NUL	26	1A	SUB	52	34	4	78	4E	N	104	68	h
1	01	SOH	27	1B	ESC	53	35	5	79	4F	O	105	69	i
2	02	STX	28	1C	FS	54	36	6	80	50	P	106	6A	j
3	03	ETX	29	1D	GS	55	37	7	81	51	Q	107	6B	k
4	04	EOT	30	1E	RS	56	38	8	82	52	R	108	6C	l
5	05	ENQ	31	1F	US	57	39	9	83	53	S	109	6D	m
6	06	ACK	32	20	space	58	3A	:	84	54	T	110	6E	n
7	07	BEL	33	21	!	59	3B	;	85	55	U	111	6F	o
8	08	BS	34	22	"	60	3C	<	86	56	V	112	70	p
9	09	HT	35	23	#	61	3D	=	87	57	W	113	71	q
10	0A	LF	36	24	$	62	3E	>	88	58	X	114	72	r
11	0B	VT	37	25	%	63	3F	?	89	59	Y	115	73	s
12	0C	FF	38	26	&	64	40	@	90	5A	Z	116	74	t
13	0D	CR	39	27	'	65	41	A	91	5B	[	117	75	u
14	0E	SO	40	28	(	66	42	B	92	5C	\	118	76	v
15	0F	SI	41	29	)	67	43	C	93	5D	]	119	77	w
16	10	DLE	42	2A	*	68	44	D	94	5E	^	120	78	x
17	11	DC1	43	2B	+	69	45	E	95	5F	_	121	79	y
18	12	DC2	44	2C	,	70	46	F	96	60	`	122	7A	z
19	13	DC3	45	2D	-	71	47	G	97	61	a	123	7B	{
20	14	DC4	46	2E	.	72	48	H	98	62	b	124	7C		
21	15	NAK	47	2F	/	73	49	I	99	63	c	125	7D	}
22	16	SYN	48	30	0	74	4A	J	100	64	d	126	7E	~
23	17	ETB	49	31	1	75	4B	K	101	65	e	127	7F	DEL
24	18	CAN	50	32	2	76	4C	L	102	66	f			
25	19	EM	51	33	3	77	4D	M	103	67	g			

Available wrench sizes with conversion:

Standard /Imperial (Inch)	Metric(mm)	Bolt Diameter
5/16"	8mm	1/8"
3/8"	10mm	3/16"
7/16"	11mm	1/4"
1/2"	13mm	5/16"
9/16"	14mm	3/8"
5/8"	16mm	7/16"
3/4"	19mm	1/2"
13/16"	21mm	9/16"
7/8"	22mm	
15/16"	24mm	5/8"
1"	25mm	
1-1/8"	29mm	3/4"
1-1/4"	32mm	
1-5/16"	34mm	7/8"
1-3/8"	35mm	
1-1/2"	38 mm	1"
1-5/8"	41mm	
1-11/16"	43mm	1-1/8"
1-3/4"	45mm	
1-7/8"	48mm	1-1/4"
2"	51mm	1-3/8"
2-1/4"	57mm	1-1/2"
2-1/2"	64mm	1-5/8"
2-5/8"	67mm	1-3/4"
2-3/4"	70mm	
2-15/16"	75mm	1-7/8"
3"	76mm	
3-1/8"	80mm	2"
3-1/4"	83mm	
3-1/2"	89mm	2-1/4"
3-3/4"	95mm	
3-7/8"	99mm	2-1/2"
4"	102mm	
4-1/4"	108mm	2-3/4"
4-1/2"	114mm	
4-5/8"	118mm	3"
5"	127mm	3-1/4"
5-3/8"	137mm	3-1/2"
5-1/2"	140mm	
5-3/4"	146mm	3-3/4"
6"	152mm	
6-1/2"	165mm	
7"	178mm	

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