Proposal for check out kits

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Goal: To allow MIT faculty, staff, and students to make things at their own convenience. Sometimes it is simpler to take the tool to the project. In these cases the current MIT maker infrastructure is insufficient. This proposal leverages the current MIT library system and knowledge (librarians & MIT MakerWorks mentors) to provide a means for tool checkout.

Idea: People want to do small tasks from home, we should be able to provide them the means to do so. MakerWorks will put together a series of kits ranging from small tools, photography, electronics, and sensors. The long term goal is to make these kits available for check out from Rotch library, Hayden library, and Barker library. An initial pilot study is proposed with approximately 40 kits of varied types located in Rotch Library.

Implementation Overview: Kits will be available for 1 week checkout to all MIT affiliates. The kits will be cataloged and checked out the same way that library books are checked out. A MakerWorks mentor will procure, organize, and label the kits for easy use. The kits will then be transferred to the library staff who will catalog it. MakerWorks staff will train the library staff on how to use the equipment and check that it is in working order. MakerWorks staff will also be responsible for maintaining the kits through regular inspections of the kits.

MakerWorks responsibilities: MakerWorks will be responsible for procuring the tools and assembling the kits. The kits will be assembled into hard cases which contain a laminated list of what they contain to make it easy to track what's inside of them and training guides. Each case will be labeled with the MIT Library's logo, the MIT MakerWorks Logo, and a label describing what it contains. The kits will then be transferred to the MIT libraries for cataloging. MakerWorks staff will also train the relevant library staff on how to use the tools within the kits before they go into circulation.

Once the kits are in circulation MakerWorks staff will be responsible for maintaining the kits. This will involve checking in on the kits on a weekly basis to make sure the tools are in functioning order. MakerWorks will be responsible for replacing broken kits and responding to any needs the librarians may have. MakerWorks staff will also work with the library to determine which tool kits are in the highest demand and order additional kits accordingly.

Library responsibilities: MIT libraries are an optimal partner for this initiative due to their inventory tracking system, operating hours, and accessibility. Initially the library will be responsible for cataloging the kits, allocating shelf space for them, and having some staff undergo training on how to use the kits. Once the kits are in place, they will be checked out like

books. The library staff will be responsible for making sure the kits are returned complete and in working condition.

Storage, Checkout, and Return: All kits will be housed in hard shell cases stored on shelves. It is estimated that approximately 40 linear feet of shelf space, or a single wire shelving unit, will be needed to house the kits for the initial pilot study. Each spot on the shelves, and sides of each case will be clearly labeled for easy locating. There will be a laminated menu detailing kits and their contents on the library desk, and each case will have an attached inventory sheet. When a user wants to check out a kit they ask the librarian for a specific kit. The librarian gets the kit and confirms with the student that it is complete. The librarian may also give advice on how to use the tool (MakerWorks staff will train the librarians to do this). The kits can be checked out for a week at a time (with online renewal available if no one has the kit waitlisted). When the user returns the kit the librarian will check that it is complete and working.

Budgeting & Fundraising: We will seek a $10,000 grant for the initial pilot program. After a semester the program will be evaluated. If the program is deemed a success additional fundraising efforts will take place in order to scale up the program. $6,000 will go directly to tool purchasing and the materials needed to package the kits. $4,000 will go towards overhead, unexpected expenses, replacing broken kits, and creating new kits for in demand tools.

Wear, Tear, and Charging: We understand that tools will get worn over time. This is expected, and users will not get charged for normal wear and tear. On an annual basis, MakerWorks staff will evaluate every kit and will replace worn and damaged tools. MakerWorks staff will also perform weekly evaluations of kits that are in stock. The librarians can also take kits that they deem to be worn out and old out of circulation. MakerWorks staff will take care of replacing those kits. The library will charge users if they return a kit incomplete, obviously broken, or fail to return the kit. Users who fail to return the kits on time will also be charged a late fee.

Metrics for success: At six months, the tool checkout rates will be evaluated and additional high demand tools will be ordered. After a 1 year initial study the tool checkout program will be evaluated. It will be deemed a success if the checkout rate of the tools matches or exceeds the checkout rate for the average book. If the program is deemed a success it will be expanded to include more tools and to more locations. If the program does not meet the performance metrics set the library can choose whether or not to proceed with the program.

Safety: All of the tools and instruments selected are considered class 1 by EHS (the safest class). Clear instructions on proper use will be in every kit along with the appropriate personal protective equipment (safety glasses, gloves, earplugs, etc.).

Tool Kit Cost

Item	Number	Cost per item	Total Cost	Link to item
Drill	3	$99	$297	https://www.amazon.com/DEWALT-DCD771C2-Lithium-Ion-Compact-

				Driver/dp/B00ET5VMTU/ref=sr_1_1?s=power-hand-tools&ie=UTF8&qid=1466010678&sr=1-1&keywords=dewalt+drill
Impact Driver + drill kit	2	$159	$318	https://www.amazon.com/DEWALT-DCK240C2-Lithium-Driver-Impact/dp/B00IJ0ALYS/ref=sr_1_4?ie=UTF8&qid=1466010842&sr=8-4&keywords=dewalt+impact+driver
Soldering iron & smoke absorber	3	$56	$168	https://www.amazon.com/Soldering-SOAIY-Adjustable-Temperature-Desoldering/dp/B01C9P7HDQ/ref=sr_1_2?s=hi&ie=UTF8&qid=1466012662&sr=1-2-spons&keywords=soldering+iron&psc=1 https://www.amazon.com/Aoyue-Benchtop-Solder-Smoke-Absorber/dp/B001RLZGKK/ref=sr_1_1?ie=UTF8&qid=1466014078&sr=8-1&keywords=solder+filter
Hot air station & smoke absorber	2	$208	$416	https://www.amazon.com/Aoyue-968A-Digital-Rework-Station/dp/B006FA481G/ref=sr_1_2?ie=UTF8&qid=1466014160&sr=8-2&keywords=hot+air+station https://www.amazon.com/Aoyue-Benchtop-Solder-Smoke-Absorber/dp/B001RLZGKK/ref=sr_1_1?ie=UTF8&qid=1466014078&sr=8-1&keywords=solder+filter
Function generator	2	$359	$718	https://www.amazon.com/Siglent-SDG1025-Function-Arbitrary-Generator/dp/B00GQNNVH4/ref=sr_1_3?ie=UTF8&qid=1466014243&sr=8-3&keywords=function+generator
Oscilloscope	2	$399	$798	https://www.amazon.com/Rigol-DS1054Z-Digital-Oscilloscopes-Bandwidth/dp/B012938E76/ref=sr_1_1?ie=UTF8&qid=1466014295&sr=8-1&keywords=oscilloscope
Socket Set	4	$53	$106	https://www.amazon.com/Stanley-92-824-Chrome-Etched-69-Piece/dp/B000KE6E1U/ref=sr_1_5?s=power-hand-tools&ie=UTF8&qid=1466014346&sr=1-5&keywords=socket+set
Hand tool set	4	$40	$160	https://www.amazon.com/Stanley-94-248-65-Piece-Homeowners-Tool/dp/B000UHMITE/ref=sr_1_1?s=hi&ie=UTF8&qid=1466014590&sr=1-1&keywords=tool+set
Drill bits	5	$24	$120	https://www.amazon.com/Craftsman-100-Piece-drilling-

Item	Number	Cost per item	Total Cost	Link to item
				driving/dp/B00692T2ZW/ref=sr_1_5?ie=UTF8&qid=1466090229&sr=8-5&keywords=drill+bits
Tap set	2	$37	$74	https://www.amazon.com/Neiko%C2%AE-00911A-Hexagon-Titanium-40-Piece/dp/B0012AQNXA/ref=sr_1_4?s=hi&ie=UTF8&qid=1466090334&sr=1-4&keywords=tap+set
Logger Pro set	2	$200	$400	http://www.vernier.com/products/interfaces/lq-stream/
Assorted Logger Pro sensors	2	$300	$600	http://www.vernier.com
Calipers	4	$36	$72	https://www.amazon.com/Anytime-Tools-Caliper-Reading-Standard/dp/B00B5XJW7I/ref=sr_1_4?ie=UTF8&qid=1466090726&sr=8-4&keywords=calipers
Micrometers	2	$90	$180	https://www.amazon.com/Anytime-Tools-Micrometer-Precision-Machinist/dp/B0045UZGSC/ref=sr_1_8?ie=UTF8&qid=1466090411&sr=8-8&keywords=micrometer
Clamps	2	$37	$74	https://www.amazon.com/Irwin-Tools-4935502-Quick-Grip-8-Piece/dp/B00L07E6XO/ref=sr_1_3?ie=UTF8&qid=1466090747&sr=8-3&keywords=clamp+set
DSLR camera	2	$520	$1040	https://www.amazon.com/Canon-Digital-18-55mm-75-300mm-Accessory/dp/B00J34YO92/ref=sr_1_1?s=photo&ie=UTF8&qid=1466090778&sr=1-1&keywords=dslr+camera
total	41		$5541	

Cases and packing (for camera and logger pro)

Item	Number	Cost per item	Total Cost	Link to item
Pelican case 4*8*12	4	$40	$160	https://www.amazon.com/dp/B0038VETHS/ref=psdc_3406401_t1_B003HH2024