

INSTRUCTIONS

- Please make sure you are using the latest version of this form posted on **www.mitacs.ca/en/programs/accelerate/apply-now**
- Please do not modify or reformat this form in any way. A modified form will result in a delay in the internship evaluation process.
- Detailed information on how to write your proposal can be found [here](#).
- Send your draft proposal to your Mitacs Business Development Representative **prior** to obtaining all signatures and submitting.
- The proposal should be written and submitted **at least eight (8) weeks prior to the planned start date of the internship**.
- The start date of the internship has to be **after** scientific approval and the **receipt** of the partner funds at Mitacs.
- Partner funds can be sent directly to Mitacs prior to approval to expedite the process or upon approval.
- If applicable, proposals with a not-for-profit partner must seek partner and project eligibility approval before proceeding. Please submit a [pre-assessment](#) form **BEFORE** submitting your application (see section 2.7).
- If applicable, [conflict of interest declarations](#) must be received by Mitacs **before** submitting your application (see section 4.1/4.3).
- If you cannot see the items listed in the drop downs, please refer to the Appendix A: Options and type the corresponding answer on the space provided.

Please note:

If required, your **Mitacs Business Development Representative** can assist you with:

- Identifying your Office of Research Services (ORS) representative.
- Facilitating non-disclosure agreements or intellectual property arrangements.
- Assessing the eligibility and completeness of the proposed research.

APPLICATION CHECKLIST

A complete internship application package must include the following :

- ☐ The proposal application **completed and signed** by all parties. The memorandum (see Section 7) with signatures must be submitted as a scanned PDF file.
- ☐ List of six external experts, arms-length reviewers and their contact information
- ☐ Intern(s) CV (a [CV template](#) is available on the Mitacs website)
- ☐ Excel budget if this is an Accelerate cluster proposal
- ☐ Any supplementary documents (as applicable)

*** An incomplete application or a modified form will result in a delay in the internship evaluation process.**

For more information, contact a **Business Development representative**
(www.mitacs.ca/en/contact-us/business-development).

Mitacs Accelerate Proposal Application

1. Research Proposal Summary

1.	Title of project:	The Everywhere Digital Pen		
2.	Type of project: Please indicate (x)	(x) Standard		
		(_) Cluster (minimum of 6 internships and 3 interns)		
3.	Number of Internship units:	1		
4.	Keywords to identify reviewers: (3-10 specific keywords; 50% technically related, 50% discipline-related)	Product Design, Computer Engineering, Software Development		
5.	Academic discipline:	Computer Science		
6.	Project priority sectors:	New and Digital Media	Nanotechnology	Technology
	Please rank up to three top priority sector(s) of your project:	1	2	3
7.	Project purpose: Please indicate (x) the advancement you want to achieve with this internship	<input type="checkbox"/> Creation of new materials, devices, or products <input type="checkbox"/> Creation of new processes or services <input checked="" type="checkbox"/> Improvement of existing materials, devices, or products <input type="checkbox"/> Improvement of existing processes or services		

8. List of participants:

Supervisor(s)	Department	University
Alex Ferworn	Yeates School of Graduate Studies	Ryerson University

Partner organization(s)	Contact name at partner organization	Province of organization	Partner Legal Status
SMART Technologies	Jeff Lowe	Alberta	Select Legal Status
			For Profit Canadian Private Corporation
			Select Legal Status

1.

9. **Proposed work plan for internship unit(s) (IU):**

Please summarize the work plan by showing which intern will work on which objective and when. Do not provide any detail here; present them in Section 2 instead.

Intern Name	Degree	IU	Month																	
			2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
Herman	Masters	1	Objective 01			Objective 02				Objective 03				Obj 04						
Total Internship Units		1																		
Total Project Funding	\$15,000																			

2. Description of Proposed Research

1. **Project title:** The Everywhere Digital Pen

2. **Research Abstract** (Approx. 150 words):

The abstract must clearly summarize the research proposed. Please include: Background and problem, objectives, expected results and relevance for the intern(s) and partner organization(s). This section will be used to recruit reviewers; it differs from section 7.2.Public Project Overview, which must be written using simplified language understandable to a layperson.

Current stylus options with enhanced pressure sensitive nibs are not capable of writing on multiple surfaces but require tablets or other large devices such as smart boards to function. A stylus pen with the ability to define an X,Y grid on any flat surface and interact within those boundaries would allow a user to calibrate an areas as small as a coffee coaster or as large as a smart board. This adaptation of the stylus pen would allow users to access an interactive surface wherever they are located and to adapt it to the appropriate size allotments required. This research would be relevant for the intern as it would allow them to advance the capacity of current user interface technologies. This research would be relevant for the partner organization as it would provide an opportunity for a new revenue stream.

3. **Background** and review of relevant prior work (minimum 500 words):

Wacom is widely regarded as the leading company in developing pressure sensitive pens that interact with their specialized tablets such as the Cintiq Companion. (Cardinal, 2013) The high cost and large size of Wacom tablets and stylus pens as well as their dependence on an accompanying computer have meant that they are generally used only by creative professionals. (Cardinal, 2013) This failure to integrate pen-computing into the general population has lead to further research to determine how stylus options might be changed to allow for a more economic and versatile option.

Carnegie Mellon University and Microsoft Research responded to the challenged by creating an OmniTouch device to attempt to reduce the dependency on a tablet. They have achieved this result by using short-range depth camera and laser pico-projectors which are mounted on a user's shoulder. (Harrison, C., Benko, H., and Wilson, A. D. 2011) However, this technology still requires a wearable device making it less intuitive to use naturally since users are required to mount it on their shoulder while drawing.

OTM Technologies is currently developing and financing through Kickstarter a new technology called Phree. This technology uses a laser interferometer in the tip of their pen which beams to a bluetooth connected device.(Matthews, 2015) Phree is still in the production phase and requires an additional device such as a phone or computer to view the "digital ink." This inability to view the drawing without an external device may present a significant learning curve for those unaccustomed to drawing when they are not able to see the image being created directly underneath their drawing tool but rather need to rely on moving their hand while simultaneously receiving the visual feedback from another input source. . (Mathews, 2015)

Finally, Lenovo has developed an "AnyPen" technology which uses custom sensor layers and software to filter out noise. This development addresses the restrictive use of tablets which could become inoperable if the user forgot their specialized stylus. According to Jeffrey witt, Review Group Director, the technology " allows the tablet to

detect small graphite or metal points as well as palm rejection on the LCD panel.” However this advancement still requires use of a tablet. The AnyPen technology also does not solve the problem of providing pressure-sensitive drawing. (Marshall, 2015).

Further research is required to determine how a stylus could be used to define the drawing area while also maintaining its ability to be pressure sensitive. Research is also required to determine how to reduce dependency on a tablet surface by allowing the stylus to interact on a variety of surfaces while still transmitting information. Finally, research is required to determine how to reduce the disconnect between the drawing surface and the digital capture by allowing for affordances such as digital ink to be viewable on the drawing surface itself.

Cardinal, David. “Pen computing returns: Revenge of the stylus.” ExtremeTech.com Retrieved on February 24, 2017
<https://www.extremetech.com/computing/171438-pen-computing-returns-revenge-of-the-stylus>.

Harrison, C., Benko, H., and Wilson. OmniTouch: Wearable Multitouch Interaction Everywhere. In Proceedings of the 24th Annual ACM Symposium on User interface Software and Technology (Santa Barbara, California, October 16 - 19, 2011). UIST '11. ACM, New York, NY. 441-450.

Marshall, Patrick. “Lenovo’s AnyPen eliminats the need for a stylus.” GCN on Mar 24, 2015 at 8:57 AM
<https://gcn.com/Blogs/Emerging-Tech/2015/03/Anypen-stylus.aspx>

Mathews, Lee. “Phree is a write-anywhere smartpen that also takes phone calls.” Geek.com 2015 Retreived Feb.24, 2017
<http://www.geek.com/gadgets/phree-is-a-write-anywhere-smartpen-that-also-takes-phone-calls-1623236/>.

4. General objective of the research project broken down into sub-objectives, activities, themes, or sub-projects, as applicable:

The major overall objective of the research will be to develop a MVP that could define where the pointer (pen) would be at any given time within a X,Y grid. The ability of the pointer to map its exact position on the grid would submit critical data back to the device in order to operate.

The project will be broken down into four major activities.

Objective 01 - The first stage of the research would focus on the digital overlay of the X,Y grid

The pen would by default calibrate to the centre of the grid at 0. The movement from that point on will begin the calculation within the predefined grid of X,Y, from negative to positive.

Objective 02 - Mapping of predefined grid

As the pen could be used to draw on any surface, the calibration of any sessions starts by the user tapping the pen on 4 different points, as a square or rectangle to begin the process. The four points depend on the users surface and size. The initial grid will be within the confinements of a simple A,B,C,D confinement.

Once the four points are updated, the pen begins to map the X,Y grid with the pointer assumed to be in the middle. The movement of the pen on the grid will send feedback to the device (computer) to track the exact location of the pen and pressure being applied to draw / write.

Objective 03 - Building

As the pen connects via low energy bluetooth back to the peripheral, the user would only have to pair the device and install the required software that would download off the pens internal memory. This would give any user without internet connectivity the ability to set up in a short period of time. Additional softwares that increase the

pens capability could be downloaded from the internet depending on the use of the pen. (AutoCad Draw, Brushes, etc.)

The Everywhere Digital Pen would be the size of a regular smart-pen currently available in the market, but less the accompanying smartboard. The material of the nib will be interchangeable to a roller-ball and rounded 0.5mm carbon fiber nib depending on user preference, surface and drawing style.

Objective 04 - Testing and Calibration

Once the initial software has been configured, the pen will be tested on a multitude of surfaces including surfaces with minor indentations to ensure the grid corrects itself for 100% accuracy when the pen is on use. Feedback from the pen is shared to the local software and sent back to a main server (depending on user permission) to improve grid mapping and updates.

5. Details of internships or subprojects:

For each intern or subproject, provide the following mandatory information:

- a. **Name of intern:** Herman Nelson
- b. **Specific objectives of the internship or subproject.** Clearly state your [sub-] objectives so reviewers can assess if they are achievable: The objective is to create a minimal viable product that can define an X,Y grid on any flat surface, and interact within those boundaries.
- c. **Methodologies.** Provide enough detail so reviewers can determine if the proposed methodology is appropriate and sufficient to achieve the [sub-] objectives.

In order to produce the MVP, I will use a standardized production flow. A large portion of time will be dedicated to the technical development and implementation of the coordinate system. Testing across a diverse user base will be needed to ensure that the pen holds to its name 'everywhere'. The E-Pen will be tested on different surfaces, by individuals from sectors that would benefit from this type of technology the most (such as architects, artists, students, educators, etc).

- d. **Timeline.** We suggest using a Gantt chart to provide a timeline showing which task will be done when to achieve each objective.

Intern Name	Degree	IU	Month																	
			2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
Herman	Masters	1	Objective 01			Objective 02				Objective 03			Obj 04							
Total Internship Units		1																		
Total Project Funding	\$15,000																			

- e. **Expected deliverables:** The deliverable will be a MVP
- f. **Benefit to the intern:** This would give me the necessary research that would be used as a cornerstone in the development of MRP.
- g. **Interaction.** Indicate the percentage (%) of time during the project that the intern will spend on-site at the partner's location. The expected minimum interaction is 50%, if different, please include a **justification**.
 % of partner interaction: **60** % + % of academic interaction: **40**% = 100%

- h. **Justification of interaction** (if applicable): I would need access to the SMART facilities and expertise to conduct my research effectively.
- i. **Partner Interaction.** Indicate what activities will be performed on-site at the partner organization.

6. Relevance to the partner organization and to Canada:

Smart is a leader in interactive displays. The Everywhere Pen (E-Pen) would revolutionize SMART's product line up by allowing the technology to become highly portable. The E-Pen's ability to define an X,Y grid on any surface allowing it to be used as a stylus for digital artists. However, combine it with a miniature projector and you could take a SMART Board wherever you go.

7. Project economic orientation (if applicable):

Not applicable.

8. Relationship (if any) to past/other Mitacs Accelerate internships:

No past relationship to other Mitacs Accelerate internships.

9. References:

- A) **Michael Carter**, Director of Industry Relations, Master of Digital Media, wmcarter@ryerson.ca
- B) **Dr. Naimul Khan, PhD**, Dept. of Electrical & Computer Engineering, Assistant Professor, n77khan@ryerson.ca
- C) **Dr. Richard Lachman**, Assistant Professor, richlach@richlach.com

3. Declarations

1. Will the proposed research be taking place outside of the lab or normal business environment?

Yes ___ No ☒ X

If yes, please complete the following section to indicate what (if any) impact there may be on the environment.

- a) Main characteristics of the location (i.e. physical description & coordinates).
- b) Principal activity(ies): for each activity, list the environmental elements affected.
- a) Are authorizations, permits, or licenses required to undertake any activity during the internship?
Yes___ No ☒ X

If yes, please list and include copies with your application.

2. Does the proposed research involve living human subjects (including conducting interviews) or human remains, cadavers, tissues, biological fluids, embryos, or fetuses?

Yes___ No ☒ X

If yes, the proposal must be approved by the participating University Research Ethics Board, and a valid Ethics approval is required for the duration of the research project. Access to funding may be denied for projects that do not have ethical approval.

Please note: Mitacs may request a copy of the report to ensure compliance.

1. Does the proposed research involve animal subjects?

Yes___ No ☒ X

If yes, the proposal must be approved by the participating University Animal Care Committee, and a valid approval from the committee is required for the duration of the research project.

Please note: Mitacs may request a copy of the report to ensure compliance.

1. **Is a biohazards review required?**

Yes___ No X

If yes, the necessary review/report must be conducted in accordance with your university's policies, and a valid biohazards approval is required for the duration of the research project.

Please note: Mitacs may request a copy of the report to ensure compliance.

3. **Have any participants declared a Conflict of Interest (COI) as part of this application?**

Yes___ No X

If yes, please attach the signed conflict resolution letter.

1. **How did the participants first hear about Mitacs?**

Please mark with (x)

Notification from your university department or at the university (bulletin board posting, email communication, newsletter, university website)	()	From the university's graduate studies offices	()
From a representative at the sponsor company	()	From a professor at the university	(X)
Notification from Mitacs (e-mail newsletter, social media)	()	From a Mitacs representative	()
Other (please describe):			

4. Participants

Duplicate relevant section(s) as needed for multiple interns or supervisors.

4.1. Academic supervisor:

Name:	Alexander Ferworn CD, PhD
University:	Ryerson
Department:	Masters of Digital Media
Address (at university):	350 Victoria St
City, Province:	Toronto, Ontario
Postal code:	M5B 2K3
Phone:	(416) 979-5000
Email:	aferworn@gmail.com

4.1.1. Is the academic supervisor**:

An owner or a co-owner of the partner organization:

Yes___ No **X**

A relative of an owner or co-owner of the partner organization:

Yes___ No **X**

An employee of and/or a participant in the day-to-day management of the partner organization:

Yes___ No **X**

If **yes** to any of the above, please click here to complete the **Conflict of Interest Declaration** and send it to accelerate@mitacs.ca **BEFORE** submitting your application.

For any additional academic supervisors copy and paste Section 4.1. below:

4.2. Partner organization:

Legal name:	SMART Technologies ULC
Operating name (if different):	
Contact name:	Jeff Lowe
Position:	Director, R&D
Department:	Research and Development
Address:	3636 Research Road NW
City, Province:	Calgary, AB
Postal code:	T2L 1Y1
Phone:	1-403-407-5330
Email:	JeffLowe@smarttech.com

Website:	https://home.smarttech.com/en	
Partner size (number of employees):	1001 -5000	
Legal status:	Company - Public	

4.2.1. NAICS Code (First three digits): 334

[Click here for a list of North American Industry Classification System codes.](#)

For any additional partner organization copy and paste Section 4.2. below:

4.3. Intern(s) identified:

4.3.1. Intern #1 information

Name:	Herman Nelson
Degree program during internship (masters/PhD/PDF):	Master of Digital Media
Expected year of graduation:	2017
If PDF, indicate mm/yy PhD received:	
University:	Ryerson University
Department:	
Address at university:	1 Dundas St. West, 11th floor
City, Province:	Toronto, ON
Postal code:	M5G 1Z1
Phone:	(416) 979-5150
University email:	herman.nelson@ryerson.ca
Alternate email:	
Citizenship:	Canadian
Gender:	Male

4.3.2. Conflict of interest. Is the intern:

An owner or a co-owner of the partner organization:

Yes___ No___

A relative of an owner or co-owner of the partner organization:

Yes___ No___

An employee of and/or a participant in the day-to-day management of the partner organization:

Yes___ No___

If **yes** to any of the above, please [click here](#) to complete the **Conflict of Interest Declaration** and send it to accelerate@mitacs.ca **BEFORE** submitting your application.

4.3.3. Demographic information. **OPTIONAL**

Please indicate (x) if you are:

Francophone:	<input type="checkbox"/>	A person with a disability:	<input type="checkbox"/>
Aboriginal:	<input type="checkbox"/>	First in your family to attend university:	<input type="checkbox"/>

Social Media: Please provide usernames if you wish to connect with Mitacs by social media:

LinkedIn:	
Twitter:	
Facebook:	

For any additional interns copy and paste Section 4.3. below:

4.4. Intern(s) to be determined (TBD):

TBD#1

Degree program during internship (Master's, PhD, PDF):	
University:	
Department:	

For any additional TBD interns, copy and paste Section 4.4. below:

5. Funding, Budget and Invoicing

- For **Accelerate standard** projects, please complete sections 5.1 to 5.4.
- For **Accelerate cluster** projects involving a minimum of three (3) interns, at least six (6) four-month internship units, and a minimum of one (1) eligible partner, please complete section **5.3** and **5.4**.only AND the Accelerate Cluster Budget Excel spreadsheet.

1. Funding summary

For each four-month internship unit, the partner must contribute \$7,500* and Mitacs will match with \$7,500.

Source	Number of Internships	Amount (Number of internships* x \$7,500)
Total Mitacs contribution (\$7,500 per internship)	1	\$ 7,500
Total Partner contribution* (\$7,500 per internship)		\$ 7,500
Total project award (\$15,000 per internship)		\$ 15,000

* The partner's contribution is subject to tax.

2. Budget

For each four-month internship unit, the intern stipend must be a minimum of \$10,000 and the research costs must be a maximum of \$5,000.

5.2.1. Stipend expenses – details per internship unit (add extra table lines as needed)

Academic Supervisor Name	Intern Name	Estimated Start date (Month, Year)	Stipend Amount (min. \$10,000 per internship unit)
Alex Ferworn	Herman Nelson	May, 2017	\$ 10,000
			\$
Total Stipend (A):			\$ 10,000

5.2.2. Research costs, e.g. equipment, travel, conference (add extra table lines as needed).

Research Costs	Value
1. Trip to Calgary	\$450.00
2. Hotel (2 nights)	\$ 250.00
3.	\$
Total research costs (B) - which cannot exceed \$5,000 per internship unit:	\$ 700.00

Total expenses [(A + B) = total project award]	\$
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3. Additional resources

Please indicate if the partner will provide the intern with any of the following additional resources and indicate their estimated value:

Additional resources	Amount
Office supplies / stationery	\$
Use of equipment or specialized equipment	\$ 1,500.00
Access to relevant company material, personnel	\$
Industrial partner supervision	\$
Other, please specify:	\$ 1,000.00

4. Invoicing Partner funds

Please describe any applicable **invoicing requirements** (vendor setup, PO, etc.):

Invoicing contact name:	
Email:	

<input checked="" type="checkbox"/>
<input type="checkbox"/>

Address same as filled in Section 4.2.

If invoicing address different than Section 4.2, please fill out the following:

Legal name:	
Address:	
City, Province:	
Postal code:	
Phone:	
Email:	

Please note: Partner contributions must be received by Mitacs BEFORE any funds are awarded to the university. **Costs can only be incurred after scientific approval of the proposal and the receipt of the partner funds at Mitacs.**

Have these funds been leveraged against other federal or provincial programs?

Yes___ No X

If yes, please provide details:

4.1. Were partner funds sent, as an exception, to the university:

Yes___ No X **If yes** please confirm that:

a) Is there a research agreement in place with the university that governs the use of these partner funds?

Yes___ No X

If **yes** please speak with your BD representative, fill out the *confirmation of transfer of partner funds document*, and submit that document with your completed application

- b) ORS/UILO agrees to send these funds to Mitacs

Yes___ No X

University account number:	
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- c) The partner agrees by signing this application that the funds can be forwarded

Yes X No___

Name of the consenting partner representative	Herman Nelson
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- d) University contact to receive Mitacs invoice

Name:	Ryerson University
Department:	Yeates School of Graduate Studies
Email:	aferworn@gmail.com

a)

- e) Is the GST or HST, and QST (if applicable) to be included with invoice to university?

Yes_X_ No___

If **no**, tax(es) will be invoiced directly to the industry partner.

5.4.2. Payment options

Please select (x) the preferred payment option:

Full project payment: One invoice for full project contribution to be paid in full on receipt ()

Installments: If you choose to be invoiced in installments, please note that an installment schedule will be created by Mitacs staff and up to three invoices per year will be sent to your attention 60 days before the start date of the first internship of the installment (X)

- Invoices will be issued for a minimum of one internship unit (\$7,500 for an Accelerate Standard project OR \$6,000 for an Accelerate Cluster project) and must be paid in full, partial payments of invoices will not be accepted.
- The partner's contribution is subject to tax.

6. Suggested Reviewers

Please provide the names and contact information of at least **SIX (6) arms-length** reviewers.

An arms-length reviewer must:

- Be a recognized expert in the research topics and technical aspects covered by the proposal;
- NOT be from the same university as the intern(s) or the academic supervisor(s); and
- NOT have had any collaboration with the intern(s) or the academic supervisor(s) or the partner(s) during the past five (5) years or planned for the near future.

Please note that neglecting to suggest reviewers who qualify as arms-length will delay the review of your application.

Reviewer 1:

Name:	
University:	
Department:	
Email:	

Reviewer 2:

Name:	
University:	
Department:	
Email:	

Reviewer 3:

Name:	
University:	
Department:	
Email:	

Reviewer 4:

Name:	
University:	
Department:	
Email:	

Reviewer 5:

Name:	
University:	
Department:	
Email:	

Reviewer 6:

Name:	
University:	
Department:	

Email:	
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Potential competing interest. **OPTIONAL**

Include potential reviewers whom Mitacs should **not** contact due to a potential competing interest in the proposed research.

Name:	
University / Research Group:	

Name:	
University / Research Group:	

7. Mitacs Accelerate Memorandum

The participants listed below confirm that the information presented accurately reflects their intention to apply to the Mitacs Accelerate program. The participants have also agreed to set in place an internship based upon the attached proposal. It is understood that the partner organization contribution shall be provided to Mitacs Inc. prior to commencement of the internship; in the event that the sponsor organization funds are at the university, the university shall forward these funds to Mitacs. Upon scientific approval, Mitacs shall forward the funds to the university as a research grant to the supervising professor, and the internship stipend will be paid to the student by the university from the grant. Costs associated with this proposal as outlined in the budget can only be incurred after scientific approval of the proposal.

Mitacs is unable to assume liability for any losses including—but not limited to—accidents, illness, travel, or other losses that may occur during the internship period. All undersigned parties agree that they are responsible for ensuring that they have appropriate insurance and meet any university policies regarding health, safety, and travel preparation requirements. All parties also agree that the intern will provide Mitacs with a final report and that all participants will complete an exit survey within one month of project completion.

All parties involved with Mitacs Accelerate are bound by the standard intellectual property (IP) terms of the university where the intern is enrolled; except where intellectual property is covered by separate agreements to which the university and the sponsor organization are parties and that are active during the dates of the internship. By signing this memorandum, you are acknowledging that you agree to the terms of the university where the intern is enrolled. University-specific IP policies regarding Accelerate internships can be found at [Accelerate Policies and Procedures](#).

The participants listed below agree that Mitacs can disclose the provided personal information included in this proposal (e-mail, LinkedIn, Twitter, Facebook, etc.) to the program's funding partners and that Mitacs can use them for the purpose of communication and to evaluate the program and its outcomes during and after participants' program tenure. The participants also agree that Mitacs will post the title of the project, the public project overview, the name of the partner(s) organization(s), the name of the intern(s), the name of supervisor(s) and the involved university on www.mitacs.ca/en/projects and may be used by Mitacs to publicize Mitacs Accelerate. Mitacs Privacy Policy can be found at www.mitacs.ca/en/privacy-policy.

Internship participants (intern, supervising professor, and partner) further agree to the following addendum(s):

Mitacs does not require, inspect, or enforce any additional terms as outlined by participants in the above addendum.

7.1. Title of the Project:

Everywhere Digital Pen

7.2. Public Project Overview:

Using simplified language understandable to a layperson; provide a general, one-paragraph description of the proposed research project to be undertaken by the intern(s) as well as the expected benefit to the partner organization. (100 - 150 words)

The intern will create a prototype of a stylus digital pen that is capable of writing on multiple surfaces and does not require a tablets or other large devices such as smart boards to function. The Everywhere Digital Pen will have the ability to define an X,Y grid on any flat surface and interact within those boundaries whether it be the size of a coffee coaster or as large as a smart board. By creating a digital pen capable of writing on any surface, SMART technologies will be able to enter a new market that allows users to have an interactive surface anywhere rather than being limited only to SMART boards.

7.3. Participant Signatures:

Please sign, scan and save in PDF format

Intern:

Name:	Herman Nelson		
Department:			
University:	Ryerson		
Signature:		Date: February 25, 2017	

Academic Supervisor:

Name:			
Department:			
University:			
Signature:		Date:	

Partner Organization:

Name:			
Department:			
Title/Position:			
Organization:			
Signature:		Date:	

University Office of Research Services Representative:

Name:			
Title/Position:			
University:			
Signature:		Date:	

For any additional participants include corresponding details and signature line below:

Appendix A

Please delete if not applicable

Drop Down - Options

Please refer to the drop down of the section, and type the corresponding answer on the space provided.

1.5. Academic discipline:

- Business
- Computer Science
- Earth Sciences
- Engineering
- Life Sciences
- Mathematical
- Sciences Social Sciences, Arts & Humanities
- Physical Sciences

1.6. Project priority sectors:

- | | | |
|--------------------------|--|--|
| - Aboriginal Affairs | - Entertainment & Media | - Natural Resources |
| - Advanced Manufacturing | - Environmental Science & Technology | - New & Digital Media |
| - Aerospace | - Finance & Insurance | - Ocean Tech |
| - Agriculture & Food | - Forestry | - Oil & Gas |
| - Aquaculture & Fishing | - Green/Alternative Energy | - Pharmaceuticals |
| - Automotive | - Health and Related Sciences & Technology | - Public Service, Policy, & Governance |
| - Biotechnology | - Information & Communications Technology | - Sustainability & the Environment |
| - Clean Technology | - Life Sciences (not health) | - Technology |
| - Commercial Services | - Manufacturing & Construction | - Tourism |
| - Construction | - Mining | - Transportation |
| - Education | - Nanotechnology | - Water |
| - Energy & Utilities | - Natural Gas | - Other (please describe) |

1.8. List of Participants:

Partner Legal Status:

- For Profit Canadian Private Corporation
- Crown Corporation
- Not for Profit Canadian Corporation

4.2. Partner organization:

Partner size (No. employees):

- 1 to 49
- 50 to 99
- 100 to 499

- 500 and higher

Legal status:

- For Profit Canadian Private Corporation
- Crown Corporation
- Not for Profit Canadian Corporation

4.3. Intern(s) identified:

4.3.1. Citizenship:

- Canadian:
- Permanent Resident:
- Foreign:

Gender

- Female
- Male