#### INFORMATION LETTER and CONSENT FORM

**Study Title: Augmented pen & Paper Interface**

**Research Investigator:**

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*Background*

This project focuses on the feasibility of tracking an infrared pen using infrared sensors to track written annotations on a writing surface. The context of geographic map annotation will be the focus of this particular project, though applications can easily be extended beyond this context.Tests will be done with volunteer participants that focus on efficiency, accuracy and toleranceagainst errors as a result of user preferences in how they hold the infrared pen.

*Purpose*

The objective of this research is to capture and digitize graphical annotation on a paper

geographic information system/land use/topographical maps through the usage of an IR pen and IR sensors, and be synchronized with relevant audio and video information in a portable fashion.

*Study Procedures*

Our first test is to compare the speed of using this system with the speed of using traditional digital maps in searching for a location, such as Google Maps. The goal of this test is to see if participants are able to utilize the system within reasonable time and effectiveness compared to traditional methods.

Our second test will be to compare the accuracy of tracing over a physical drawing using an IR pen, and writing directly with an IR pen with a writing utensil attached to it. The aim is to see if the offset is minimal and small enough such that a joint IR-writing utensil is sufficiently accurate for the convenience of the users.

Our third test will be a simple yet important test regarding how participants will be holding the IR pen. As the participants perform the previous test, they hold the pen in what is the most intuitive manner to them. In this test, they will be asked to hold the pen in a different manner (either holding the pen with thumb on the pen’s button, or the pen is rotated by 180 degrees where the button is held by other fingers), and repeat the trace of a line from the second test.

* Description of research procedures and explanation of participant responsibilities, including approximate time commitment for the participant and overall length of the study
* Detail all type(s) of data to be collected, e.g. observations / # of, length, conditions of observation(s)
* Indicate procedures for verifying data collection and checking observations about data (“member checks”)

*Benefits*

You will not benefit from being in this study).

Currently there are no well-known researches that investigate in the possibility of using IR sensors to digitally record written annotations on any given surface. This initial research looks into the plausibility for detailed investigation into IR sensors for IR sensors to be considered as a third method for simple digital record of written annotations. If this is effective, this can be improved further to reduce the necessary restrictions or simplify the system for commercial or day to day usage.

There will not be any compensation (or reimbursements) for your participation.

*Risk*

The Wii Remotes can emit radio waves that can affect the operation of nearby electronics. Implication of this concern varies from participants based on their medical dependency on electronic equipment. Long term usage in front of a computer screen may cause discomfort, eye soreness and/or dizziness as well.

Those with cardiac pacemakers or other implanted devices are not allowed to participate in this study for health and safety reasons. Discomfort as a result of computer screen usage will be minimized as the experiment should not last longer than 10 minute per participant.

*Voluntary Participation*

You are under no obligation to participate in this study. The participation is completely voluntary.

Even if you agree to be in the study you can change your mind and withdraw at any time. In the event of opting out, which can be done through oral notice at any point, all data gathered from you will be considered invalid. The your signed consent form will also be destroyed.

*Confidentiality & Anonymity*

The results of this study will be used for course evaluation in CMPUT 302 W14

Data collected will be anonymous in terms of identifying the participants. Data will not be categorized in any fashion except if the participant is left handed or right handed.

We may use the data we get from this study in future research, but if we do this it will have to be approved by a Research Ethics Board.

*Further Information*

If you have any further questions regarding this study, please do not hesitate to contact Dr. pierre Boulanger

“The plan for this study has been reviewed for its adherence to ethical guidelines by a Research Ethics Board at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615.”

*Participant Signature*

*Date*