Team: Team One

1.1 Study Identification

*All questions preceded by a red asterisk * are required fields. Other fields may be required by the REB in order to evaluate your application. Please answer all presented questions that will reasonably help to describe your study or proposed research.*

1.0 * Short Study Title *(restricted to 250 characters)*:
A usability study for CMPUT 302 (Human Computer Interaction) Interactive Surface – Target Tapping project.

2.0 * Long Study Title *(can be exactly the same as short title)*:
A usability study for CMPUT 302 (Human Computer Interaction) Interactive Surface – Target Tapping project.

3.0 * Select the appropriate Research Ethics Board:
CMPUT 302

5.0 * Team name:
Team One

7.0 * Type of research/study:
Student Research

8.0 Study Coordinators/Assistants *(will have access to and can edit this application and will receive all notifications for this study)*:

Name	Employer
Shawn Adam	N/A
Patrick Boutet	N/A
Aaron Padlesky	N/A
Eddie Santos	N/A

10.0 Study Team *(co-investigators, supervising team, other study team members who do not require access to this application or to receive notifications)*:

Last Name	First Name	Organization	Role	Phone	Email
Bischof	Walter	UofA	Professor	(780) 492-3114	wfb@ualberta.ca

1.5 Study Locations and Sites

1 * Specify research locations: Enter all locations where the research will be conducted under this Research Ethics Approval *(eg. university site, hospital, community centre, school, classroom, participant's home, in the field, clinician's private office, internet website, etc. - provide details)*:

Students Homes, University of Alberta North Campus, Friends of Student's Homes.

2 * Please check if your study will utilize or access facilities, programmes, resources, staff, students, specimens, patients or their records, at any of the sites affiliated with the following *(select all that apply):*

We will not require any resources for this study that are provided by any institution. We may ask individuals we know around campus if they mind participating in our study, but we will not require any University resources.

2.1 Study Objectives and Design

1 Proposed Start Date: March 16, 2013

2 Proposed start date for working with human participation *(can be the same as item 1.0):* March 16, 2013

3 Proposed end date for working with human participation: April 10, 2013

4 * Provide an abstract or lay summary of your proposed research *(restricted to approx. 300 words)*:

We wish to obtain insight into the usability of the application that we are developing for the Glenrose Rehabilitation Hospital. We want our application to provide the basic services requested by our client, while keeping the system as usable and straight-forward as possible so that the therapists will enjoy working with the application. We also want to ensure the system is usable by the patients who will benefit from the application. It is our intent for this study to verify our design, meaning we hope the study will provide evidence that we have created an easy to use program that will meet the Glenrose Hospital's needs. If we find evidence to suggest we have not created an easy to use application, we will assess our options. These options include redesigning parts of the UI, which can be done within our time constraint. If the study points out issues we feel cannot be corrected within the remaining time of the course, we will attempt to understand why we made this error and have to accept and learn from the design errors.

5 * Provide a description of your proposed research *(study objectives, background, scope, methods, procedures, etc) (restricted to approx. 1,000 words)*:

We aim to understand the usability of the application we have designed. To do this we will gather participants individually and ask them to complete some basic tasks specific to our application after being explained the theory behind the application. The basic tasks they are asked to complete will be timed and the times will be recorded. We will time the participants to understand efficiency of the application and to identify poor design within the application that a potential

user may become hung-up on. Upon completing an application task, the user will rate the system based on a questionnaire we will provide. The questionnaire will ask the participant a few basic questions about the system. For each of the tasks we ask the participant to complete we will ask for a rating on that tasks difficulty, and design quality. We hope to understand if users on average will find each of these tasks difficult. Secondly, we would like to know whether the task was difficult and if not do they feel the design of the task was adequate. Ratings will be on a scale from 1 to 10, ten being ideal and 1 being completely unacceptable. There will be space for the participant then to leave any comment they have about the task they were asked to complete. We will then brief half of the users on how we have intended the application to be used; the other half will be given no further instruction and will not be allowed to use the application during this short period. The brief will be a description on how and why we expected the user to interact with the system. We will then repeat the previous steps, on both groups, of evaluating time to complete the task and have them complete the questionnaire once done. We hope to see that scores between the two groups do not show a true difference in means. This is because we hope that the application will be self evident in how it is supposed to be used. We also expect that times will drop, independent of the tutorial, due to the fact that the users have more experience with the tasks and the application. If the results show that times dropped significantly for the group given the tutorial, we will have to analyze why the user found the task more difficult the first time, and why their time improved so much the second time. The application specific tasks will include: creating a target-tapping environment that would be used by a patient with X number of objects, each with specific properties. Another task will be taking the role as a patient and "playing" with the target-tapping environment. Statistics will be kept without personal identification and we will compare participants mean, to a benchmarked mean based on developers evaluation of the application. Comments will be read and recorded. With the comments we will be looking for trends in the participants answers. We expect each participant to have individual ideas and those will be appreciated and considered, but common answers will provide great value to us in understanding what on average the user may be thinking about each of the tasks. After all participants have finished the study all the data will be aggregated and we will run applicable statistical analysis looking for trends and differences that may help us improve the design of this application, and any future application we develop.

6 Describe procedures, treatment, or activities that are above or in addition to standard practices in this study area *(eg. extra medical or health-related procedures, curriculum enhancements, extra follow-up, etc)*:

We do not plan to have any additions to standard practices.

7 If this research proposal has received independent scientific or methodological review, provide information *(eg. names of committees or individuals involved in the review, whether review is in process or completed, etc)*: N/A

8 If this application is related to or builds upon a previously approved application not captured in HERO, provide the study title and approval number if available: N/A

3.1 Risk Assessment

1 * After reviewing the Minimal Risk Criteria provided in User Help, provide your assessment of the risk classification for this study:
This study is minimal risk. There is little to no risk of upsetting the subject, and there is no risk of harm to the subject. Any negative emotions experienced by the subject may be frustration with the application, that would be no different then the feelings any computer user may experience on a daily basis.

2 * In a scale of 0 to 10 where 0 = No Likelihood, 5 = Moderate Likelihood and 10 = Extreme Likelihood, put a numerical rating in response to each of the following:

Psychological or emotional manipulations will cause participants to feel demeaned, embarrassed, worried or upset: 0

Participants will feel fatigued or stressed: 2

Questions will be upsetting to the respondents: 0

Participants will be harmed in any way: 0

There will be cultural or social risk – for example, possible loss of status, privacy, and/or reputation: 0

There will be physical risk or physiological manipulations, including injury, infection, and possible intervention side-effects or complications: 0

The risks will be greater than those encountered by the participants in everyday life: 0

3 Provide details of short- and long-term risks and discomforts:

The participant may become momentarily frustrated if our computer application has poor interaction design. This should not cause any short or long-term discomfort after the time in which the user participates in the study.

4 * Describe how you will manage and minimize risks and discomforts, as well as mitigate harm:

We will assure the participant that any issues they experience in using our application are normal and indeed helpful to us as designers. Furthermore if a participant becomes noticeably upset in any way we will suggest they abort the study. We will let each participant know before the study that they are allowed to abort the study at any time.

5 * If your study has the potential to identify individuals that are upset, distressed, or disturbed, or individuals warranting medical attention, describe the arrangements made to try to assist these individuals. Explain if no arrangements have been made:
No arrangements have been made because we believe our study is representative of daily computer use, therefore we should not identify any participants with issues.

3.2 Benefits Analysis

1 Describe any benefits of the proposed research to the participants:

They may gain an understanding on how graphical user interfaces are designed and tested. This may also aid in their productivity as computer users, as they better understand how user interfaces are designed.

2 * Describe the scientific and/or scholarly benefits of the proposed research:

This study has the potential to benefit us as computer application developers to design better, more user-friendly computer applications. As well this will benefit the end-users of the system upon delivery.

3 Describe any benefits of the proposed research to society:

We are a society that places importance on universal health care, thus the better we are able to treat patients, the more as a society we have accomplished our goal. As such, by providing this application to the Glenrose hospital, the more usable the application, the more it might aid in patient progress and rehabilitation.

4 Benefits/Risks Analysis - describe the relationship of benefits to risk of participation in the research: There is only prospective for benefits. We do not foresee any significant risks.

4.1 Participant Information

1 Total number of participants you expect to enroll *(including controls, if applicable)*:
20

2 Of these how many are controls, if applicable *(Possible answer: Half, Random, Unknown, or an estimate in numbers, etc).*
Half

3 If this is a multi-site study, how many participants *(including controls, if applicable)* do you anticipate will be enrolled in the entire study?
20

5 Justification for sample size:

We are looking for a large enough sample to validate informative statistics, but a small enough sample to gather the data properly.

6 If possible, provide expected start and end date of the recruitment/enrollment period:
Expected Start Date: Same as study.
Expected End Date: Same as study.

4.2 Recruit Potential Participants

1 Recruitment

1.1 Will potential participants be recruited through pre-existing relationships with researchers *(eg. employees, students, or patients of research team, acquaintances, own children or family members, etc)*?

Yes

1.2 If YES, identify the relationship between the researchers and participants that could compromise the freedom to decline (eg. professor-student). How will you ensure that there is no undue pressure on the potential participants to agree to the study?

The only type of relationship that could compromise freedom to decline would be a hierarchical relationship such as a professor-student relationship, where the researchers are superiors to the participants. To ensure there is no undue pressure on the potential participants to agree to the study we will ensure that the participants we recruit are not in a hierarchical relationship with the researchers where the researchers are superiors to the participants but equals.

2 Outline any other means by which participants could be identified *(eg. response to advertising such as flyers, posters, ads in newspapers, websites, email, listservs; pre-existing records or existing registries; physician or community organization referrals; longitudinal study, etc)*: N/A

4.3 Recruitment Contact Methods

1 How will initial contact be made? Select all that apply:

Direct Personal Contact

2 If contact will be made through an intermediary *(including snowball sampling)*, select one of the following:

N/A, all participants will be made through direct contact with the researchers.

3 If contact will be made through an intermediary, explain why the intermediary is appropriate and describe what steps will be taken to ensure participation is voluntary:

N/A

4 Provide the locations where participants will be recruited, *(i.e. educational institutions, facilities in Alberta Health Services or Covenant Health, etc)*:

Home, University Campus

4.4 Informed Consent Determination

1.0 * Describe who will provide informed consent for this study:

The participant will be the only one who provides consent.

2.0 How is consent to be indicated and documented?

The provided consent form will be read by the participant and signed. The participant can keep a copy of the consent form.

3.0 What assistance will be provided to participants, or those consenting on their behalf, who have special needs *(eg non-English speakers, visually impaired, etc)*:

N/A – we will not recruit anyone with special needs.

4.0 If at any time a participant wishes to withdraw or not participate in certain aspects of the research, describe the procedures and the last point at which it can be done:

The participant can withdraw at any point in time. If they withdraw all of the data we have recorded will be discarded and their results will not become part of the study.

5.0 Describe the circumstances and limitations of data withdrawal from the study, including the last point at which it can be done:

Those who withdraw will have all their data removed from the study and this can be done at any point in time during the study.

6.0 Will this study involve an entire group where non-participants are present?

No

7.0 Describe the incentives and/or reimbursements, if any, to participants and provide justification:

None

4.8 Study Population Categories

1 * This study is designed to TARGET or specifically include the following *(does not apply to co-incidental or random inclusion)*. Select all that apply:

The participants should be representative of the prospective able-bodied users of the system (i.e. Physical therapists). They should not have extensive knowledge

of the implementation of the system.

5.1 Research Methods and Procedures

1 * This study will involve the following *(select all that apply)*
The list only includes categories that trigger additional page(s) for an online application. For any other methods or procedures, please indicate and describe in your research proposal in the Study Summary, or provide in an attachment:

Timing the participant as they attempt to complete a target-tapping environment using our application, then asking them to complete a questionnaire based on their thoughts and experiences with the system. We will give them a quick tutorial on the system then get them to repeat the previous steps with their new knowledge of the application. Times and questionnaire answers will then be compared and a mean will be created. Descriptive statistics and test will follow.

2 Does this study involve a Clinical trial *(includes any research study that prospectively assigns human participants or groups of humans to one or more health-related intervention(s) to evaluate the effects on health outcomes; does not include randomized controlled trials – RCT – outside of clinical settings)?*

No.

3 For registered clinical trial(s), provide registry and registration number, if available:

N/A

4 Internet-based research

4.1 Will you be doing any internet-based research that involves interaction with participants?
No

4.2 If YES, will these interactions occur in private spaces (eg. members only chat rooms, social networking sites, email discussions, etc)?
N/A

4.3 Will these interactions occur in public space(s) where you will post questions initiating and/or maintaining interaction with participants?
N/A

5 If you are using any tests in this study diagnostically, indicate the member(s) of the study team who will administer the measures/instruments:

N/A

6 If any test results could be interpreted diagnostically, how will these be reported back to the participants?

N/A

6.1 Data Collection

1 * Will the study team know the participants' identity at any stage of the study?

Yes, there will be face to face contact.

2 Primary/raw data collected will be *(check all that apply)*:

Stored anonymously and discarded after statistical analysis has been completed.

3 If identifying information will be removed at some point, when and how will this be done?

Identifying information will never be recorded. We will know the identity of the participant as they complete the study but no identifying information will be attached to the document.

4 If this study involves secondary use of data, list all sources:

N/A – it does not involve secondary use of the data.

5 In research where total anonymity and confidentiality is sought but cannot be guaranteed *(eg. where participants talk in a group)* how will confidentiality be achieved?

Names or identifying information of any kind will not be attached to the results gained from the participant. No compromising information will be recorded in any sense so complete secrecy is not required. Our attempt to maintain anonymity is purely for participant's piece of mind, but the data generally would not be harmful to the participant even if it were revealed. In any case anonymity will be provided and guaranteed to a reasonable extent.

7.1 Documentation

7 Investigator Brochures/Product Monographs *(Clinical Applications only)*:
N/A

8 Health Canada No Objection Letter *(NOL)*:
N/A

9 Confidentiality Agreement:
N/A

10 Conflict of Interest:
N/A

11 Other Documents:
N/A