#### SYNOPSIS OF PROPOSAL

Project Title: **Process Control System Usability Evaluation**

Please note that this study is very similar to Dr. Oleg Komogortsev’s previously approved protocol for “An Effort and Time Based Measure of Usability” (IRB [#2008-70391](https://synergy.txstate.edu/exchange/nc18/Inbox/RE:%20Emailing:%20ARP%202008%20grant%20recipients,%20Help%20ARP%20letter.EML/synopsis_of_proposal-Komogortsev%20%232008-49093.doc/C58EA28C-18C0-4a97-9AF2-036E93DDAFB3/synopsis_of_proposal-Komogortsev%20%232008-49093.doc?attach=1)). The main differences are: 1) Subjects will evaluate a software product of Emerson Process Management. They will interact with the software in order to configure a control strategy for a plant. In specific, before the experiment subjects will receive a short tutorial explaining how to set and manage a control configuration for a plant. During the experiment a set of goals would be presented to the subjects. In general theses goals call for a minor modification in an existing control configuration. The goals are completed through interaction with computer programs. 2) Two groups of human subjects will participate in the experiments; students from the department of computer science at Texas State University and engineers from Emerson. Texas State students will participate in experiments conducted in Texas State University. Emerson engineers will participate in experiments conducted in the Emerson facility in Austin. 3) Texas State students will receive a gift card with a value of $50.00 as an incentive for participating in the experiment. Funds for the gift cards will be supplied by Emerson. 4) Emerson engineers will be selected by the Emerson coordinators of the experiment. It will be considered a part of their work related activities.

1. Identify the sources of the potential subjects, derived materials or data. Describe the characteristics of the subject population, such as their anticipated number, age, sex, ethnic background, and state of health. Identify the criteria for inclusion or exclusion. Explain the rationale for the use of special classes of subjects**,** such as fetuses, pregnant women, children, institutionalized mentally disabled, prisoners, or others, especially those whose ability to give voluntary informed consent may be in question.

Two groups of human subjects will participate in the experiments; twelve students from the department of computer science at Texas State University and six engineers from Emerson. Texas State students will participate in experiments conducted in Texas State University. Emerson engineers will participate in experiments conducted in the Emerson facility in Austin.

In order to participate in the experiments the equipment has to be calibrated according to specific parameters of the subject’s eyes. In some cases it is impossible to calibrate the equipment to the eyes of a specific subject. In this case, the subject will not be able to participate in the experiment. He or she will be notified about their inability to participate in the experiment promptly after the failure of the calibration routine. In addition, subjects who cannot interact with a computer using a conventional mouse will not be able to participate in the experiments. They will be informed about the fact that they cannot participate in the experiment following an assessment of their ability to operate a standard mouse by the experiment facilitator. The consent form will explain this to participants.

Subject from Texas State University are graduate and undergraduate students from the College of Science. These subjects are selected for the experiments since they are expected to have computer skills that will enable them to effectively interact with the Emerson software. Each student will participate in one experiment that is expected to take about 120 minutes. An e-mail sent to graduate and undergraduate students in the department of Computer Science will state the framework and goals of the project. Interested students would be able to participate.

Subjects will volunteer to participate in the experiment. Nevertheless, they will receive a gift card with a value of $50.00 as an incentive for completing the tasks in the study. They will be able to stop the experiment art any given time, but will not receive the $50.00 gift card.. Funds for the gift cards will be available through a donation made by Emerson to the department of Computer Science at Texas State University.

Emerson engineers will be selected by the Emerson coordinators of the experiment. It will be considered a part of their work related activities.

2. Describe the procedures for recruitment of subjects and the consent procedures to be followed. Include the circumstances under which consent will be solicited and obtained, who will seek it, the nature of information to be provided to prospective subjects, and the methods of documenting consent. (Include applicable consent form(s) for review purposes.) If written consent is not to be obtained, specifically point this out and explain why not.

An e-mail that will be sent to graduate and undergraduate students in the Departments of Computer Science will state the goals of the project. The Department of Computer Science staff will send the e-mail on the PI’s behalf. The consent form will be given out to each subject before participation. The consent forms will be stored in the Computer Science main office. Information in terms of description of the study will be provided to the subjects.

The consent form is attached.

**3. Describe any potential risks — physical, psychological, social, legal or other — and assess their likelihood and seriousness. Describe alternative methods, if any, that were considered and why they will not be used.**

There are no potential risks, beyond regular use of a computer, involved in the proposed study.

It is important to note that the data collected will be entirely anonymous and devoid of any identifying information. Surveys will be anonymously coded with participant numbers (i.e., in the order in which participants sign up for the study: participant #1, #2, #3, etc.) and consent documents will be obtained and stored separately so that the two items cannot be linked in any way. In the surveys, participants will indicate only demographic information limited to their age, gender, ethnicity, and the previous experience with computer interfaces.

There are no alternative methods available to obtain this important data for this study.

**4. Describe the procedures for protecting against or minimizing any potential risks and include an assessment of their likely effectiveness. Include a discussion of confidentiality safeguards, where relevant, and arrangements for providing medical treatment if needed.**

There are no potential risks, beyond regular use of a computer, involved in the proposed study.

If a participant feels uncomfortable providing information asked in the survey they would have an option of not filling out the survey. The data collected in the survey will be entirely anonymous and devoid of any identifying information. Surveys will be coded with subject numbers and consent documents will be obtained and stored separately so that the two items cannot be linked in any way. In the surveys, participants will indicate only demographic information such as their age, gender, ethnicity, and their previous experience with computer interfaces.

**5. Describe and assess the potential benefits to be gained by the subjects, as well as the benefits that may accrue to society in general as a result of the planned work.**

These experiments are a part of a study that is intended to advance the state of the art on evaluating software usability. It is expected that this study will lead to a collaborative research project involving Texas State researchers and stuff from Emerson Technology.

The current research is a collaborative research with Emerson process management. Their software is used for experiments and results of the study will be reported to Emerson and help them improve the usability of their software product.

Participants will receive a $50.00 gift card, for completing the study. In addition they would probably have sense of accomplishment associated with participating in a study that will further the scientific knowledge in the area of usability of computer interfaces. It also provides subjects with an exposure to process control software, which may spark their interest in type of application.

Society, in general, will benefit from the advancements of this study that will potentially allow improving the usability of computer interfaces.

**6. Discuss the risks in relation to the anticipated benefits to the subjects and to society.**

The risks associated with the current study are minimal compared to the benefits to society.

7. Identify the specific sites/agencies to be used as well as approval status. Include copies of approval letters from agencies to be used (required for final approval). If they are not available at the time of IRB review, approval will be contingent upon their receipt.

N/A

8. If you are a student, indicate the relationship of the proposal to your program of work and identify your supervising/sponsor faculty member.

N/A

9. In the case of student projects, pilot studies, thesis, or dissertations, evidence of approval of Supervising Professor or Faculty Sponsor should be included. Thesis and dissertation proposals must be approved by the student’s committee before proceeding to the IRB for review.

Our proposal to Emerson is attached.

10. Has the project had prior review by another IRB? If yes, attach copy of approval/ disapproval and related correspondence.

This study is very similar to Dr. Komogortsev’s previously approved protocol for “An Effort and Time Based Measure of Usability” (IRB [#2008-70391](https://synergy.txstate.edu/exchange/nc18/Inbox/RE:%20Emailing:%20ARP%202008%20grant%20recipients,%20Help%20ARP%20letter.EML/synopsis_of_proposal-Komogortsev%20%232008-49093.doc/C58EA28C-18C0-4a97-9AF2-036E93DDAFB3/synopsis_of_proposal-Komogortsev%20%232008-49093.doc?attach=1)). The main differences are: 1) Subjects will evaluate a software product of Emerson Process Management. They will interact with the software in order to configure a control strategy for a plant. In specific, before the experiment subjects will receive a short tutorial explaining how to set and manage a control configuration for a plant. During the experiment a set of goals would be presented to the subjects. In general theses goals call for a minor modification in an existing control configuration. The goals are completed through interaction with computer programs. 2) Two groups of human subjects will participate in the experiments; students from the department of computer science at Texas State University and engineers from Emerson. Texas State students will participate in experiments conducted in Texas State University. Emerson engineers will participate in experiments conducted in the Emerson facility in Austin. 3) Texas State students will receive a gift card with a value of $50.00 as an incentive for participating in the experiment. Funds for the gift cards will be supplied by Emerson. 4) Emerson engineers will be selected by the Emerson coordinators of the experiment. It will be considered a part of their work related activities.

11. Identify all individuals who will have access, during or after completion, to the unpublished results of this study.

Dr. Dan Tamir, Dr Oleg Komogortsev, Dr. Carl Mueller and Research Assistants working on the project.