UNIVERSITY OF DUNDEE
SCHOOL OF COMPUTING ETHICS COMMITTEE APPROVAL FORM

Title of project The James Hutton Institute's Potato Disease Diagnosis Tool _____

Name of Lead Investigator (Student in case of project work) **Kari McMahon** _____

Module Code if applicable AC41004 _____ Module Name HCI And Usability _____

Research Supervisor / Other Academic Staff involved Professor John Arnott _____

Email address k.v.mcmahon@dundee.ac.uk _____ Funding Body (if applicable) _____

Estimated start date 23/09/2014_____ Estimated end date 3/10/2014_____

Date submitted 23/09/2014 _____ SoCEC Ref no. (LEAVE BLANK) _____

DECLARATION:

I have read and understand the University of Dundee Guidelines for ethical practices in research and the School of Computing Code of Practice for Research involving Human Participants. I confirm that my research abides by these guidelines as embodied in the statements in Part A below.

Print Name KARI MCMAHON .....Date 23/09/2014.....
(Lead Investigator)

Students must ensure that their supervisors review their application before submission as this can prevent delays in being able to commence a study.

I confirm that I have reviewed this application and consider this application ready for submission.

Print Name JOHN ARNOTT (see professor Arnott for confirmation of this) Date 23/09/2014.....
(Supervisor)

PART A

The declaration above confirms that you will:

- Provide an information sheet to participants which describes the main procedures to participants in advance so that they are informed about what to expect;
- Tell participants that their participation is voluntary (both in information sheets and consent forms);
- Obtain written informed consent for participation and provide participants with a copy;
- Ask participants for their consent to being observed, should the research be observational;
- Ensure that participants are able to read and understand the participant information sheet;
- Tell participants that they may withdraw from the research at any time without penalty and for any reason;
- Give participants the option of omitting questions they do not want to answer if a questionnaire is used
- Tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs;
- Tell participants that all recordings, e.g. audio/video/photographs, will not be identifiable unless prior written permission has been given by the participants;
- Debrief participants at the end of their participation (i.e. give them a brief explanation of the study).

PART B

Please answer the following questions:

			YES	NO
1	Will your project involved deliberately misleading participants in any way?			**X**
2	Is there any realistic risk of any participants experiencing either physical or psychological distress or discomfort? If Yes, give details on a separate sheet and state what you will tell them to do if they should experience any problems (e.g. who they can contact for help).			**X**
3	Do participants fall into any of the following special groups? Note that you will also need to obtain satisfactory Disclosure Scotland (or equivalent) clearance when working with vulnerable people.	Children (under 18 years of age)		X
		People with Intellectual or communication difficulties		X
		People in custody		X
		People engaged in illegal activities (e.g. drug-taking)		X
		Non-human animals		X
		NHS Patients		X

PART C

You must provide the information listed below:

1. Title of project.

The James Hutton Institute's Potato Disease Diagnosis Tool – A phone application to aid the diagnosis of potato plant disease.

2. Purpose of project, background and its academic rationale.

The project is part of the industrial team project AC41004 module where we have partnered with the James Hutton institute to develop a phone application to aid the diagnosis of potato plant disease for farmers in third world countries such as Malawi as part of the institutes Malawi potato project. The application will aid the diagnosis of potato disease by containing a glossary of insects, plants, nutrient deficiency and tuber symptoms that cause disease in potatoes. When an item clicked on from the glossary is opened it contains further images, symptoms and causes to give the user more information. The application will also have an expert system which will narrow down the possible causes of disease potato plant by asking a series of questions until the application has reached a suggestion or possible suggestions like an NHS 24 system.

The motivation for this project is that the James Hutton Institute have found a need for this application in third world countries like Malawi where they do not have access to many resources to aid diagnosis of potato disease. In countries like Malawi the potato crop is a strong source of revenue being the 4th biggest food crop in the world and important cash crop. This application would benefit them greatly to help limit the spread of disease to other potato plants and could help the farmers in these countries save money and crops.

The academic rationale behind the project is that we get to work with an external client on a project decided by them to give us industry experience as part of the industrial team project AC41004 module.

We want to evaluate our application by:

- Evaluating it against another application currently on the market that the client has told us are available in this industry and see if our application is better for the diagnosis of potato disease than the application currently available.

- User testing.

1. Brief description of methods (e.g. interviews) and data analysis.

We plan to evaluate whether our application aids the diagnosis of potato disease. By doing user testing and evaluating it against another applications on the market.

Evaluation Tasks

Task:

- Participant will try to diagnose a cause of a disease based on an image of plant, tuber or insect.
- Participant will try to find a specific cause of disease using the glossary.

Our dependant variables:

- Time it takes to do the task

Our independent variables

- The system

User Testing:

Observe the user using the application for 15 – 20 mins without too much direction to understand if the user finds the application usable, easy to navigate and clear. We will gain feedback from comments made during the testing and the System Usability Scale evaluation form.

Participants:
We aim to have 2-4 participants hopefully from the James Hutton Institute who are familiar with the industry. But due to the short time scale this might not be possible. The participants should be from the age range 18 – 60 of either gender hopefully evenly split.

Procedure:

1. Participants will be given an information sheet and invited to read it.
2. Participants will be given a consent form.
3. Participants will sign consent form.
4. Participants will be given a demographic questionnaire.
5. Participants will be introduced to the system which is demonstrated by the experimenter.
6. Participants will be given the evaluation task with around half an hour to the task or user testing with around 20 minutes to complete the testing.
7. Participants will be given a System Usability Scale evaluation form.
8. Once tasks are done, participants are free to go.

We want to evaluate if our application is better at diagnosing potato disease than the current applications available on the market as well as testing how usable, easy to navigate and clear our application is to use.

2. Participants

We require participants of the ages 18-60 and of any gender to participate in the evaluation. But preference for those with experience in the industry and from the James Hutton Institute.

4a recruitment methods:

Our recruitment methods will be to recruit participants with an interest in the app. We will recruit these participants by speaking first speaking to the James Hutton Institute and client but due to the short time space. If unsuccessful we will then speak to friends and family members who may be interested in the application.

4b number: 2-4

4c age: A mixture from the ages of 18-60

4d gender: Ideally an even split of male and female participants.

4e exclusion/inclusion criteria: Our inclusion criteria are people of the ages 18 – 60 who have worked as carers. Our exclusion criteria are those who are under the age of 18, over the age of 60 and cannot read/write English.

3. Consent and participant information arrangements:

Consent forms and an Information Sheet have been attached to this application.
The demographics questionnaire and System Usability Scale form have also been attached.

4. Debriefing / Feedback:

Each participant will be provided with the following statement in writing after the study is complete:

The study evaluates our James Hutton Institute's Potato Disease Diagnosis Tool which attempts to aid diagnosis of the causes of potato disease. With your data we are hoping to show that our application is an improvement on current applications on the market to help aid the diagnosis of potato disease and that the application is usable and clear to understand. If the participant would like feedback we would like to get there email so we can send them a brief report of the results

5. A clear but concise statement of how you will ensure confidentiality, any ethical considerations raised by the project and how you intend to deal with them.

Each participant will be assigned a unique id. The id will be the sole identification used throughout the entire study to identify that the set of data has come from a single participant. Data will be stored in an anonymized manner. No photographs or video footage will be recorded of any participants. If any findings are published no references to your identity will be made and no data will be identifiable as yours.

This study presents no obvious ethical risks to any participants.

8. Participants forms (See code of practice for examples and standard consent form).

I have attached 1 information sheet/s.

I have attached 1 consent form/s

I have attached 0 combined information/consent form/s

I have attached 0 release form/s.

I have attached [1] demographics questionnaire.

I have attached [1] interview question sheet.

9. If external ethical approval has been granted, please attach approval letter and tick box ❑.

There is an obligation on the lead researcher to bring to the attention of the Ethics Committee any issues with ethical implications not clearly covered by the above checklist.

Email this form and accompanying attachments as a zip file with your name and date submitted to ethics@computing.dundee.ac.uk

Information Sheet

A mobile application to aid the diagnosis of potato disease.

We would like to invite you to take part in our research study. Before you decide, we would like you to understand why we are doing the research and what it involves. A member of the research team will go through the information sheet with you and answer any questions you have.

What is the application?

The application is to aid the diagnosis of potato disease which could benefit farmers greatly to help limit the spread of disease to other potato plants and help them save money and crops.

Do I have to take part in the study?

It is up to you whether you join the study or not. After going through this information sheet with you, if you agree to take part we will ask you to sign a consent form. You will be given a copy of each of the forms to keep. Before the study starts you will be given time to ask any questions you may have. Please also feel free to ask questions at any time throughout the study.

What happens if I wish to withdraw from the study?

You are free to withdraw from the study at any time, without giving reason and without penalty.

What will I have to do?

You will be seen by a member of the research team at the School of Computing, University of Dundee, in a user-based lab study session.

The researcher will begin by taking you through a questionnaire in order to get some general demographic information about yourself (e.g. age).

You will then complete a study. You will either be asked to diagnosis the cause of a diseased potato and to find a specific cause of potato diagnosis with two different applications or participate in user testing of the application. Either of the tasks should take no longer than 30 minutes and will be used to evaluate if our application is better at diagnosing potato disease than the current applications available on the market as well as testing how usable, easy to navigate and clear our application is to use.

After each task we will give you a quick questionnaire which should take no longer than 10 minutes to fill out.

Once again, the aim of this research is not to test you but evaluate if our application is better at diagnosing potato disease than the current applications available on the market as well as testing how usable, easy to navigate and clear our application is to use The timing and location of the sessions shall be discussed and agreed with you and we will inform you of how much time you will be expected to spend with the research team. Maximum time spent on the study will be an hour.

What are the possible disadvantages and risks of taking part?

There are no risks associated with this study.

What are the possible benefits of taking part?

Your involvement in the study will help us to understand and improve current potato diagnosis software which could be life changing to third world countries.

What happens at the end of the study?

The analysis of the data will be completed by the end of September 2014. The results of the study will be used in our final report and presentation. If you would like to know the outcome of the study, I will send you a copy of the report by September 2014.

What if there is a problem?

If you have a concern about any aspect of this study, you should speak to the lead investigator Kari McMahon, who will do her best to answer your questions [phone: 07788252604 or email: k.v.mcmahon@dundee.ac.uk]. If you remain unhappy and wish to complain formally, you can do this by speaking to Dr Janet Hughes, Dean and Head of School of Computing, University of Dundee [phone: 01382 385195 or email: jhughes@computing.dundee.ac.uk].

Will my information be kept confidential?

Yes, all of your information will remain completely confidential. Each participant will be assigned a unique id. The id will be the sole identification used throughout the entire study to identify that the set of data has come from a single participant. Data will be stored in an anonymized manner. No photographs or video footage will be recorded of any participants. We will follow ethical and legal practice and all information about you will be handled in confidence. To ensure anonymity, personal records will only be available to the research team for the duration of the study and will not be kept together with the results of be presented in the report.

Each participant will be assigned a unique id. The id will be the sole identification used throughout the entire study to identify that the set of data has come from a single participant. Data will be stored in an anonymized manner. No photographs or video footage will be recorded of any participants. If any findings are published no references to your identity will be made and no data will be identifiable as yours.

Who has reviewed this study?

The School of Computing's Ethics Committee, which has responsibility for scrutinising all proposals for non-clinical research on humans at the University of Dundee's School of Computing, has examined the proposal and has raised no objections from the point of view of ethics.

Who can I contact in connection with this research?

This research is being lead by Kari McMahon, an undergraduate student at the University of Dundee.
Her contact details are:

Kari McMahon
Email: k.v.mcmahon@dundee.ac.uk

The module is being lead by Professor John Arnott, both lecturers at the University of Dundee

Professor John Arnott's contact details are:

Professor John Arnott

Email: jarnott@computing.dundee.ac.uk
Telephone: 01382 384148

Please feel free to contact any of these people during the study.

Thank you very much

Thank you for taking the time to read this information sheet and for considering taking part in this study.

Demographic Questionnaire

A mobile application to aid diagnosis of potato disease

All questions are optional

1. Please specify your gender that suits you best:

Male **Female** (Circle one)

2. How old are you? _____

3. Occupation: _____

4. How many hours, on average, would you say you worked with computers in a week? _____

5. Rank how computer literate you feel you are: (Circle one)

Excellent **Good** **Not Bad** **Poor** **Terrible**

6. When using a computer, what would you mostly be using it for? (Circle one or more)

Social networking **Work Related** **Leisure** **Other** **_____**

7. Have you used any potato diagnosis phone/tablet applications before? (Circle One)

Yes **No**

8. If yes please list the applications with a rating from 1 – 5 of your enjoyment/usefulness of using these applications (1 being terrible and 5 being fantastic) and any additional comments you may feel necessary about these applications ?

9. If yes have you used any of these applications in a field environment? (Circle One)

Yes **No**

10. If yes please list the applications with a rating from 1 – 5 of your enjoyment/usefulness of using these applications in a field environment (1 being terrible and 5 being fantastic) and any additional comments you may feel necessary about these applications ?

11. Do you own a tablet or smartphone? (Circle One)

Yes **No**

Consent Form

A mobile application to aid diagnosis of potato disease

(Please initial the box)

1. I have read and understand the above information sheet dated ….. for the above study. I have had the opportunity to consider the information, ask questions and have had these questions answered satisfactorily. ☐

2. I understand that my participation is voluntary and that I am free to withdraw from the study at any time without giving any reason and without penalty. ☐

3. I understand that my data collected during the study may be looked at by individuals from the research team where it is relevant to my taking part in this research. I give permission for these individuals to have access to my data. ☐

4. I understand that the data that is collected about me from the study only relates to the use of the application. ☐

5. I understand that all information will be kept confidential and data will be stored in an anonymized manner. No photographs or video footage will be recorded of any participants. If any findings are published no references to your identity will be made and no data will be identifiable as yours ☐

6. I agree to take part in the above study. ☐

Name of participant: Signature: Date:

Name of Researcher taking Consent: Signature: Date:

The System Usability Scale

The System Usability Scale is a 10 item questionnaire with 5 response options.

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

The System Usability Scale uses the following response format:

Strongly Disagree 1	2	3	4	Strongly Agree 5
○	○	○	○	○
