

A Project details

A1 Project Title (please ensure that this reflects the research topic, rather than just 'research project' or 'dissertation')

Design Engineering Golf Swing Analysis Project

A2 Short Title

Golf Swing Analysis Project

A3 Proposed dates of project

Start date (ie
the date you
plan to start
collecting data
or recruiting
participants)

31/03/2022

End date (for students this will
be the date you are due to
submit your project or
dissertation)

01/09/2022

A Applicant Details

A4 Applicant

First Name

Surname

Scott

Griffin

School/Department

School of Architecture, Technology and Engineering

Email

S.Griffin4@uni.brighton.ac.uk

A5 School

School of Architecture, Technology and Engineering

A6 Level of applicant (eg Undergraduate, Taught Postgraduate (eg MA or MSc), Postgraduate Research (eg MPhil or PhD), MRes, Staff). If you are a member of staff who is also a student, you should select the role to which your proposal relates (eg if the research is for your PhD, select Postgraduate Research). Please note that if you are a Masters student (MA, MSc etc) you need to select Taught Postgraduate and not PGR.

Undergraduate

B Does your research project require ethical review?

Does your project require ethical review?

The following checklist should be used to determine whether your project falls within the scope of the University's Research Ethics Policy, and whether ethical review will be required (see section 3 of the [Research Ethics Policy](#) for further information on the types of research that fall within its scope).

B1 Does your project involve any of the following (please tick all that apply):

- ☒ a) The participation of humans (eg interviews, surveys, focus groups, observations, photography, audio or video recording, physical activity or invasive/intrusive procedures)?
- ☐ b) The use of bodily materials derived or obtained from humans?
- ☐ c) Access to, collection of or use of personal human data or property? (personal data is data about an individual from which they could be identified)
- ☐ d) Access to, collection of or use of (non-personal) sensitive or confidential data?
- ☐ e) The potential to expose any person, whether or not participating in the research, to physical or psychological harm?
- ☒ f) The potential for significant negative impact on or damage to the natural environment?
- ☐ g) The potential for significant negative impact on culture or cultural heritage?
- ☐ h) The use of, or study of animals of any kind?
- ☒ i) Any other ethical issues raised by this research project that in your opinion would warrant ethical review?
- ☐ j) None of the above.

C Course information

C1 Course title

Design Engineering

C2 Module Code

DE50X

C Supervisor Details

C3

Title

First Name

Surname

Department

Email

E Potential ethical issues and risks

E1 Does the research involve experimental procedures with animals, interventions or interactions with animals, or the removal of animals from their natural habitat?

☐ Yes

☒ No

E2 Please indicate on the checklist below any potential ethical issues (please select all that apply).

- ☒ a) Will the research present any physical risk to participants (including the researchers), such as the potential to cause them harm, more than minimal pain or discomfort, or exposure to dangerous situations or environments?
- ☒ b) Will the study involve participants who could be considered vulnerable, or could participants feel coerced or obliged to take part or disadvantaged by not agreeing to participate?
- ☐ c) Will participants be asked to discuss or reflect on sensitive topics, or could the research cause them stress, distress, anxiety, humiliation or other negative emotions?
- ☐ d) Will participants take part in the study without their knowledge and/or consent at the time, or will the research involve deception?
- ☐ e) Does the study require the co-operation of a gatekeeper in order to access participants?
- ☒ f) Will the research involve access to records of a confidential, personal or sensitive nature, or collecting personal visual information (eg photographs or video recordings) that could potentially be sensitive?
- ☐ g) Will the research involve accessing participants or data of a personal nature via an internet setting such as chat rooms, social media, instant messaging etc (please note that you do not need to tick this box if you are just sending out an online questionnaire or carrying out online interviews via Teams)?
- ☐ h) Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?
- ☐ i) Might the research involve the disclosure of confidential information beyond the initial consent given?
- ☐ j) Will the research involve the use and/or storage of human tissue (including bodily fluids such as blood, urine or saliva)?
- ☐ k) Does the research raise any other significant ethical issues?
- ☐ l) None of the above issues apply.

E3 Does the research have the potential for causing significant negative impact on the environment (including animal or plant populations, or rare or protected species, habitats or sites)?

- ☐ Yes
- ☒ No

E4 Will the research be conducted outside the UK?

- ☐ Yes
- ☐ No

E7 If you have ticked any of the issues on the above checklist, it is likely that your research will require Tier 2 review by a Cross-School Research Ethics Committee. Please indicate below whether you consider that your proposal should go for Tier 1 (School level) review or Tier 2 (CREC) review.

- ☐ My proposal involves a low level of ethical risk and should be reviewed at Tier 1 (School) level.
- ☐ My proposal involves a higher level of ethical risk and should be reviewed by a Tier 2 Cross-School Research Ethics Committee.

E8 To which School Research Ethics Committee are you applying? (Please note that this should normally be the Committee for the School in which you are based). If you have any questions about the review process please contact your School Research Ethics Committee Chair or Administrator.

School of Architecture, Technology and Engineering

F Introduction

F2 Please provide a brief introduction to the research, including the context and rationale (include no more than six references) (Maximum 4,000 characters)

Many people play golf and are looking to improve their golf game, there are many ways of doing this. Many people seek professional advice and training. There are training devices that provide information such as ball speed, swing speed, carry, etc. There is also equipment that you can attach to the golf club or yourself that can adjust your position and posture.

This project will focus on trying to improve a golfer's golf swing. I believe that improving the swing is better than improving other factors, an example is if you were to improve your posture, this could limit the potential users and may not be easily applicable to certain people. On the other hand, improving the golf swing is more universal and it is some

My research will involve analysing and comparing different golf swings to produce an idealistic target range for golfers to compare their golf swing too.

F Aims and Objectives

F3 Please outline the aims and objectives of the research and provide a description of the research question or hypothesis to be tested where applicable.

For this project, the aims are:

1. Record videos of different golf swings and track the sequence of positions throughout each video and use those to produce lines that replicate the golf swings on a graph
2. Normalise the positions of the line(s) produced so that each line starts at $X = 0$ and $Y = 0$
3. Normalise each sequence in time to remove video offset (each golf swing will start at different points in a video)
4. Use standard deviation and confidence interval to produce a target range and compare with other sequences

Questions that need to be answered are: Can comparing the swing to a target range actually help? and will the graph need to be conveyed in a way that makes the user understand better (does the system need to tell the user or is it self explanatory?)

F Design and Research Methods

F4 Please provide details of the design of the research, the procedures or methods (statistical or qualitative) to be used, and how, when and where data will be collected (upload copies of any questionnaires or sample interview questions with your application).

Before recording the videos I will search for the best ways to record videos, I will look into frame rate of the camera, whether slow motion is required and how far away I need to be from the golf club. I will also look into colour contrasts, lighting, and whether the time of day makes a difference. I will then use a tracking software to track a sequence of positions. I will also look into which area of the golf club is best to track, i.e. the club head, the end of the shaft or the grip. I will also produce a semi-structured interview and speak with a professional golfer to help determine how to compare the data and how the data can be presented to the user.

F Data Analysis

F5 Please provide details of how the data/results will be analysed and by whom. How will the analysis achieve the purpose of the study?

I will be analysing the data to begin with and then I will use a combination of Huskylens and Microbit to record and analyse the data with just a button/switch. For each video a sequence of positions will be recorded using tracker, the positions will be recorded both automatically and manual (depending on the video quality) and each data set will be export onto an Excel spreadsheet. From there I will normalise the positions so that each line starts at the same position (other data within the sets will also be moved by there respective amount). Then I will reduce each set of data so each has the same number of data points, I will do this by selecting each data point at for example; $X = 10$, $X = 20$, $X = 30$ (incremental change). After this I will produce standard deviations and confidence intervals to create a target range (mean, upper and lower limits).

F6 How and where will the results of the project be published or made available (eg: essay, dissertation, academic paper, exhibition, online)? How will the findings from the project be fed back to research participants?

My research will be available on my website, on my website there will be graphs, tables, reports and all the excel spreadsheets will be available to download. The device will also present the users swing compared to a target range.

H Participants

H1 What sort of participants (eg age range, ethnicity, number, gender) are to be recruited? Will any vulnerable groups or individuals be involved (consider the concept of 'vulnerability' in its broadest sense)? (Maximum 1,000 characters)

I will be recording myself to begin with and then will the analysis is accurate the participants will be people who play golf (ideally professional).

H Inclusion/Exclusion Criteria

H2 What inclusion/exclusion criteria will be used? Are there participants who would not be suitable for your research? Is exclusion from the research likely to deny an individual access from services or opportunities that would otherwise have been provided? (Maximum 1,000 characters)

Participants excluded would be those who don't play golf. Users wouldn't benefit from using a target range produced from those who have never played golf. Those who are blind would not be able to see the graphs produced but I plan on a system that tells user the data displayed and compared.

H Recruitment of Participants

H3 How will initial contact be made? Include details of gatekeepers and others who are to be approached. Please supply a copy of any means of advertising, such as posters, leaflets, emails, web pages or letters (you can upload these in the Documents section of this form) (maximum 1,000 characters).

I will contact club professionals at different golf courses and asks to advertise my research. I will produce a poster to advertise and ask for volunteers. I could ask each professional to ask their students if they want to be recorded, then record the video and sent the data to me.

H Voluntary Participation

H4 Will participation be voluntary and free from coercion? Will participants be able to withdraw from the study at any time without giving a reason? If so, will it still be possible to withdraw their data. Please note that if data is going to be anonymised or aggregated you may need to give a cut-off point after which data cannot be withdrawn. Similarly, in a group situation such as a focus group it may not be feasible to remove individuals' data and if so this should be made clear. Please consider any existing relationships you have with participants that could potentially influence their decision whether or not to take part. (Maximum 1,000 characters)

Participation will be voluntary, they can withdraw at any time and the recorded video can be deleted when asked. Only myself will know which data belongs to who due to myself analysing the videos. A reference number can be provided to keep a set of data anonymous.

H Information for Participants

H5 Please outline how participants will be informed (orally and/or in writing eg via a participant information sheet) about the research and their participation in it. How will you ensure that information is provided in a format/language suitable for the target audience? (you can upload participant information sheets in the Documents section of this form) (Maximum 1,000 characters)

Participants could be informed via email, text, or a letter. A method which suits them. Or if the professional asks them during a lesson. The advertisement will be at golf courses so that most who read this will have golf context and knowledge.

H Consent

H6 Will participants give consent to take part prior to their participation?

- ☒ Yes
☐ No

H6.1 Describe how consent will be sought and obtained, eg via a consent form. If written consent is not being obtained, please explain the reason and give details of alternative arrangements that will be made. (you can upload consent forms in the Documents section of this form) (Maximum 1,000 characters)

The consent will be verbally through the golf professional, or if they want to participate then they can contact me.

H Payment

H7 Will participants be reimbursed or paid for their expenses and/or time?

- ☐ Yes
☒ No

I Confidentiality and Data Protection

I Confidentiality, Anonymity and Privacy

I1 Please describe what arrangements will be made to anonymise data, to guard against invasion of privacy or to ensure confidentiality. If there are limits to confidentiality (for example, if someone reveals the threat of potential harm to themselves or others, or an instance of professional malpractice) please describe these and say how they will be addressed (Maximum 2,000 characters)

The only people with access to the videos will be myself, the golf club professionals and the participant of each video. Each data set will have its own reference number to keep the data anonymous. Most of the data on the Huskylens will be in the background, only the target ranges and the users data will be presented on the screen when the device is used.

I Data Storage and Handling

- 12 Please describe what arrangements will be in place for the collection, handling, transfer and storage of data (both physical and digital), how long it will be retained and how it eventually will be destroyed (normally for staff research, data should be kept for a minimum of 10 years and for student research, data should be retained at least until their award has been conferred). Who will have access to the data other than the researcher (eg supervisors, transcribers), where will the data be published (eg dissertation, academic paper, exhibition, online), and who will have access to the results? (Maximum 2,000 characters)

The videos will be recorded but not all on the same camera, I will make sure the videos are collected and stored in a single folder, with each video labelled by the reference number. When the data has been collected I will use these to produce target ranges, the data will be kept until accurate target ranges are produced and transferred to the Huskylens.

I Collection or Use of Personal Data

- 13 Will you be collecting or using sensitive (special category) personal data (ie from which participants could be identified) as defined by the Data Protection Act 2018 (Personal data from which participants could be identified that reveals racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership; the processing of genetic data or biometric data for the purpose of uniquely identifying a person; data concerning health or data concerning sex life or sexual orientation.)?

- ☐ Yes
☒ No

- 14 Will any personal data be collected, stored or transferred outside the UK?

- ☐ Yes
☒ No

J Ethical issues, risks and benefits

Ethical issues and risks

If you ticked 'yes' to any of the ethical issues in section E of the form, you will be prompted to address these below. For each of the types of issue, please identify any potential ethical risks and say how they will be addressed, and how any negative impact(s) will be minimised. Please ensure that you complete a risk assessment form and upload it to your submission in the Documents section of this form.

J Physical Risk

J1 Physical risk to participants, including the potential to cause them harm, more than minimal pain or discomfort, or exposure to dangerous situations or environments?

There is a risk in the participant potentially harming themselves by swing the golf club. Depending on how the participant swings the golf club depends on whether or not they are in discomfort or in pain.

J Vulnerable Participants

J2 Participants who could be considered vulnerable or could feel coerced or obliged to take part or disadvantaged by not agreeing to participate?

J Access to confidential, sensitive or personal information

J5 Access to records of a confidential, sensitive or personal nature, or collection of personal visual information such as photographs or video recordings.

J Benefits or Positive Impacts of the Research

J15 What are the expected benefits or positive impacts of the research on participants or their communities, or to any animals involved in the research? Possible impacts might include psychological, health, social, economic or political changes or ramifications, either at the time the research is carried out or in the future. Sometimes the benefits may be to the wider community or to individuals in the future, rather than to the participants themselves, and if so this should be made clear. For student research projects it may be that the benefits include the educational value to the student.

People could improve there golf swing and overall golf game. People may be intrigued as to how their golf swing compares to others. This project could also encourage people to play golf and could produce a larger golfing community. This project will go towards my degree and will benefit my module.

L Documents and Uploads

Please upload the following documents in support of your application where applicable. **Please upload all files in PDF format.**

L Participant Information Sheets

L1 Do you have Participant Information Sheet(s) to attach to your application?

- ☐ Yes
☒ No

L1.2 Please say why a Participant Information Sheet is not being used.

I will be advertising the project via a poster, with an explanation of the project. An explanation of the project before recording the data will be provided.

L Consent Forms

L2 Do you have consent form(s) to attach to your application?

- ☐ Yes
☒ No

L2.2 Please say why a consent form is not being used.

Participants will either contact me or be asked by a professional golfer during a lesson whether or not they want to participate and if its ok to record a video of them. If I do not receive a message/email then the person is not interested.

L Recruitment Materials

L3 Do you have drafts of any written materials that you are planning to use for recruitment of participants (eg posters, leaflets/flyers, emails, web pages, letters)?

- ☐ Yes
☒ No

L3.2 Please say why recruitment materials have not been attached

Participants will contact me or will be asked by a golf club professional. Advertisement not yet produced.

L Questionnaires, interview questions etc

L4 Do you have examples of questionnaires/surveys or sample interview or focus group questions?

- ☒ Yes
☐ No

L4.1 Please upload any examples of questionnaires/surveys or interview/focus group questions here (please upload in PDF format)

Documents					
Type	Document Name	File Name	Version Date	Version	Size
questionnaires, surveys, interview questions	Semi Structured Interview	Semi Structured Interview.docx	31/01/2022	1	13.6 KB

L Health and Safety Risk Assessment Form

L5 Please note that most applications will require a risk assessment to be carried out and attached below to ensure that you have assessed any potential risk of harm to yourself or others. Have you carried out a risk assessment?

- ☐ Yes
☒ No

L5.2 Please say why a risk assessment has not been carried out for this proposal

Not yet created.

L Letters of Support

L6 Do you have letters of support or evidence of co-operation from any external organisations involved in the research (eg gatekeeper organisations)? If you are recruiting participants via a gatekeeper organisation you will need to provide evidence of their co-operation in order to gain a favourable ethical opinion.

- ☐ Yes
☒ No

L References

L7 Do you have a list of academic references cited in your application?

- ☐ Yes
☒ No

L Resubmission summary

L10 It this a new application or are you resubmitting the application following changes requested by the Committee or Panel?

- ☒ New application
- ☐ Resubmission following changes

M Signing and submitting your form

M Applicant signature

Declaration

I understand that ethical review is required for my research project, and that no recruitment of participants or data collection can commence until a favourable ethical opinion has been received from the appropriate research ethics panel or committee. I also confirm I have read and understood the [University's Research Ethics Policy](#).

M1 Applicant signature

M Supervisor signature

M3 Supervisor signature

Click here to request your supervisor's signature. Please note that both you and your supervisor need to sign the form, although it doesn't matter in which order this is done.