All students conducting research activity that involves human participants or the use of data collected from human participants are required to gain ethical approval before commencing their research. Please answer all relevant questions and note that your form may be returned if incomplete.

*You will complete this form and return to the class teacher when your research topic and research proposal is discussed and approved by your class teacher teaching this unit. Please complete this form in good time before your research project is due to commence.*

**Research must NOT being until approval has been received from the appropriate Faculty Committee**

**Section 1: Student Details**

|  |  |
| --- | --- |
| **Student Name:** | **Garima Shrestha** |
| **Student ID:** | **Kit24j.gar@ismt.edu.np** |
| **Contact Email:** |  |
| **Course:** | **Computing Research Project** |
| **Unit:** | **16** |

**Section 2: Project Details**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Research Project Title:** |  | | | | |
| **Propose Start/End Date:** *(DD/MM/YYYY)* | **Start Date** | | | **End Date**  Jun 19, 2025 | |
| **Supervisor:** | **Sudeeip Bhandarri** | | | | |
| **Please select all research methods that you plan to use as part of your project:** | | | | | |
| Interviews | |  | Data Analysis | |  |
| Questionnaires | |  | Action Research | |  |
| Observational | |  | Focus Group | |  |
| Use of personal record(s) | |  | Others (please specify) ……………… | |  |

**Section 3: Project Outline & Proposed Research methods**

**Project outline & aims**

Briefly describe the aims of this research, including the anticipated benefits and risks. This description must be in everyday language. If any jargon, technical terms or discipline-specific phrases are used, these should be explained.

In Kathmandu, solid waste management (SWM) continues to be one of the most important environmental and public health issues. The city's lack of contemporary waste-handling infrastructure, fast urbanization, and population growth have all contributed to overcrowded landfills, ineffective collection systems, and inadequate source-level segregation.

1. To determine and examine the primary inefficiencies in Kathmandu's current solid waste management methods.
2. To investigate the potential applications of artificial intelligence in waste collection route optimization, operating cost reduction, and scheduling and efficiency enhancement.
3. To look at how AI might be used to enhance recycling and waste segregation procedures in both homes and cities.
4. To analyze current AI-based waste management models and technologies that are employed in other nations or cities and determine whether they are appropriate for Kathmandu.

**Proposed research methods**

Please provide an outline, in layman’s terms, of the proposed research methods. Specify whether the research will take place outside of the UK or in collaboration with partners based outside the UK, and/or if research will take place using the internet. Present an outline of the method in a step-by-step chronological order, and avoid using jargon and technical terms as much as possible. Ensure you describe the key tasks including how data will be collected and used.

Selection of group

I will use non-probability sampling, especially convenience sampling. I will choose participants who are readily accessible and available, including local solid waste management staff and inhabitants of the impacted wards. This strategy is appropriate when it facilitates rapid data collection from those directly engaged with the problem.

**Data Collection**

**Primary Data Collection**

1. I will apply a quantitative method in the Google Form survey by using close-ended questions to collect data on waste handling frequency, common issues, and awareness of AI technologies. This will help in identifying trends and measurable responses.
2. I will also conduct interviews with selected municipal officials and SWM workers to gain deeper insights into the practical challenges and current systems. This qualitative method will help me understand specific obstacles and possibilities that numbers alone cannot reveal.

**Secondary Data Collection**

I will also read existing research papers, government reports, and official documents related to solid waste management and the application of AI in similar contexts globally.

**Section 4: Participants**

Please answer the following questions, giving full details where necessary.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Will your research involve human participants? | | | | Yes | | | No | |
| Who are the participants? Tick all that apply: | | | | | | | | |
| Children aged 12–16: | | Young people aged 17–18: | | | Adults: | | | |
| How you will use to inform participants about what you are doing? | | | | | | | | |
| Email: | Phone/Text: | | Others (please specify): | | | | | |
| How will you obtain consent from participants? Will this be written? How will it be made clear to participants that they may withdraw consent to participate at any time? | | | | | | | | |
| A **Consent Form** will be used, that includes all the information about the research and participants are asked to sign the form. They will be given an option to voluntarily withdraw from the research if they do not want to continue. | | | | | | | | |
| **Studies involving questionnaires:** | | | | | | | | |
| Will participants be given the option of omitting questions they do not wish to answer? | | | | | | Yes: | | No: |
| If No, please explain why below and ensure that you cover any ethical issues arising from this: | | | | | | | | |
|  | | | | | | | | |
| **Studies involving observation:** | | | | | | | | |
| Confirm whether participants will be asked for their informed consent to be observed. | | | | | | Yes: | | No: |
| Will you debrief participants at the end of their participation (i.e. give them a brief explanation of the study)? | | | | | | Yes: | | No: |
| Will participants be given information about the findings of your study? (This could be a brief summary of your findings in general.) | | | | | | Yes: | | No: |

**Section 5: Data storage and security**

|  |  |  |
| --- | --- | --- |
| Confirm that all personal data will be stored and processed in compliance with the Data Protection Act (1998) UK: | Yes: | No: |
| Who will have access to the data and personal information? | | |
| Temporary storage will be provided by password-protected laptops and encrypted USB drives. | | |
| **During the research:** Where will the data be stored? | | |
|  | | |
| Will mobile devices (such as USB storage and laptops) be used? If yes, please provide further details: | Yes: | No: |
|  | | |
| **After the research:** Where will the data be stored? | | |
| Data will be stored in college, following the data protection act. | | |
| How long will the data and records be kept for and in what format? | | |
| As per the data protection act policy, data will be stored as required in the suitable format. | | |
| Will data be kept for use by other researchers? If yes, please provide further details: | Yes: | No: |
| Yes, data and information will be kept for other researchers and will be made available upon request. | | |

**Section 6: Ethical issues**

|  |
| --- |
| Are there any particular features of your proposed work which may raise ethical concerns? If so, please outline how you will deal with these: |
| No |
| It is important that you demonstrate your awareness of potential risks that may arise as a result of your research. Please consider/address all issues that may apply. Ethical concerns may include, but are not limited to the following: |
| * Informed consent. * Potentially vulnerable participants. * Sensitive topics. * Risks to participants and/or researchers. * Confidentiality/anonymity. * Disclosures/limits to confidentiality. * Data storage and security, both during and after the research (including transfer, sharing, encryption, protection). * Reporting * Dissemination and use of your findings |

**Section 7: Declaration**

|  |  |  |
| --- | --- | --- |
| I have read, understood and will abide by ***[insert center name]*** Research Ethics Policy: | Yes: | No: |
| I have discussed the ethical issues relating to my research with my Unit Tutor: | Yes: | No: |

**I confirm that to the best of my knowledge:**

The above information is correct and that this is a full description of the ethics issues that may arise in the course of my research.

Name: …………………Garima…………..

Signature …………………………..

Date: ........................................................