The purpose of this form is to allow final year students of the B.Sc. (Hon) degree program to enlist in the final year project group. Enlisting in a project entails specifying the project title and the details of four members in the group, the internal supervisor (compulsory), external supervisor (may be from the industry) and indicating a brief description of the project. The description of the project entered on this form will not be considered as the formal project proposal. It should however indicate the scope of the project and provide the main potential outcome.

1. Project Title (As per accepted Topic Assessment From)

Hiking Assistance System Development

1. Research group the project belongs to

**Software Systems & Technologies (SST)**

1. Research area the project belongs to

**Machine Learning (ML)**

1. Project ID:

24-25J-256

1. Project Group Member Details: (Start with Group Leader’s details)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Student Name | Student ID | Contact No | Email Address |
| 1 | Rashmitha K.M. | IT21284120 | 0706959277 | [it21284120@my.sliit.lk](mailto:it21284120@my.sliit.lk) |
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1. Supervisor, Co-Supervisor Details

|  |  |
| --- | --- |
| **Supervisor Name** | **Co-Supervisor Name** |
| Dr. Sanvitha Kasthuriaracchi | Mrs. Lokesha Prasadini |
| **Signature** | **Signature** |
| (Attach the email as Appendix 1) | (Attach the email as Appendix 2) |
|  |  |
| **Date** | **Date** |

1. External Supervisor Details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Affiliation** | **Contact Address** | **Contact Numbers** | **Signature/Date**  (Attach the email as Appendix 3) |
|  |  |  |  |  |

1. Acceptance by CDAP Member (This part will be filled by the RP team)

|  |  |  |
| --- | --- | --- |
| **Name** | **Signature** | **Date** |
|  |  |  |

# Project Details

1. Brief description of the research problem : (extract from the Topic Assessment Form)

In Sri Lanka, mountain climbing and hiking are increasingly popular activities, attracting both local and international tourists. However, there is a significant problem in the current hiking experience, hikers lack a reliable system to identify the mountains they encounter, including crucial details such as the mountain's name, height, and exact location. These problems limit the educational and safety aspects of hiking, as well as the overall enjoyment and engagement of hikers who wish to learn more about the terrain they explore.

Despite the stunning landscapes and rich biodiversity, hikers often face challenges in identifying peaks and understanding their geographical context. This lack of information can lead to navigational difficulties, missed opportunities for learning about local geology, flora, and fauna, and potential safety risks in unknown areas. The absence of a centralized, user-friendly platform that integrates image recognition, geolocation services, and detailed data retrieval hinders the ability to enhance the hiking experience comprehensively.

Moreover, the existing hiking apps and resources in Sri Lanka are often outdated, lacking in advanced data features, or do not provide real-time information that could significantly benefit hikers. This situation underscores the need for a novel approach that can bridge this information gap, thereby fostering a more informed, enjoyable, and safer hiking environment.

Thus, the primary research problem is to develop a system that effectively addresses the need for real-time mountain identification and information access. This system should leverage cutting-edge technologies to recognize mountain features through images, provide precise geolocation data, and retrieve comprehensive details about each mountain, including its height, geological background, historical significance, and surrounding environment. Addressing this problem could greatly enhance the hiking experience, promote conservation awareness, and improve safety standards for hikers in Sri Lanka.

References

1. Antonio La Salandra, Piero Fraternali, Darian Frajberg (2018) A Location-Based Virtual Reality Application for Mountain Peak Detection
2. Roman Fedorov, Davide Martinenghi, Marco Tagliasacchi, Andrea Castelletti (2013) Exploiting User Generated Content for Mountain Peak Detection
3. Balázs Nagy (2020) A New Method of Improving the Azimuth in Mountainous Terrain by Skyline Matching
4. Description of the Solution: (Extract from the Topic Assessment Form)

The solution is to create a mobile app to make hiking in Sri Lanka easier, safer, and more fun. This app will help hikers identify mountains, estimate hiking time, show interactive maps, and report trail dangers.

## Mountain Identification:

Hikers can point their phone's camera at a mountain, and the app will tell them the name, height, and distance of the mountain. This feature will help hikers learn more about the mountains they see, making the hike more interesting and educational.

## Hiking Time Estimation:

The app will help hikers plan their trips by estimating how long it will take to hike to a mountain from their current location. It will consider things like the weather and trail conditions to give a good estimate of the hiking time.

## Interactive Map:

The app will have a map that shows mountains, trails, and interesting spots. Hikers can draw their routes on the map, save them, and share them with friends. They can also see routes shared by other hikers. This will help hikers find new trails and make the hiking experience more enjoyable.

## Safety Reporting:

The app will have a safety and trial condition reporting system for hikers. This will also support offline emergency communication which will allows hikers to send emergency messages even there is no cellular signal. This will also support real-time weather updates, alerts for sudden weather changes, and forecasts for specific trail locations. This will also have a feature for health monitoring. this feature will allow the app to connect with wearable health devices such as (smart watches, fitness trackers) to monitor vital signals such as heart rate, hydration levels, oxygen levels and activity levels these will provide alerts if the hiker shows signs of distress.

By combining these features, the app will be a valuable tool for hikers in Sri Lanka. It will provide important information, help with trip planning, and improve safety, making hiking a more enjoyable and educational activity.

**Workload Allocation** (Extract from the Topic Assessment Form after correcting the suggestions given by the topic assessment panel.)

(Please provide a brief description about the workload allocation)

|  |  |
| --- | --- |
| **Member 1** | Rashmitha K.M. IT21284120 |
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| **Member 2** |  |
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| **Member 3** |  |
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| **Member 4** |  |
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**Declaration** (Students should add the Digital Signature)

‘’We declare that the project would involve material prepared by the Group members and that it would not fully or partially incorporate any material prepared by other persons for a fee or free of charge or that it would include material previously submitted by a candidate for a Degree or Diploma in any other University or Institute of Higher Learning and that, to the best of our knowledge and belief, it would not incorporate any material previously published or written by another person in relation to another project except with prior written approval from the supervisor and/or the coordinator of such project and that such unauthorized reproductions will construe offences punishable under the SLIIT Regulations.

We are aware, that if we are found guilty for the above mentioned offences or any project related plagiarism, the SLIIT has right to suspend the project at any time and or to suspend us from the examination and or from the Institution for minimum period of one year”.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Student Name** | **Student No** | **Signature** |
| 1 |  |  |  |
| 2 |  |  |  |
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Appendix 1:

Appendix 2:

Appendix 3: