# PREFACE

As a part of Bachelor of Science in Information Technology curriculum and to gain practical knowledge in the field of information technology, we were required to make a project on “**Mangroves Loss mapping using Remote Sensing and GIS of the Mumbai Region**”. The basic objective behind this project was to build up the concept of remote sensing and Geographical Information System and also to generate knowledge about software amongst us.

In this project we have used python programming language as a base. Including satellite images made our project even more interactive. Doing this project helped us to enhance our knowledge about remote sensing and QGIS software. Through this project we got to know about the importance of teamwork and role of devotion towards work.

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**LIST OF ABBREVIATION:**

1. ANN: Artificial Neural Network
2. KNN: K-Nearest Neighbor
3. LISS-III: Linear Imaging and Self Scanning Sensor
4. GIS: Geographic Information System
5. IRS: Indian Remote Sensing
6. QGIS: Quantum Geographic Information System
7. GPS: Global Positioning System
8. GUI: Graphical User Interface

**ABSTRACT**

A Mangrove is a small tree which grows only in coastal region and is basically found at the edge of water and sea. Mangroves are the home for various aquatic organisms. Mangroves help preventing soil erosion and it also protects people community from natural disasters like tsunami, storms, floods and hurricanes. In India, around 40% of these mangroves are been destroyed in the past decade. The main reason for this destruction is the land for people community. So it is mandatory for conservation of mangroves. In India, West Bengal, Odisha, Andhra Pradesh, Tamil Nadu and Andaman are the places which have the highest amount of mangroves present. Manual surveying of these mangroves takes a lot of time and is not always that we may achieve accurate results from it because there will be no frequent updating of the reports. Remote sensing is the science of making measurements of the earth using sensors on satellites. These sensors collect data in the form of images and provide specialized capabilities for manipulating, analyzing, and visualizing those images.

Remote Sensing technology has been used to detect the changes in mangroves around Mumbai region and to find where mangroves are located in Mumbai suburban. Remote sensing is technique of gathering data of an object or phenomenon without getting direct contact with the object. Nowadays remote sensing is mainly used for classification and the detection of object. Classification process is used to categorize LISS III multiband image into various land cover classes to create thematic maps. The LISS-III stands for Linear Imaging Self-Scanning Sensor-3. LISS-III data consist of images in four bands. The thematic map is used to create an interactive informative map using GIS. GIS stands for Geographical Information System The purpose of this research is to create an informative map about the changes in mangroves by collecting information from previous researches and to provide possible solutions to protect them.