VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590010

PROJECT REPORT ON

"GROUND WATER EXPLORATION BY USING ELECTRICAL RESISTIVITY METHOD , REMOTE SENSING AND GIS IN MANGALORE"

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In partial fulfilment of requirements of degree of

BACHELOR OF ENGINEERING
IN
CIVIL ENGINEERING

Under the Guidance of

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Certificate

Certified that the project work entitled **"GROUND WATER EXPLORATION BY USING ELECTRICAL RESISTIVITY METHOD , REMOTE SENSING AND GIS IN MANGALORE"** is a bonafide work carried out by

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Are bonafide students of Department of Civil Engineering of Alva's Institute of Engineering and Technology in partial fulfilment for the award of **BACHELOR OF ENGINEERING** in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2020-2021. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

In this environment, the groundwater potential depends mainly on the thickness of the weathered/fractured layer overlying the basement. Groundwater is water located beneath the ground surface in soil pore spaces and in the fractures of lithological formations. A unit of rock or an unconsolidated deposit is called an aquifer when it can yield a usable quantity of water. The geophysical methods are widely used to determine the groundwater resources in any type of terrains. There are several geoelectrical sounding techniques for the groundwater investigations. Geoelectric Resistivity method is one of the important methods used to investigate the nature of subsurface formations by studying the variations in their electrical properties. Generally, these methods have been used for the identification of geological contacts, tectonic and structural studied. The conventional Schlumberger resistivity sounding is extensively used for routine groundwater investigations both in alluvial and hard rock terrain. Electrical resistivity survey provides much basic information to the hydrogeologist, like depth to water table, depth to the basement topography in hard rocks.

Groundwater occurrence being subsurface phenomenon, its identification and location is based on indirect analysis of some directly observed terrain features like geological and geomorphic features and their hydrologic characters. Satellite remote sensing provides an opportunity for better observation and more systematic analysis of various geomorphic units, lineament features, following the integration with the help of Geographical Information System to demarcate the groundwater potential zones. . Groundwater control factors derived from remote sensing data were used for mapping, including nine topographic factors, two hydrological factors, forest type, soil material, land use, and two geological factors. Due to the characteristics of remote sensing and groundwater, groundwater could be indirectly monitored by using remote sensing; much research has been conducted through thematic maps related to ground water based on remote sensing data and groundwater potential was estimated by reducing the uncertainties.