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2.	Name of the Guide	Mr.C.Sureshkumar AP/IT
	Department/Designation	B.Tech Information Technology / Assistant Professor
	Institutional Address	KGiSL Institute of Technology 365,KGiSL Campus , Thudiyalur Road Saravanampatti , Coimbatore - 641035
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3.	Project Title	Utilizing Geospatial Technology for Groundwater Level Monitoring
4	Sector in which your Project proposal is to be Considered	Environmental management and Water resources management
5.	Project	: I. Introduction II. Objectives III. Methodology IV. Work Plan V. Budget

5.1   INTRODUCTION

Geospatial technology is transforming groundwater monitoring with advanced tools such as satellite imagery, GPS, and GIS software. These technologies allow for precise mapping of groundwater levels over large areas, providing real-time data collection and analysis. Satellite data tracks surface changes that reveal groundwater conditions, while GIS integrates spatial data for detailed mapping. These approaches improve the accuracy and efficiency of water level monitoring, enabling better-informed decision-making in water resource management.

5.2   OBJECTIVES

To enhance groundwater monitoring by using geospatial technologies—such as satellite imagery, GPS, and GIS—to achieve precise mapping, real-time data collection, and improved accuracy in water resource management.

5.3 METHODOLOGY

Module 1: Sensor Deployment and Data Acquisition

- Deploy soil moisture sensors at strategic locations to monitor groundwater conditions.
- Configure satellite data sources for regular imagery capturing of surface features and changes.
- Use GPS devices for accurate georeferencing of sensor locations.

Module 2: Data Integration and Processing

- Integrate data from sensors, satellites, and GPS into GIS platforms to create detailed and interactive maps.
- Develop algorithms to analyze and process data from various sources, including real-time updates.

Module 3: Real-Time Data Monitoring

- Set up wireless communication modules to transmit sensor data to central servers or cloud platforms.
- Use data analytics tools to monitor groundwater levels, detect trends, and identify potential issues in real time.

Module 4: Alert System Development

- Develop systems to generate alerts based on predefined thresholds and conditions indicating potential groundwater issues.
- Implement notification methods for stakeholders, including SMS, emails, or mobile app alerts.

Module 5: Testing and Calibration

- Test sensor accuracy and overall system functionality in real-world conditions to ensure reliability.
- Calibrate sensors as needed to maintain accurate measurements and system performance.

5.4 WORK PLAN

S.NO	Activity	Month 1				Month 2				Month 3				Month 4				Month 5			
1	A1	█	█	█	█																
2	A2					█	█	█	█												
3	A3									█	█	█	█								
4	A4													█	█	█	█				
5	A5																	█	█	█	█

Activity Number	Activity
A1	Defining Project Requirements
A2	User Registration and Onboarding
A3	Contract Creation, Price Negotiation, and Pest Detection Integration
A4	Secure Payments, Market Analytics, and Pest Management
A5	Testing, Deployment, and Continuous Support

5.5 BUDGET

S.No	Item/Service	Cost (in Rs.)	Justification	Quantity	Platform/Website	Total Cost (in Rs.)
1	GPS device	4000	For geospatial data collection, mapping locations of groundwater monitoring points.	1	https://www.earthtrack.co.in/product/31339719/Basic-Wired-GPS-Tracker?utm_source=GMC	5000/-
2	Soil moisture sensor	1200	Correlation water moisture with ground surface	1	https://robu.in/product/sparkfun-qwiic-soil-moisture-sensor/	1500/-
3	Measuring tape	500	Measuring depth... how far moisture is there	1	From Local market	500/-
4	DIY water level indicator	1000	Measuring water level	1	Various suppliers	1000/-
5	Arduino uno for data logging	1200	Programming	1	https://www.electronicscomp.com/dfrobot-gravity-serial-data-logger-v20-for-arduino?search=Arduino%20Data%20Logger%20	1500/-
6	Power bank	800	Battery backup	1	From Local market	500/-
					Total	**10,000/-**

CERTIFICATE

This is to certify that *__Poornashri S R, Vikram K N, Mohamed Yaseen M, Ajay Raahul I__* are bonafide final year students of U.G Engineering courses of our college and it is also certified that two copies of utilization certificate and final report along with seminar paper will be sent to the Council after completion of the project by the end of May 2024.