

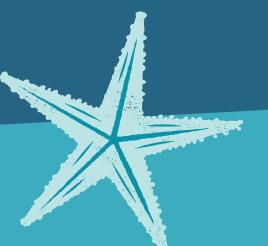
AI ENABLED WATER WELL PREDICTOR

Predicting Optimal Well Locations Using Machine Learning

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INTRODUCTION

- Groundwater is a key resource for agriculture, industry, and homes.
- Traditional prediction methods are costly and time-consuming.
- This project introduces an AI solution for accurate groundwater site prediction. Build an AI-based tool using Random Forest algorithm. Predict suitable groundwater well locations with more accuracy.
Rely on geological and climatic factors.
- Such as soil type, rock formation , rainfall patterns , temperature variations , humidity etc



BENEFITS

- Saves cost and time
- Encourages sustainable groundwater use
- Easy to use for farmers, researches and governments.
- High prediction accuracy

HOW THE AI MODEL WORKS

- Inputs : user inputs Geological & climatic data (soil, rainfall, temperature , etc.)
- Data preprocessing: cleaning, normalization, feature selection Model trained on historical data (80% training, 20% testing)
- Uses Random Forest algorithm for more accuracy
- Results are displayed in a user-friendly interface.



ABOUT THE MODEL: RANDOM FOREST

- Ensemble of decision trees
- Each tree gives its prediction
- Final output by majority voting (classification)
- Handles both numeric and categorical data
- Reduces overfitting and improves accuracy

PREDICTION PROCESS



- User inputs location-based
- Model processes input using the trained Random Forest
- Predicts Well suitability , depth , discharge and drilling method
- Output displayed in a user friendly interface

WHY RANDOM FOREST?



- Works well with complex real-world data
- High accuracy and robustness
- Explains feature importance
- Suitable for both classification and regression
- Ideal for geospatial and environmental predictions

CONCLUSION

- Altransforms groundwater prediction with high accuracy.
- Efficient, scalable, and eco-friendly system.
- Supports water resource management and sustainability.

