PROJECT PROPOSAL

1. Project Title: -

BEYOND EARTH

Designing and implementing a RK-4 Model algorithm to analyse asteroid composition and trajectory data to determine the most efficient mining paths and resource extraction strategies. This could pave theway for future space resource utilization.

2. Project Scope: -

The aim of this project is to develop a RK-4 algorithm capable of analysing asteroid composition and trajectory data to optimize mining paths and resource extraction strategies. This initiative is crucial for future space resource utilization, as it seeks to maximize the efficiency and effectiveness of asteroid mining operations.

WORKING & PROCEDURE

1. The project will begin with data collection from existing space missions, such as NASA's OSIRIS-REx and Japan's Hayabusa2, which have provided detailed information about asteroid composition and trajectories. This data will serve as the foundation for training and validating the machine learning algorithm.

2. Next, a comprehensive feature engineering process will be conducted to extract relevant features from the collected data, including mineral composition, density, size, shape, and orbital parameters.

3. The developed algorithm will undergo rigorous testing and validation using simulated mining scenarios and real-world asteroid data. Performance metrics such as accuracy, precision, and efficiency will be evaluated to ensure the algorithm's reliability and effectiveness in guiding future asteroid mining missions.

3. Requirements: -

➤ Hardware Requirements
1. Intel i5 – Above 10 Gen
2. 8 Gb RAM & 128 GB ROM
3. Personal Computer with Internet Connectivity

- Software Requirements

  1. Python 3.7
  2. Python Libraries:
     - Pandas
     - NumPy
     - SciPy
     - RK-4
     - Matplotlib
     - Tensorflow
     - GDAL & ArcGis
     - Git
  3. AWS Cloud Server
  4. Jupyter Notebook

STUDENTS DETAILS

Name	UID	Signature
Ketan Nikumbh	20BCS4364	Ketan
Burra Saiteja	20BCS3929	Saiteja
Challari Durga Prasad	20BCS4386	Durga

APPROVAL AND AUTHORITY TO PROCEED

We approve the project as described above, and authorize the team to proceed.

Name	Tit le	Signature (With Date)
Mrs Shweta		