



INDIAN SPACE RESEARCH ORGANISATION
UR RAO SATELLITE CENTRE

Automated EDS
Database Matching.



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PROBLEM STATEMENT

“In satellite systems, accurately matching pin connections between various components is a time-consuming and error-prone manual task. Engineers often deal with thousands of pins described using inconsistent or incomplete functional descriptions, leading to mismatches, delays, and documentation errors. There is a need for an automated, intelligent solution that can rapidly analyze functional descriptions, identify valid pin connections, and update destination mappings accurately to improve design efficiency and reduce manual intervention”

CONCEPT:

Matching the component based on Functional Descriptions of the Pins using

- **Exact Matching**

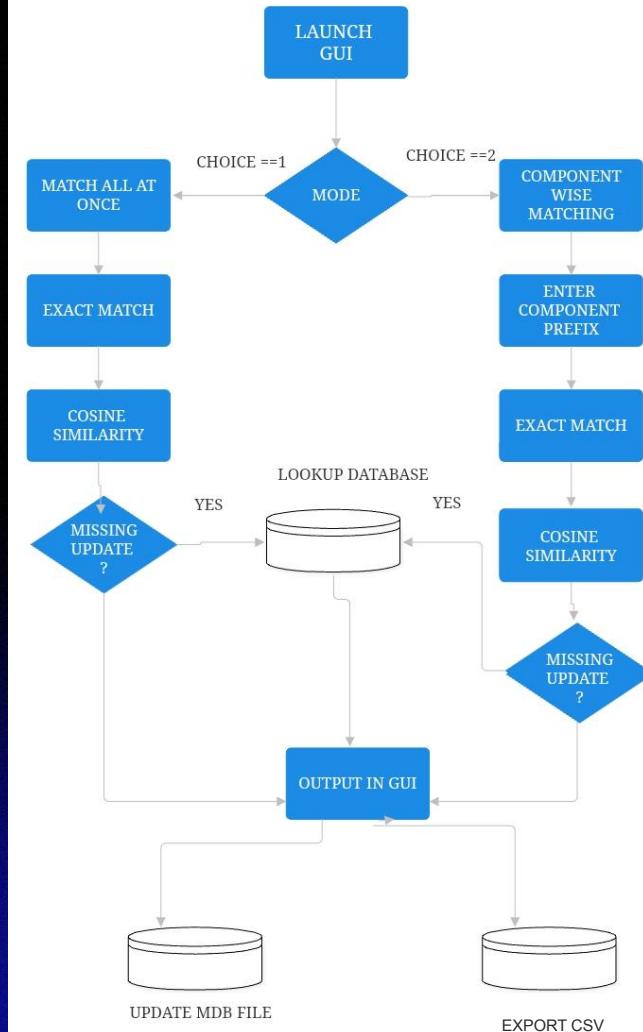
Fetches the exact match of functional description and proceeds to the matching .

- **Cosine Algorithm**

Uses each word as a single and matches for the given percentage and continues for matching

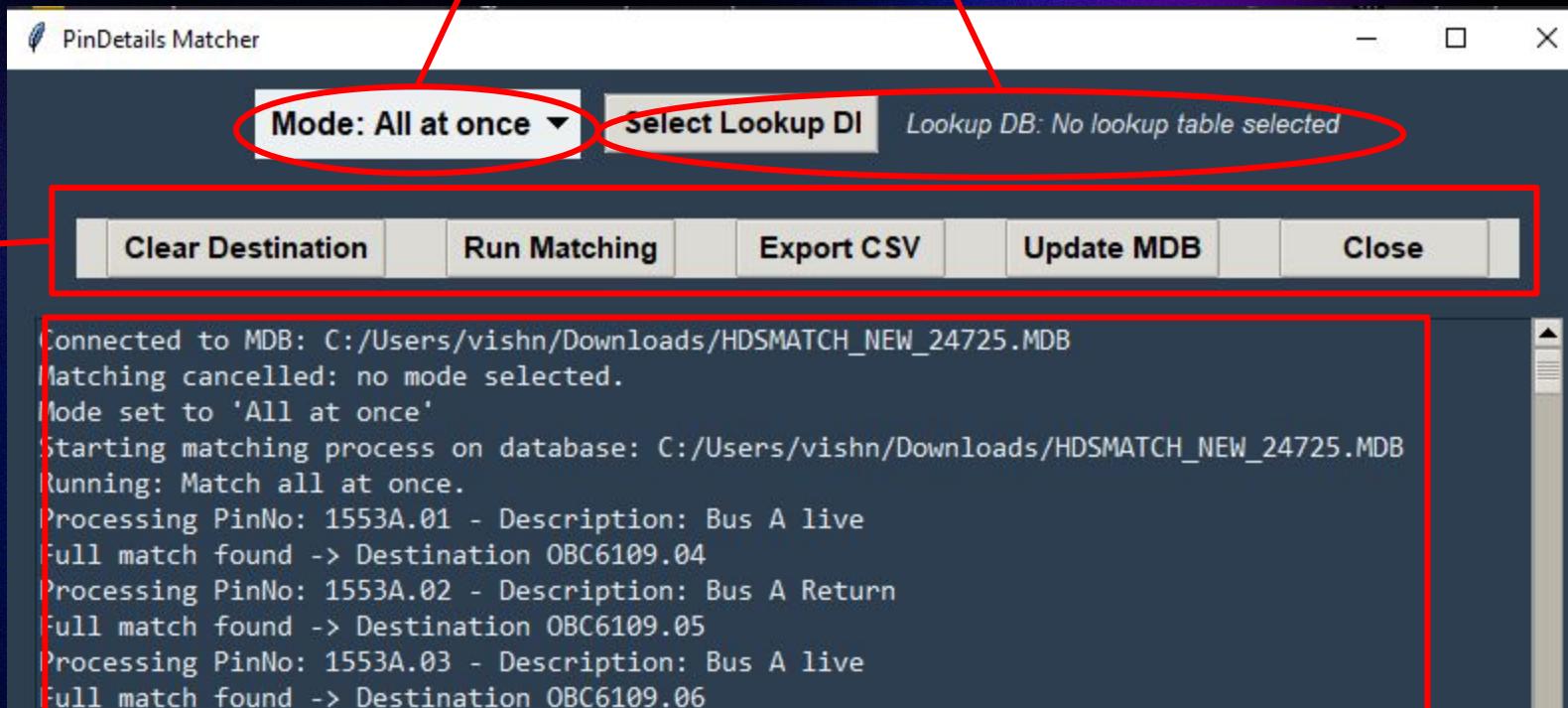
- **Lookup Database**

Looks for the same Pinno. And Same functional description from older database and matches from the lookup table



MODE MENU

LOOKUP DB MENU



OUTPUT MENU

Operational Modes Available

- **MODE 1:- Match All Pins At once**

Matches all the Pins at once ... within fractions of seconds using logics

- **MODE 2 :- Match Component Wise**

Matches component wise using the given prefix by the user uses logics as well



Choices Available



Choice 1 Clear Destination

This option clears all the existing values in the "Destination" column of the dataset. It is typically used before initiating a new matching session to ensure that no previous results interfere with the current operation.

Choice 2 Run Matching

This feature performs the pin matching operation based on the selected mode—either "Match All at Once" for batch processing or "Component to Component" for selective comparison. It utilizes cosine similarity on functional descriptions to identify the most relevant destination pins.

Choice 3 Export CSV

Once the matching process is complete, this option updates the "Destination" field directly in the connected Microsoft Access (.mdb) database. It ensures that the database reflects the most recent and accurate mapping information.

Choice 4 Update MDB

This choice allows the user to export the complete dataset, including the updated destination pins, into a CSV file. It is useful for external reviews, backups, or sharing results with other teams.

Choice 5 Close

This option safely terminates the application and closes the program window. It ensures all processes are properly shut down without leaving any tasks running in the background.

LIMITATIONS

01

Wire type and gauge assignments entered manually.

02

SGRP grounding decisions done manually.

03

Double-crimps matching requiring manual review due to one-to-one matching constraints.

04

Patch allocations performed manually

05

Manual EID data entry from Excel to database.

Thank you!