

DRC Techno

GemID

User Manual - V1.2



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### Safety First:

At DRC Techno we believe that safety of all individuals working with the equipment is necessary and recommends reading the safety information mentioned below before attempting to operate the system or perform any other process.

### Standard Precaution:

Observe and follow all written and sign warnings and cautions given in this document. All the procedures of the machine should be performed by trained or authorized personnel only unless specified in document.

No.	Symbol	Description
1.		This symbol indicates a possible damage or loss of data that may have occur and cause permanent loss of the instrument if handled by an <i>unauthorized person</i> .
2		To reduce the risk of electric shock or damage to the equipment: Do not disable the power cord grounding plug, it is an important safety feature. Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times. Unplug the power cord from the power supply to disconnect power to the equipment. Place the power cord where it is not easily reachable or cannot be walked on or pressed tightly by items placed near it. Pay attention to the plug, electrical outlet, and the point where the cord extends to the server.

### System Requirement & Specification:

M/c	Size(mm)	Weight(kgs)
GemID	135 x 147 x 343	11.5

- Input Voltage Range : 110V / 220V AC
- Operation Time: Within 10 seconds
- Input Current  $\geq 2$  A
- AC Frequency Range : 50 / 60 Hz

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## **Purpose:**

GemID generates (registers) and recognizes (finds) distinctive ‘DNA’ (fingerprint) of a diamond based on its optical characteristics. It ensures that no one switches or changes your own unique diamond.

The purpose of this invention is to provide a secure method to stop diamond snapping while it goes from one operation to another operation during manufacturing, marketing, sales from one person to another person. Recognition of the loose piece of gemstone from the database and studded piece of jewellery with the original piece of diamond, it is made up of.

## **Features:**

Diamond shapes: recognizes Fancy Cut diamond i.e. Heart, Cushion, Oval, Princess, Emerald, Marquise, Padma and Round

Diamond sizes: from 0.3ct up to 22 mm diameter

Diamond clarity: FL (Flawless) to I3 (Included).

Tracking: finds the registered (already added in your database) loose diamond and matches even after it is mounted on a piece of jewellery.

Deep duplicate: eliminates the possibility of duplicate entry of a diamond of any shape and size in the database.

Verify: instantly provides the information of already registered diamond within 5 seconds from your database based on previously allotted diamond ID.

Global access: Access your database from your secure server from anywhere in the world – Diamond registered in one city/country can be found or identified in any other city/country across the world.

Report: report for the register, edit, delete, find, and verify operation along with the history of machine id, user id, and time makes the system secure

Filters: Find diamond from database with filters like weight, color, clarity, box (dabbi) , duration, fluorescent

Integration: provision to integrate with the ERP.

Optimized find option for finding a single entry of diamond

Diamond can be saved without any data (auto generation of unique id)

Diamond can also be matched without accurate cantering

Easy box (dabbi) assorting

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**A Quick Look:**



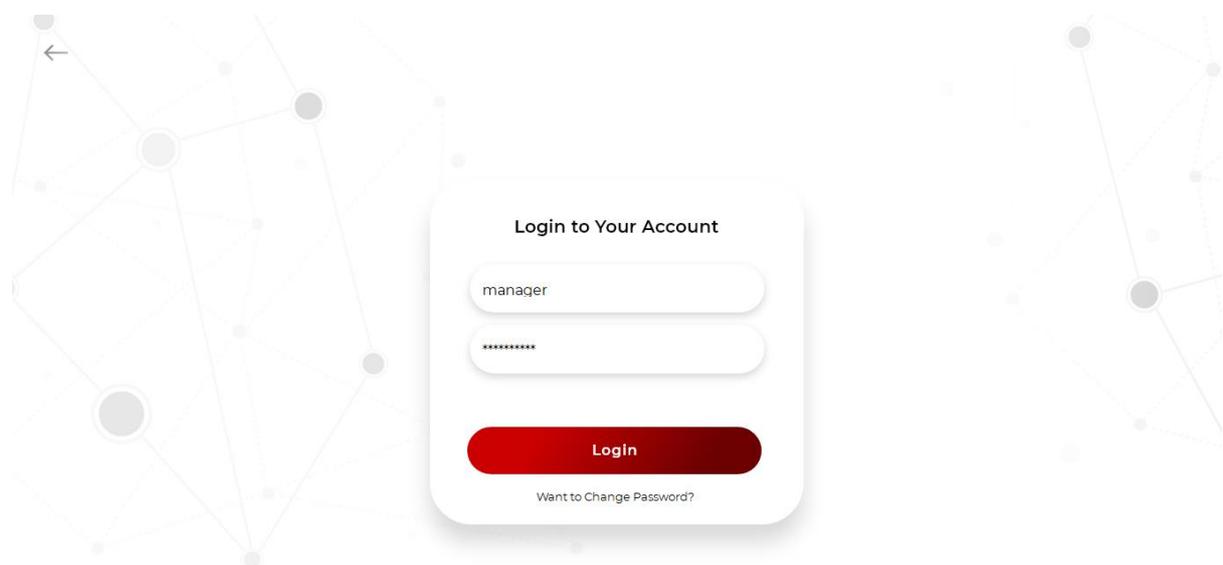
## Process Flow and Operation Manual

### Login:



**Fig1.0**

Fig1.0 shows the home screen view of the GemID software. Click on the “Login” button. The login popup will open as shown in fig1.1 enter the username and password.

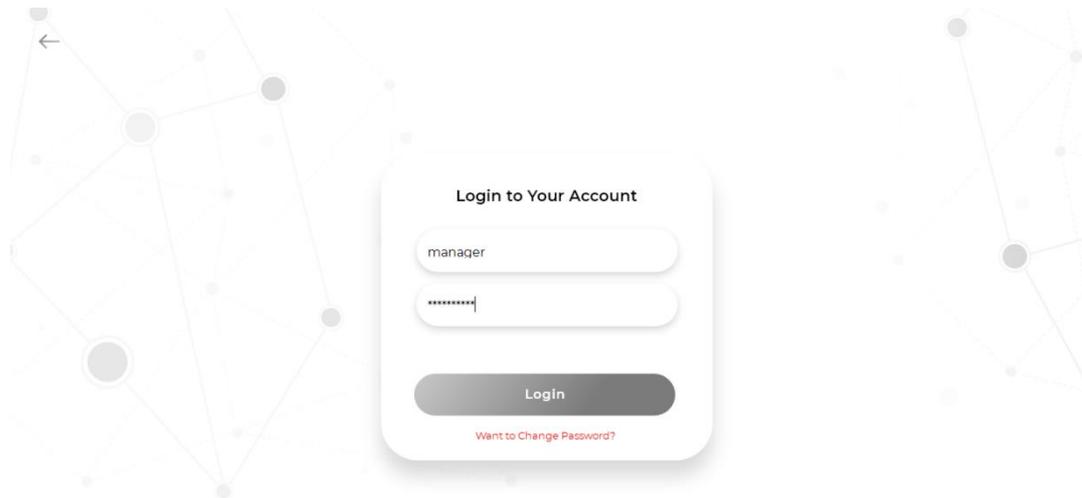


**Fig1.1**

There are 3 types of the user account.

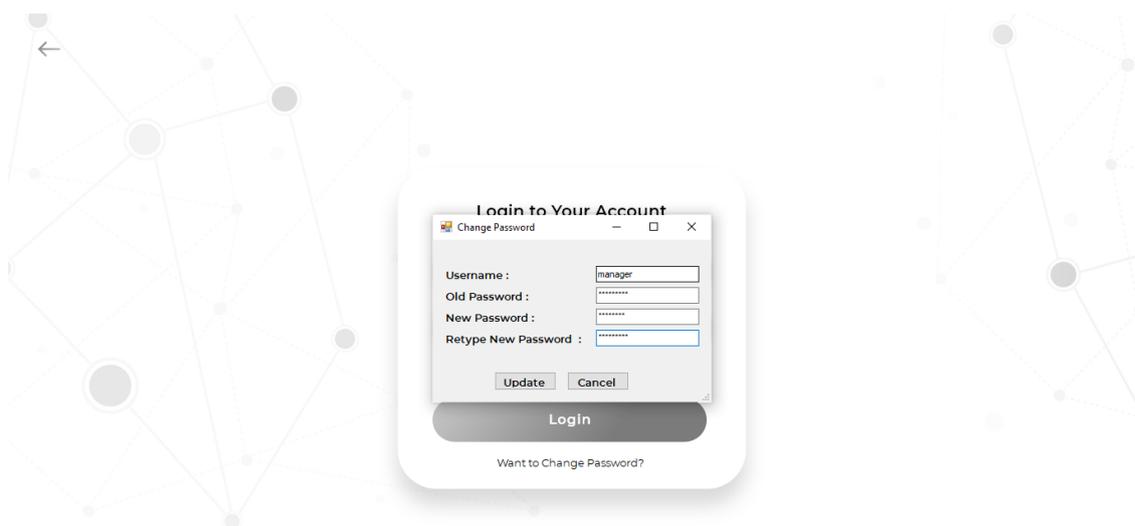
1. Operator: operator account is for the machine operator who will do the operations. The editing function access is not allowed.
2. Manager: editing, import and export function is allowed.
3. Developer: customize text field alias and the server integrations.

### Change Password:



**Fig1.2**

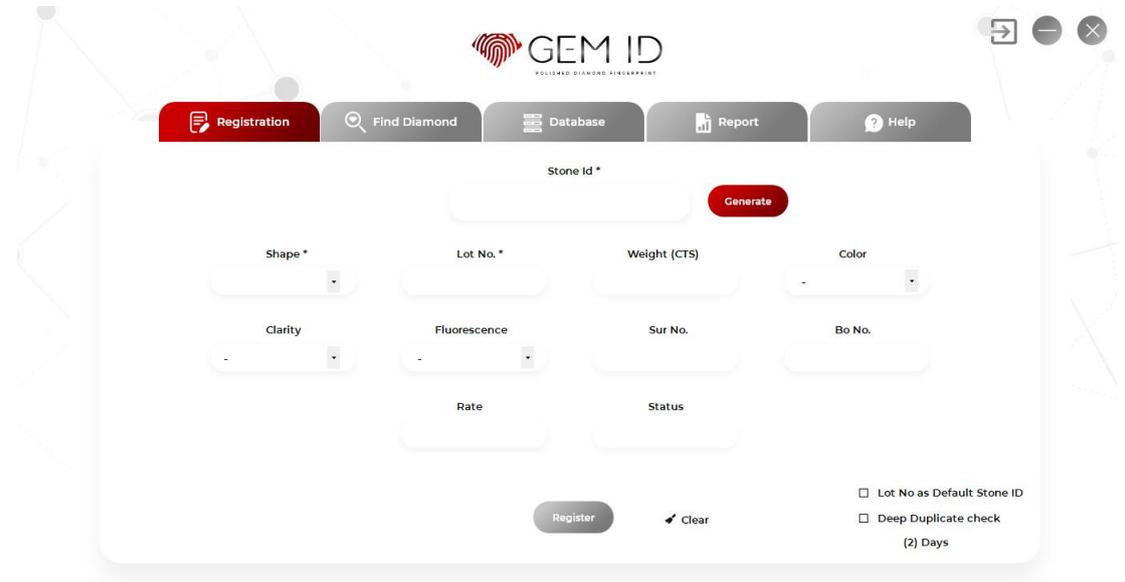
Password can be changed by clicking on “want to change password” option in the login popup.



**Fig1.3**

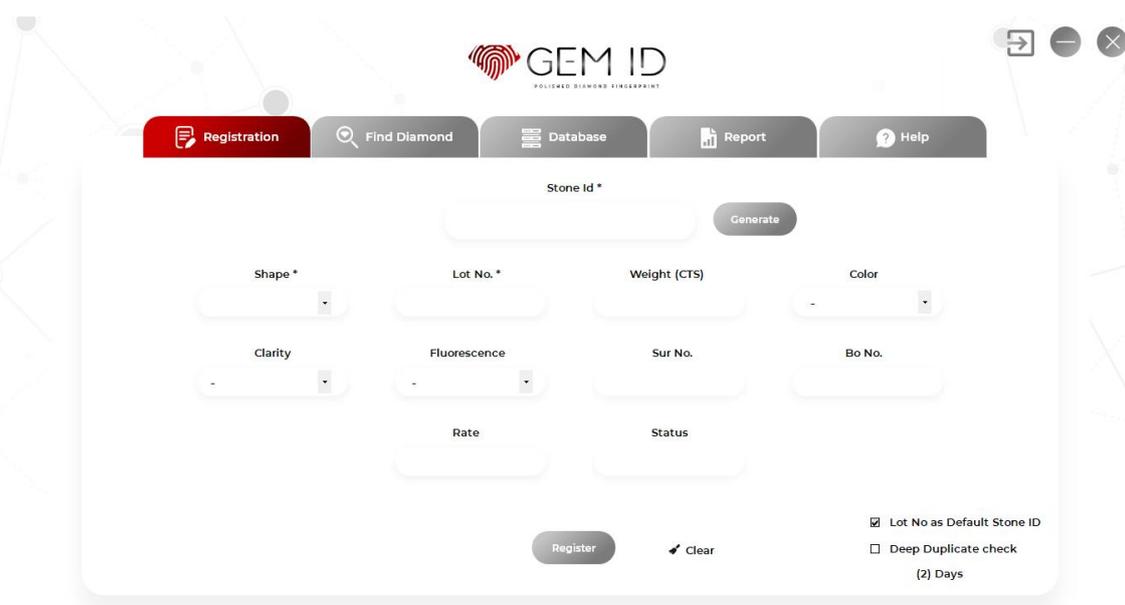
Password change popup will open as shown in fig1.3. Enter the username, old password and the new password and click on update.

**Registration:**



**Fig1.4**

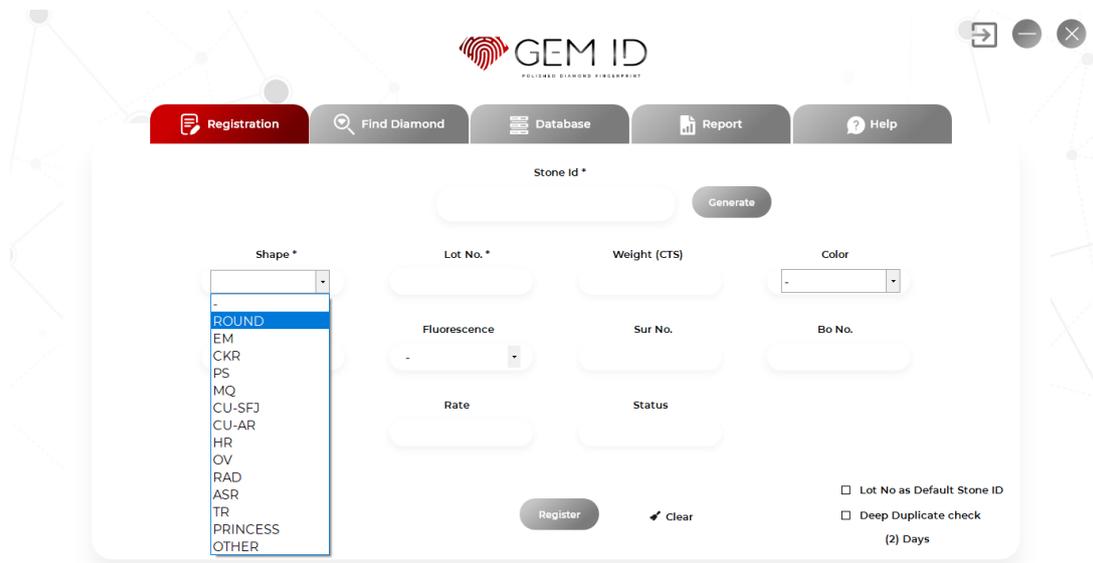
Generate and save unique diamond DNA (fingerprint) data of the loose diamond or mounted diamond in a jewellery and data provided by the user to the system i.e. diamond id, diamond shape, weight, colour, clarity, fluorescence, lot.no. The shortcut key for the registration window is "F2".



**Fig1.5**

The unique stone id can be generated by clicking on the “Generate” button. In case the stone id is not generated then at the time of registration it will automatically generate the stone id.

By clicking on the check box “Lot No as Default Stone ID” (as shown in fig1.5) if lot no. is not entered then in such case then the system will take the stone id as lot no. Otherwise, it will show enter lot no.



**Fig1.6**

As shown in fig1.6 the diamond shape can be selected from the drop box menu. It is mandatory to select the diamond shape.

Lot No., Weight, Color, Clarity, Fluorescence are the default text field. Whereas, Sur No, Bo No, Rate, Status are the customize text field alias and can be reset as per one used by the manager user account.

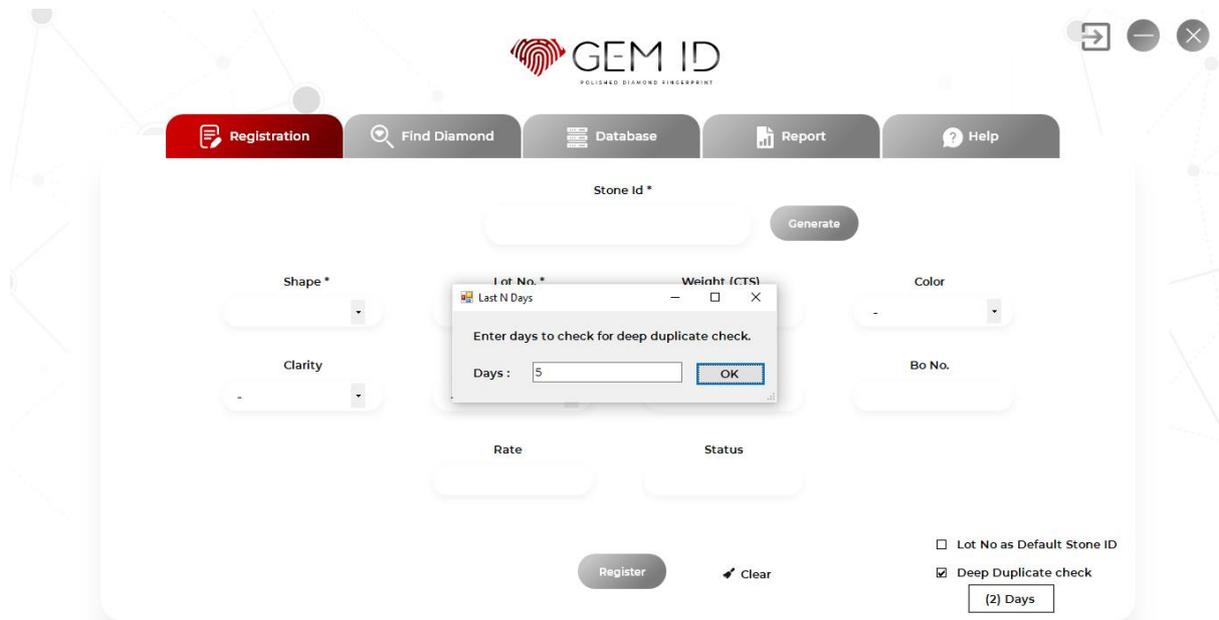
## Deep duplicate Check:



The screenshot shows the GEM ID registration interface. At the top, there is a navigation bar with buttons for Registration, Find Diamond, Database, Report, and Help. Below this is a form with several input fields: Stone Id \*, Shape \*, Lot No. \*, Weight (CTS), Color, Clarity, Fluorescence, Sur No., Bo No., Rate, and Status. A 'Generate' button is located next to the Stone Id field. At the bottom of the form, there are 'Register' and 'Clear' buttons, and a checkbox for 'Deep Duplicate check' which is checked. Below this checkbox, it says '(2) Days'.

**Fig1.7**

The function is useful to avoid duplicate entry during registration in the database.



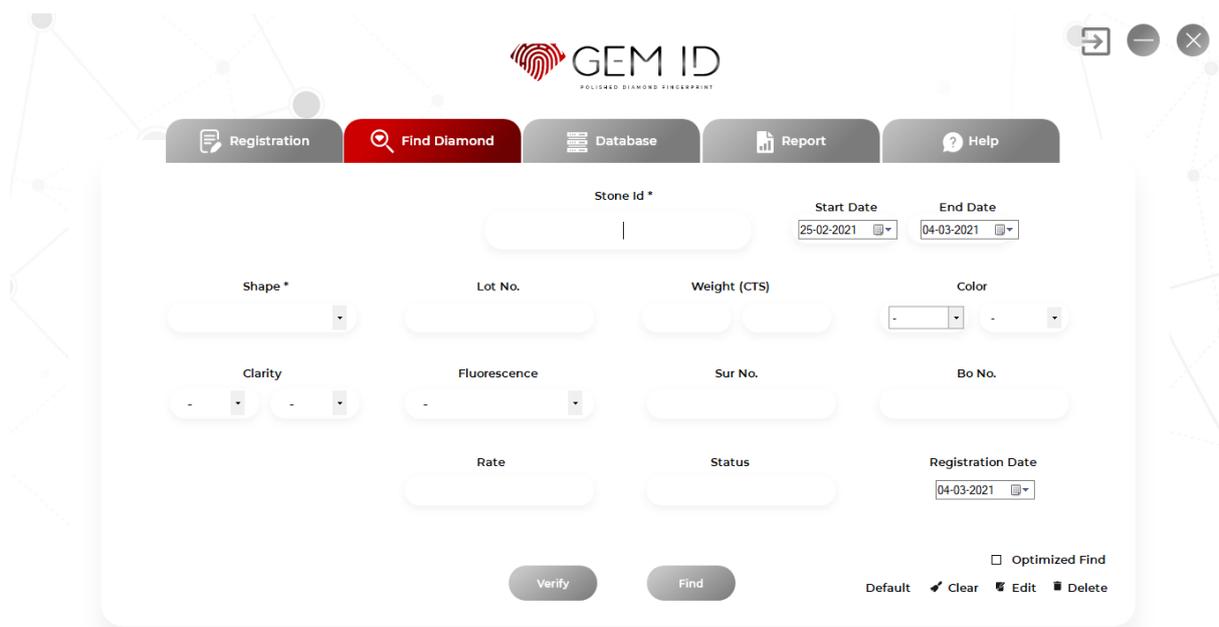
This screenshot is similar to Fig 1.7, but it includes a dialog box in the center. The dialog box has a title bar that says 'Last N Days' and contains the text 'Enter days to check for deep duplicate check.' Below this text is a text input field with the number '5' entered, and an 'OK' button. The background form is slightly dimmed.

**Fig1.8**

As shown in fig1.7 the deep duplicate is enabled by clicking on the check box “Deep Duplicate Check”. Popup will open as shown in fig1.8. Here enter the number of days and the system it will check that past “XYZ” days data before registering to the system and if duplicate found with another (or the same) name it will not register new diamond and gives a warning to the operator.

Finally on clicking on the “Register” button the diamond gets registered in the database

### Find Diamond:



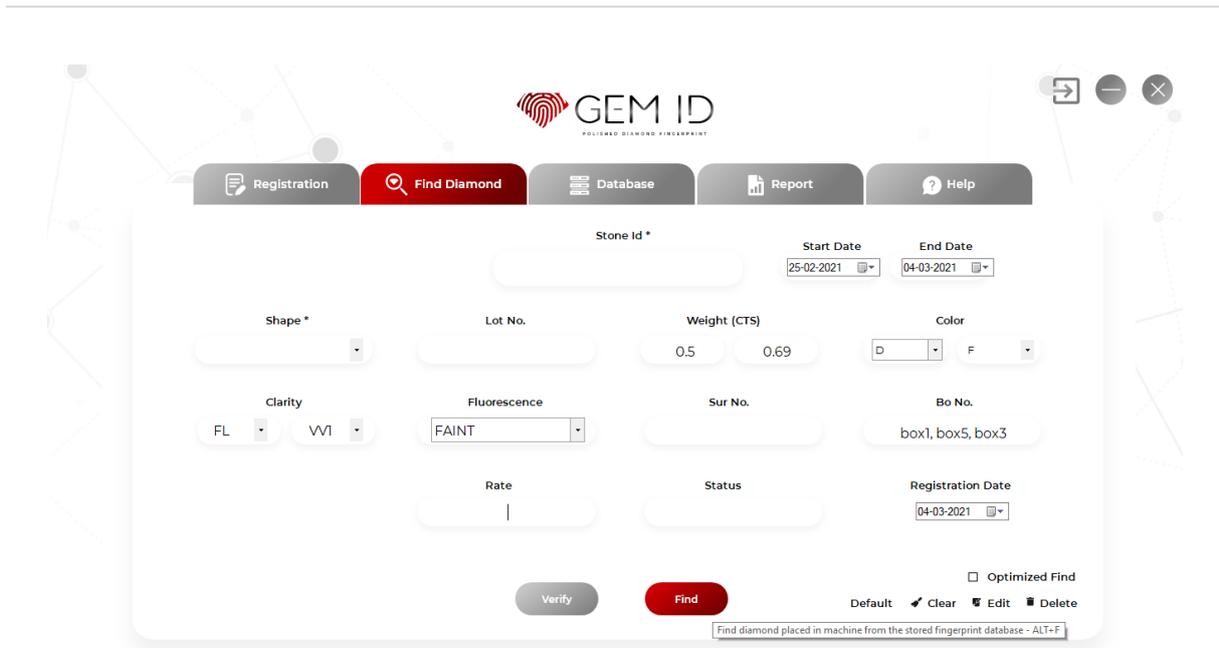
**Fig2.0**

The function is used to find diamonds placed in the machine from the database. Find diamond window will appear as shown in fig2.0. The shortcut key for find a diamond window is “F3”.

If no data is available while finding the diamond then at that time by only selecting the diamond shape the system will find the diamond from the database.

Diamond can be find using the filters as shown in the fig2.1. The shortcut key for the find function is “ALT + F”.

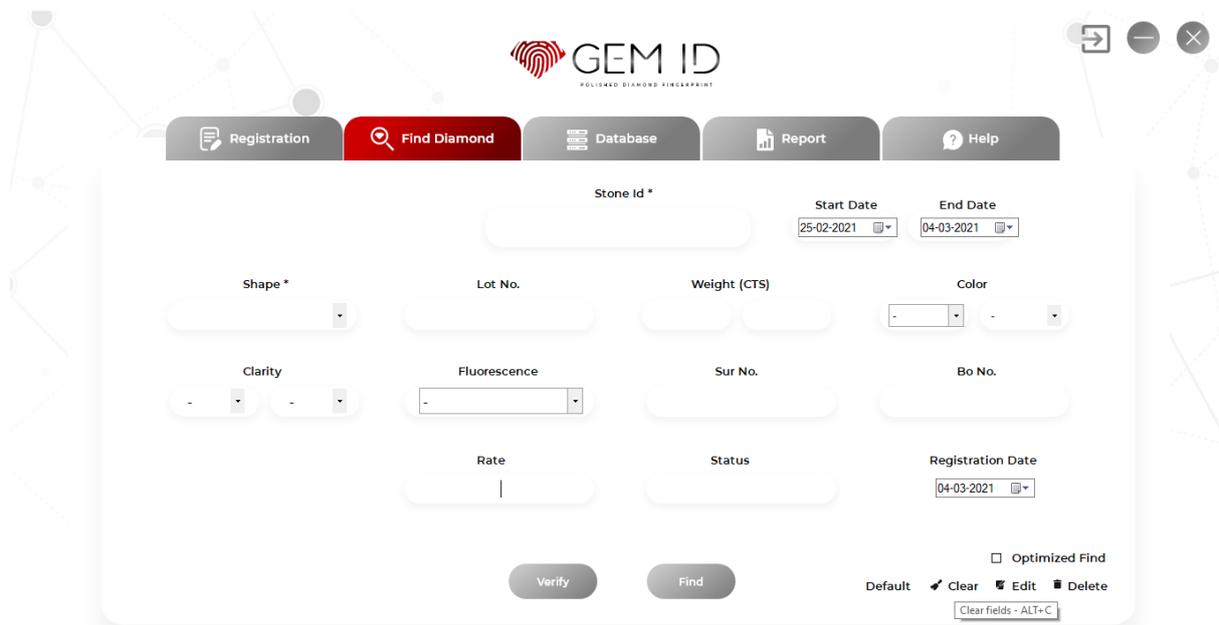
For the speedy operation, the range can be selected for weight, color, clarity and fluorescent. And the system will find the present diamond within the selected range only instead of the whole database which will result in speedy operations. For example, colour selected as shown in fig2.1 from D to F then in this case the system will find the present diamond with diamond having color D, E and F in the database.



**Fig2.1**

Filter on the bases of the box no. can be applied. For example, as shown in fig2.1 Bo No. box1, box2, box3 in this case the system will check the diamond in this 3 box no. only. The search speed up is increased. The start date and end date can be selected it is useful when the database increases and the user can select the duration during which the diamond is registered in the database and accordingly the find operation works

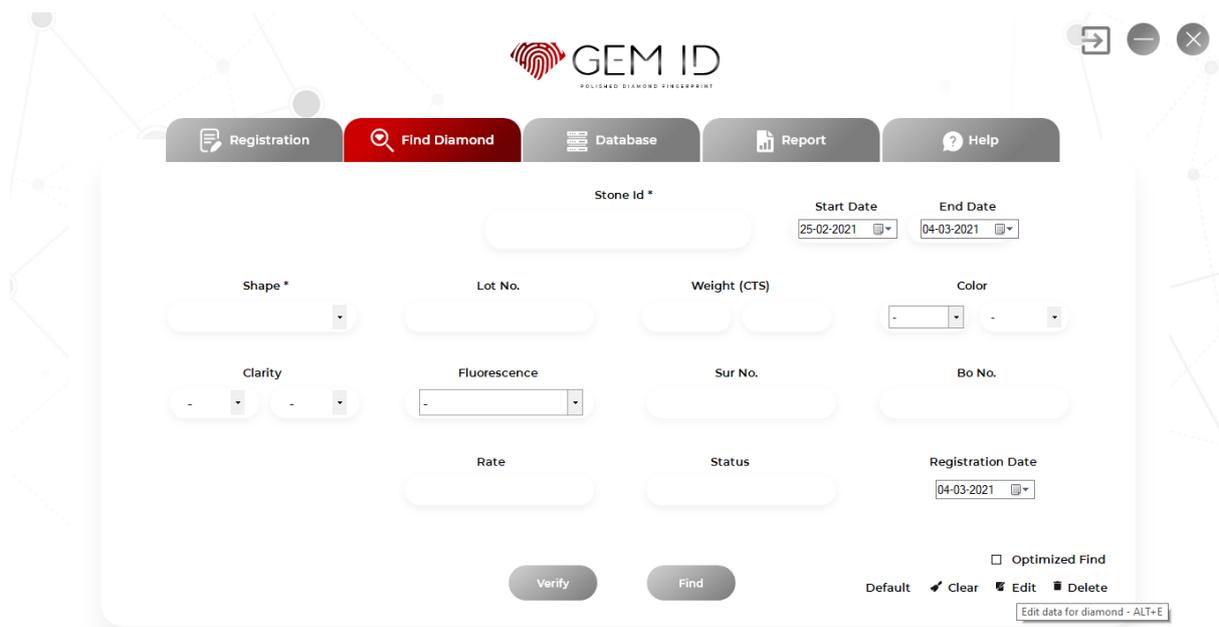
**Clear:**



**Fig2.2**

Clear function clears all field data. The shortcut key for the clear function is “ALT + C” as shown in fig2.2

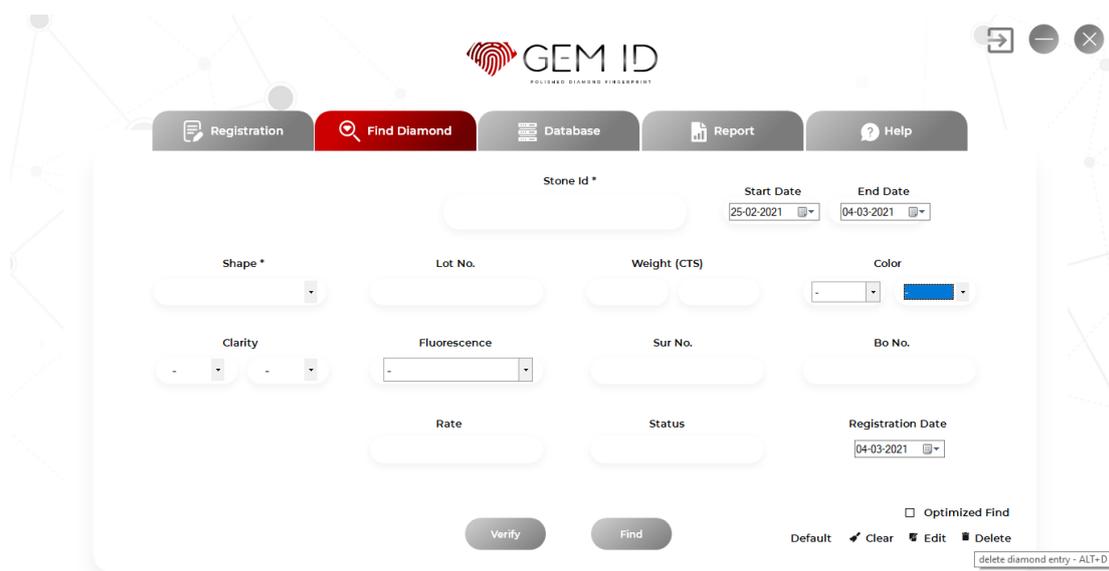
**Edit:**



**Fig2.3**

As shown in fig.2.3 the edit function which is useful for editing diamond data that is already saved. For security reasons this option is disabled and can only be used with a manager account and the password is provided by the company to the authorized person. The shortcut key for the edit function is “ALT + E” as shown in fig.2.3.

**Delete:**

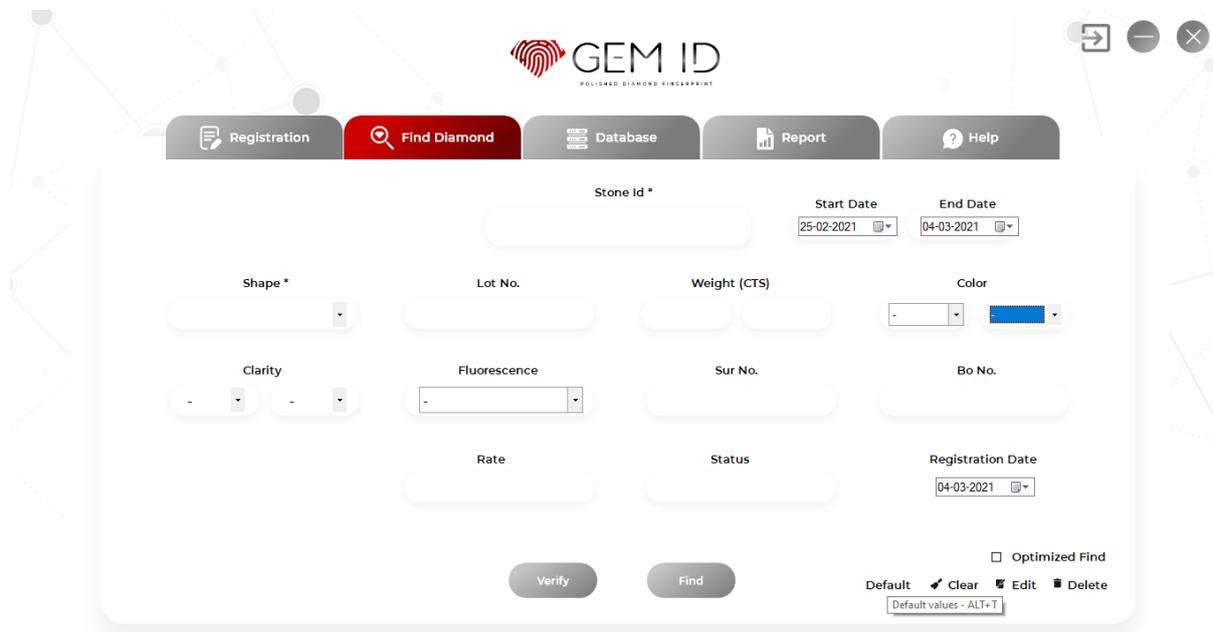


**Fig2.4**

The delete function is use full for deleting entries from the database as shown in the fig2.4.This option is disabled and can only be used with the manager account and the password provided by the company to the authorized person.

The shortcut key for the delete function is “ALT + D” as shown in fig2.4.

**Default:**



**Fig2.5**

As shown in fig2.5 by clicking on the default function the system will take the entered range for the find function as the default for all the next operations which reduces the operator’s entry timing and results in speedy operation with minimum input from the operator.

The shortcut key for the default function is “ALT + T” as shown in fig2.5.

**Optimized Find:**

This is the smart feature that speeds up the find function. By clicking on “Optimized Find” (as shown in fig2.6) the system will the present diamond in the database and as the first diamond gets match it will show the result and will not check any further entry in the database.

**GEM ID**  
POLISHED DIAMOND FINGERPRINT

Registration | **Find Diamond** | Database | Report | Help

Stone Id \* \_\_\_\_\_ Start Date: 25-02-2021 End Date: 04-03-2021

Shape \* \_\_\_\_\_ Lot No. \_\_\_\_\_ Weight (CTS) \_\_\_\_\_ Color \_\_\_\_\_

Clarity \_\_\_\_\_ Fluorescence \_\_\_\_\_ Sur No. \_\_\_\_\_ Bo No. \_\_\_\_\_

Rate \_\_\_\_\_ Status \_\_\_\_\_ Registration Date: 04-03-2021

Optimized Find

Default Clear Edit Delete

Verify Find

**Fig2.6**

**Verify:**

**GEM ID**  
POLISHED DIAMOND FINGERPRINT

Registration | **Find Diamond** | Database | Report | Help

Stone Id \* \_\_\_\_\_ Start Date: 25-02-2021 End Date: 04-03-2021

Shape \*  
-  
ROUND  
EM  
**CKR**  
PS  
MQ  
CU-SFJ  
CU-AR  
HR  
OV  
RAD  
ASR  
TR  
PRINCESS  
OTHER

Lot No. sample\_lot Weight (CTS) \_\_\_\_\_ Color \_\_\_\_\_

Fluorescence \_\_\_\_\_ Sur No. \_\_\_\_\_ Bo No. \_\_\_\_\_

Rate \_\_\_\_\_ Status \_\_\_\_\_ Registration Date: 04-03-2021

Optimized Find

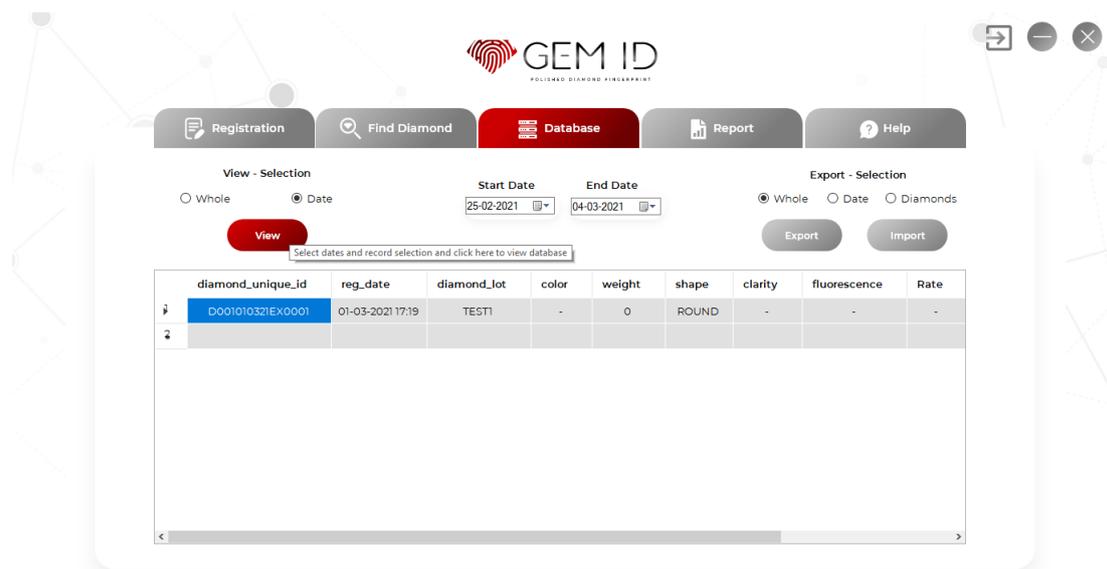
Default Clear Edit Delete

Verify Find

**Fig3.0**

When the user wants to check the diamond with particular lot no. in such case the verify function is useful. Enter particularly lot no. and shape as shown in fig3.0. The system will check in the database for the same and show the result.

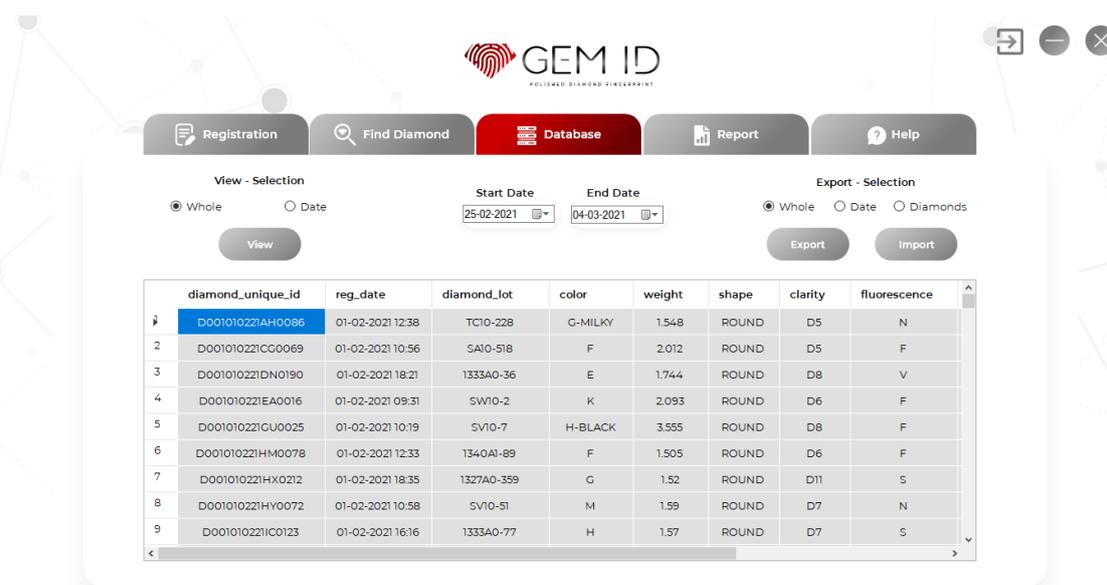
## Database:



**Fig4.0**

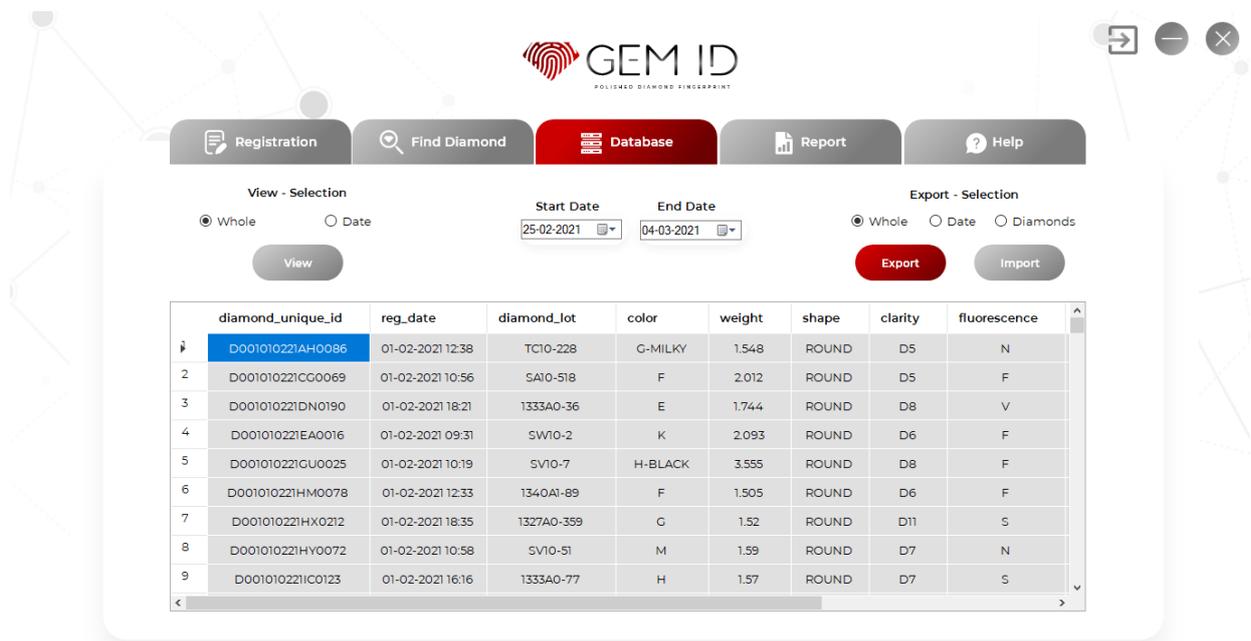
The database window will appear as shown in fig4.0. The diamond data from the database can be view by clicking on “view” button as shown in fig4.0.The start date and end date can be selected and the selected duration diamond data is shown in the below window as shown in the fig4.1

If the whole is selected in the view selection then it will show the whole database.



**Fig4.1**

## Export:



The screenshot shows the GEM ID software interface. The 'Database' tab is selected. The 'Export' dialog is open, showing options for 'View - Selection' and 'Export - Selection'. The 'Date' option is selected for both. The 'Start Date' is 25-02-2021 and the 'End Date' is 04-03-2021. The 'Export' button is highlighted. Below the dialog, a table of diamond entries is displayed.

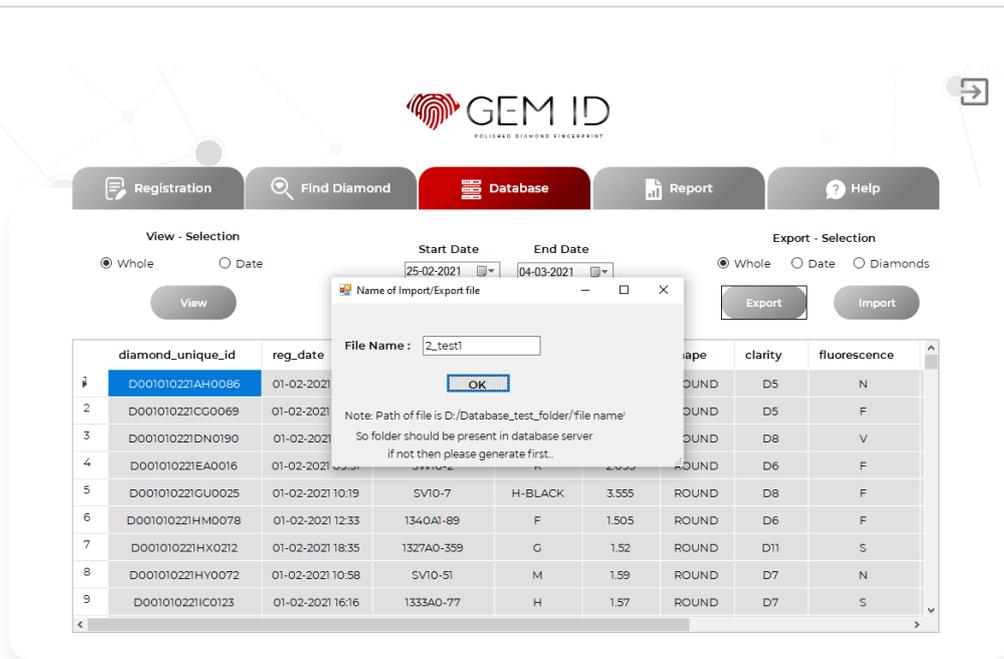
	diamond_unique_id	reg_date	diamond_lot	color	weight	shape	clarity	fluorescence
1	DO01010221AH0086	01-02-2021 12:38	TC10-228	G-MILKY	1.548	ROUND	D5	N
2	DO01010221CG0069	01-02-2021 10:56	SA10-518	F	2.012	ROUND	D5	F
3	DO01010221DN0190	01-02-2021 18:21	1333A0-36	E	1.744	ROUND	D8	V
4	DO01010221EA0016	01-02-2021 09:31	SW10-2	K	2.093	ROUND	D6	F
5	DO01010221GU0025	01-02-2021 10:19	SV10-7	H-BLACK	3.555	ROUND	D8	F
6	DO01010221HM0078	01-02-2021 12:33	1340A1-89	F	1.505	ROUND	D6	F
7	DO01010221HX0212	01-02-2021 18:35	1327A0-359	G	1.52	ROUND	D11	S
8	DO01010221HY0072	01-02-2021 10:58	SV10-51	M	1.59	ROUND	D7	N
9	DO01010221IC0123	01-02-2021 16:16	1333A0-77	H	1.57	ROUND	D7	S

**Fig4.2**

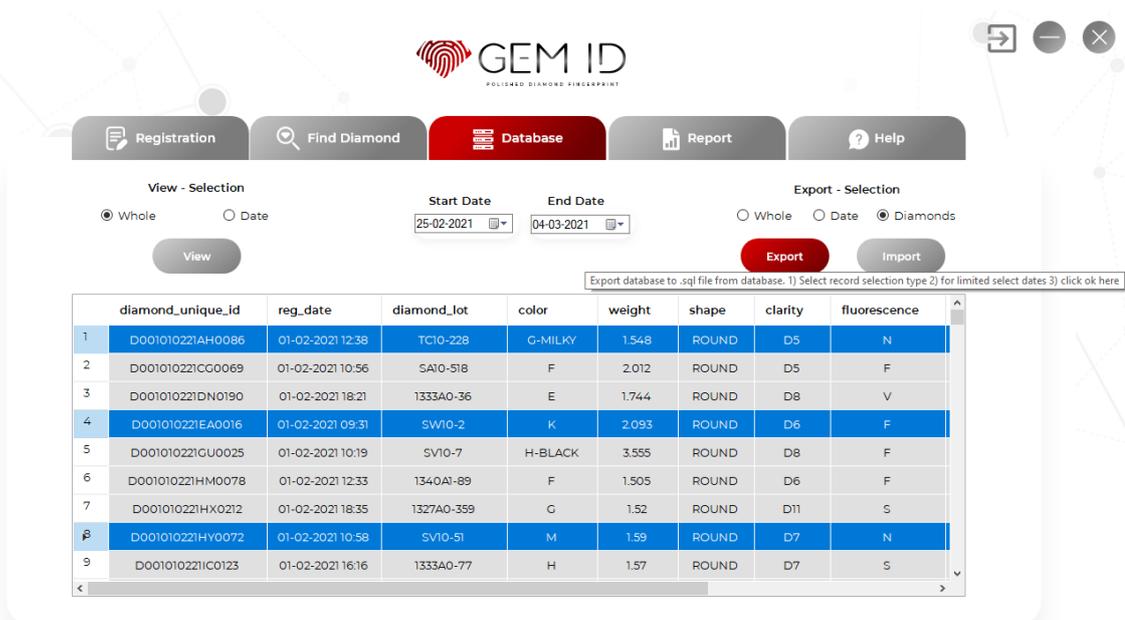
The database can be exported by clicking on “Export” button as shown in fig4.2 There are 3 options to export database.

1. Whole: whole database.
2. Date: start date and end date can be selected to export the diamond entries in a particular time period.
3. Diamonds: only the selected diamonds as shown in fig4.4

After clicking on the “Export” button the popup will open as shown in fig4.3. Enter the name by which the file can be saved.



**Fig4.3**



**Fig4.4**

**Import:**

Similarly import of diamond data along with the operation history can be done using file name without location and extension.

## Report:

The screenshot shows the GEM ID Report window. At the top, there is a navigation bar with buttons for Registration, Find Diamond, Database, Report (highlighted in red), and Help. Below the navigation bar, there are filters for Start Date (04-02-2021), End Date (04-03-2021), and Filter Type (a dropdown menu). The Filter Type dropdown is open, showing options: weight, shape, color, clarity, fluorescence, Lot No - Data, and Lot No - Report. To the right of the filters, there are fields for From and To, and a section for Operation Type with radio buttons for Register, Find, Verify, Delete, Edit, and All (selected). Below the filters, there is a table with columns: diamond\_unique\_id, diamond\_lot, operation\_date, machine\_id, user\_id, color, and a vertical scroll bar. The table contains 8 rows of data.

	diamond_unique_id	diamond_lot		operation_date	machine_id	user_id	color	
1	D001130221QW0001	4814AI-427		13-02-2021 12:17	D001	manager	-	
2	D001130221RL0002	ABC		13-02-2021 12:18	D001	manager	-	
3	D001130221XD0001	4814AI-427		13-02-2021 12:25	D001	developer	-	
4	D001130221XD0001	4814AI-427	find	13-02-2021 12:26	D001	developer	-	
5	D001130221XD0001	4814AI-427	verify	13-02-2021 12:26	D001	developer	-	
6	D001130221ET0002	4814AI-427	register	13-02-2021 12:32	D001	developer	-	
7	D001130221VT0003	4723D0-83	register	13-02-2021 12:33	D001	developer	-	
8	D001130221VT0003	4723D0-83	find	13-02-2021 12:33	D001	developer	-	

**Fig5.0**

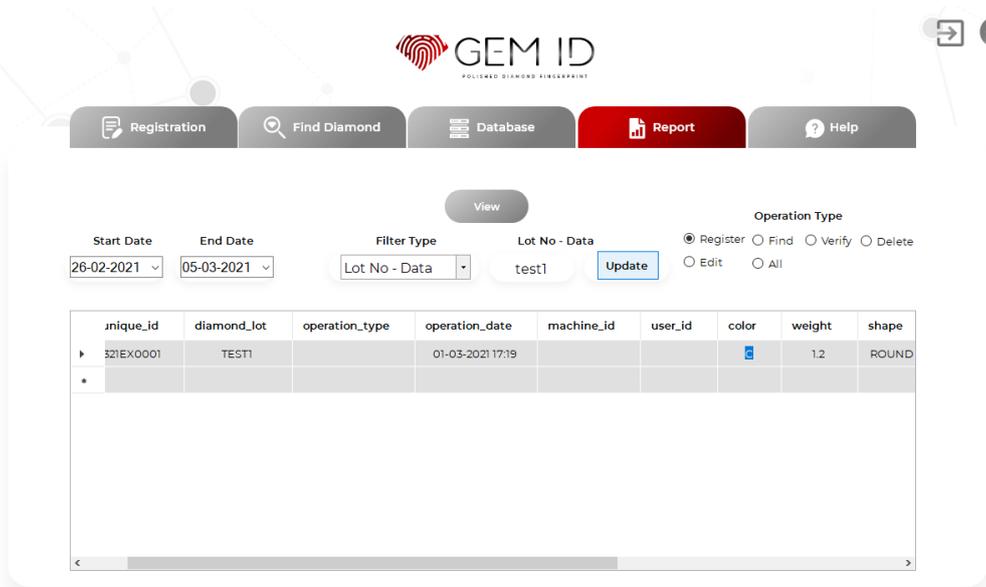
Report window will appear as shown in fig5.0. The diamond details can be view and the report for the same can be generated. Filters can be applied such as weight, shape, color, clarity, fluorescence, lot no. data, lot no. report. And the range for the same can be selected.

Operation type such as register, find, verify, delete, edit can be selected and the report showing particular operation data can be viewed.

For example, the color filter with range D to F and operation type register is selected then the report will show all the registered diamonds in the database having color D, E, F along with the information in which machine it was registered (machine id), when it was registered (operation date) and using which user id.

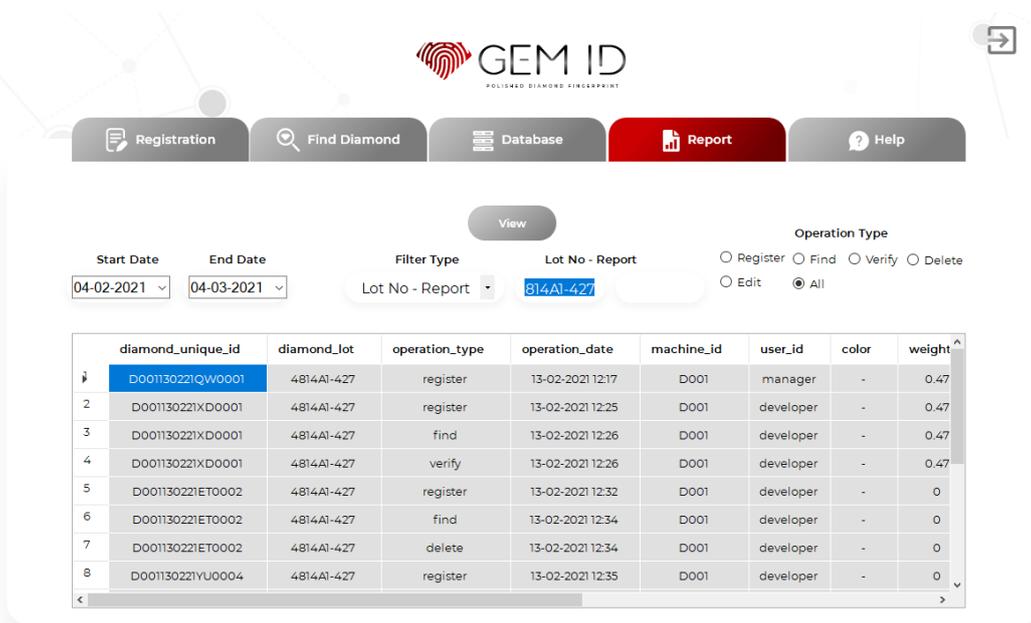
When operation type all is selected then all the operation type entry along with the history of each operation can be viewed.

The report can be generated on the basis of lot no. data which will show the latest entry in the database of that particular lot no.



**Fig5.1**

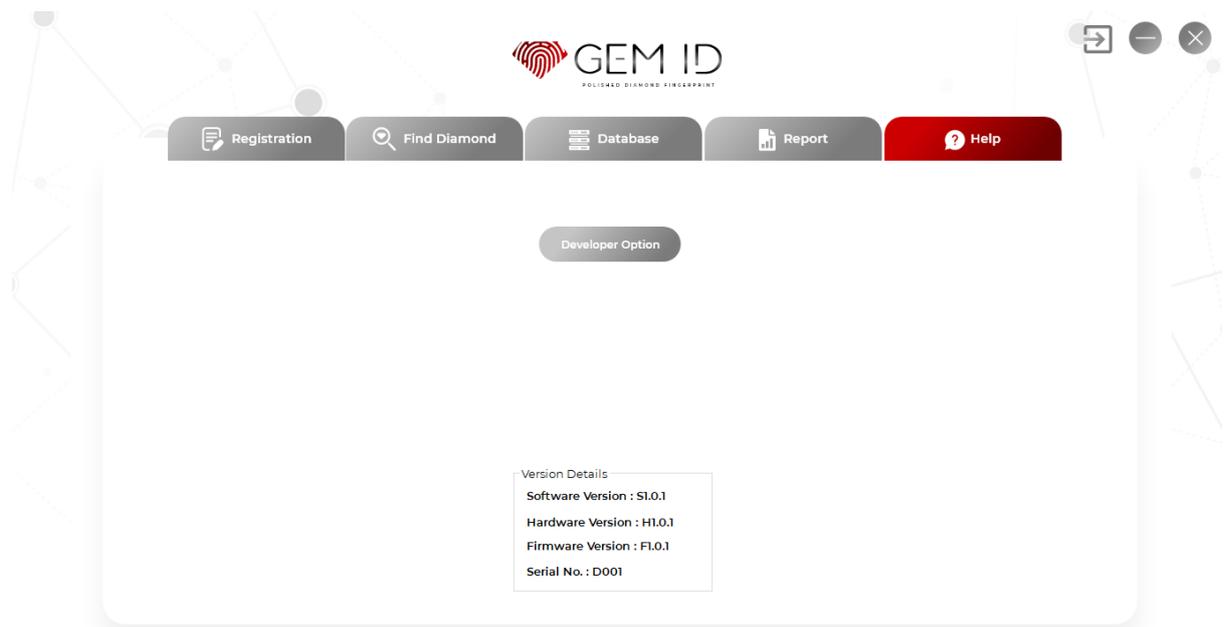
The particular diamond data in the database can be edited from here as shown in fig5.1.



**Fig5.2**

The report can be generated on the bases of “lot no. report” which will show all diamond entries of that lot.no with the operation history as shown in fig5.2.

## Help:



**Fig6.0**

The software version, hardware version, firmware version and the machine serial no can be seen in the help window as shown in the above fig.

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## **FAQ:**

### **What is the purpose of GemID?**

The purpose of this invention is to provide a secure method to stop diamond snapping while it goes from operation to another operation during manufacturing, marketing, sales from one person to another person. Recognition of the loose piece of gemstone from the database and studded piece of jewellery with an original piece of diamond it is made up of.

### **Why GemID?**

Most of the identification instruments available in the market are either very costly or are limited to specific sizes, shapes, speed, accuracy. GemID accurately recognize all fancy shape diamond and even after it is mounted on a piece of jewellery. A secure server enables that the diamond register in one city/country can be found or identified in another city/country across the world. Easily integrated with the ERP.

### **What size of diamonds it detects?**

From 0.3ct up to 22 mm diameter

### **Which diamond shape it detects?**

Any shape is detectable, round shape as well as all fancy shapes (i.e. Heart, Cushion, Oval, Princess, Emerald, Marquise, Padma and many more)

### **What diamond Clarity it detects?**

FL to I3

### **What is the speed?**

Within 10 seconds.

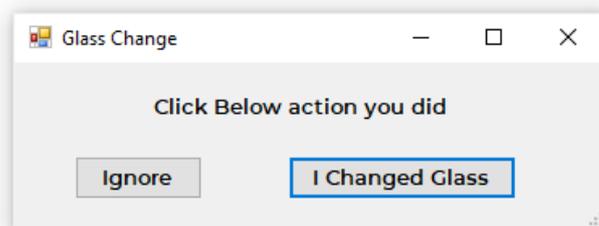
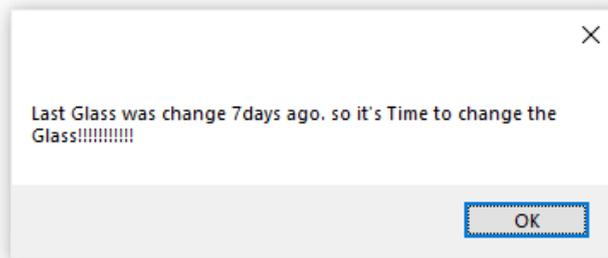
### **How to operate?**

Operating this instrument is very simple and easily understandable. The operator needs to go through the operation manual before operating GemID. Diamond should be placed at the centre during registration/verify/find process and center by closing the iris lid. Diamond and the glass on which diamond is placed should be clean properly. Select the appropriate diamond shape from the drop down list. Close the top cover of the machine.

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### Does system will give any reminder for changing the glass?

The system will show below popup every 7 days as a reminder to change the glass.



### How about after sale service?

While designing the machine, we have taken care of using limited parts that require service in the machine. If anything happens to the machine within the warranty period or even after the warranty period, the customer is advised to use the service centre of India. Soon we will be on-boarding an agency or a technician who can provide on-shore services in the country.