SOLUTION DESIGN DOCUMENT

Project:
Warehouse Management & Work In Progress Solution

Customer:
TPR AUTOPARTS INDIA PVT. LTD.

Submitted By:

SATO ARGOX
Ceaseless Creativity for a Sustainable World

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Document Revision History

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Acronym

Customer: TPR AutoParts India Pvt. Ltd., hence forth will be referred as TPR.
Vendor: Sato Argox India Pvt. Ltd., hence forth will be referred as SATO.

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PROJECT SCOPE

The scope of the solution is to equip users with a WMS & WIP Solution which can print barcode label and manage WMS and WIP operation. This would require the development of the desktop application & device application. The document lays down the specifications of the middleware application, its architecture and infrastructure requirements.

The entire solution consists of followings:

- Front-End Application – Desktop Application
- Mobile Device Application

The solution will work on client server environment; the data will be stored at data server.

System Requirements

This section provides the necessary details about the hardware components required by the solution.

Desktop Computers

The desktop application would require the computer with following specifications:-

- Intel Core i3 or better CPU
- Operating system - Microsoft Windows 7(Service Pack 1)/10
- Hard Disk 40 GB or above
- Minimum 2 GB RAM
- Dot net Framework 4.0/4.5 Preinstalled
- USB Port

Development Tools

- Application User Interface: GUI C#.net 2015/2017
- Data Storage (DB): Sql Server

Introduction

The scope of this document is to provide the understanding of this solution to all members of TPR Team & SATO Team associated with the solution development & implementation.

This document major emphasize on solution processes & user operations, where the data will be captured and afterwards will be used.

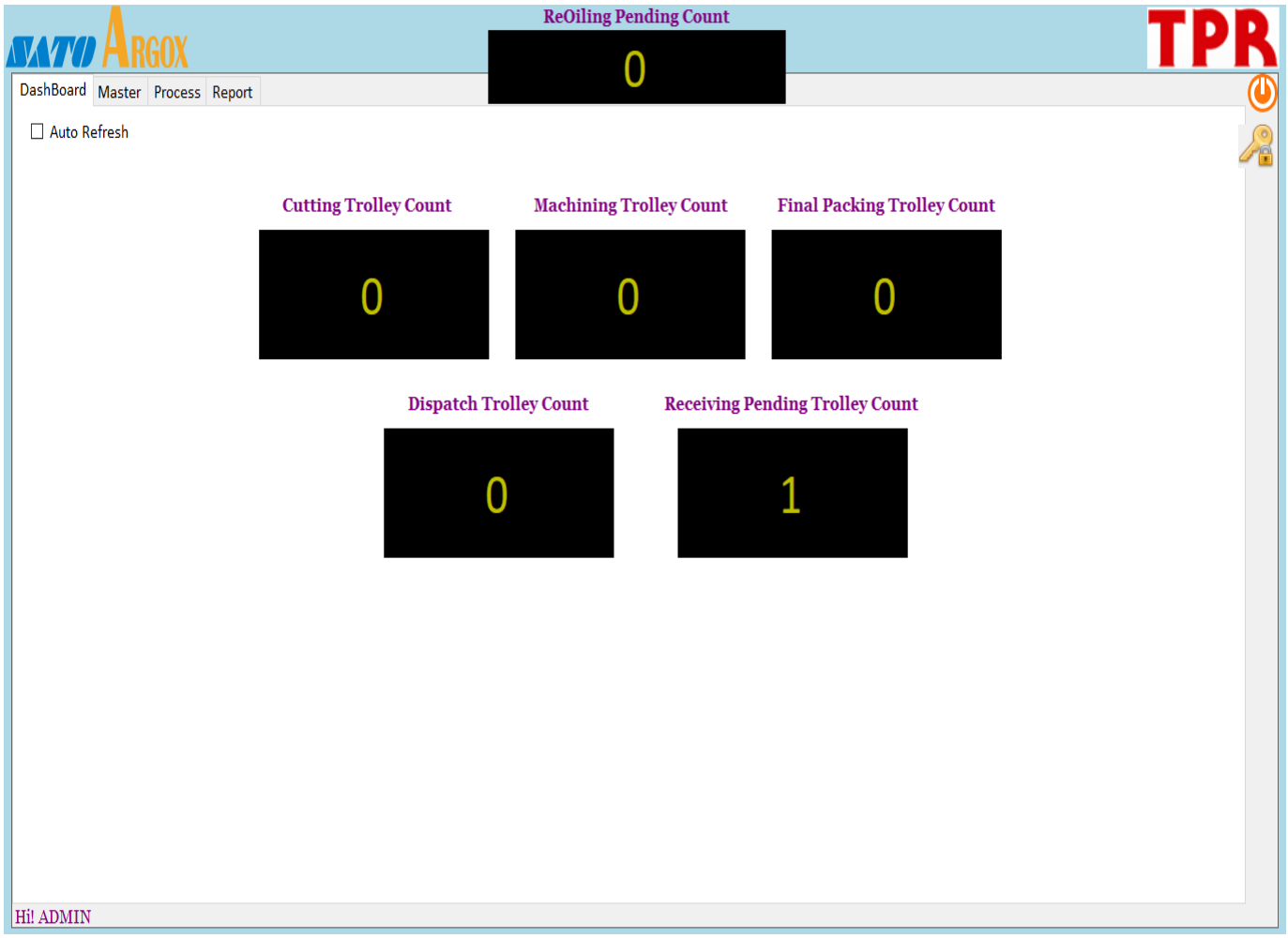
This solution major comprises of followings:

- Master Managements
- Different Types of Processes.

Login Screen

Brief Description: This screen is used for login purpose. User will enter User id & Password; system will validate entered user id & password. On the basis of entered user id & user rights assigned to user, menus of Main Menu screen will be enabled.

Main Menu



Brief Description: Main menu has three category.
Master – By clicking on relative master menu user can navigate to different screen, like as user will click on User Master it will take to user master screen.

Process – By clicking on relative process menu user can navigate to different process screen.

Report – By clicking on relative report menu user can navigate to different report screen.

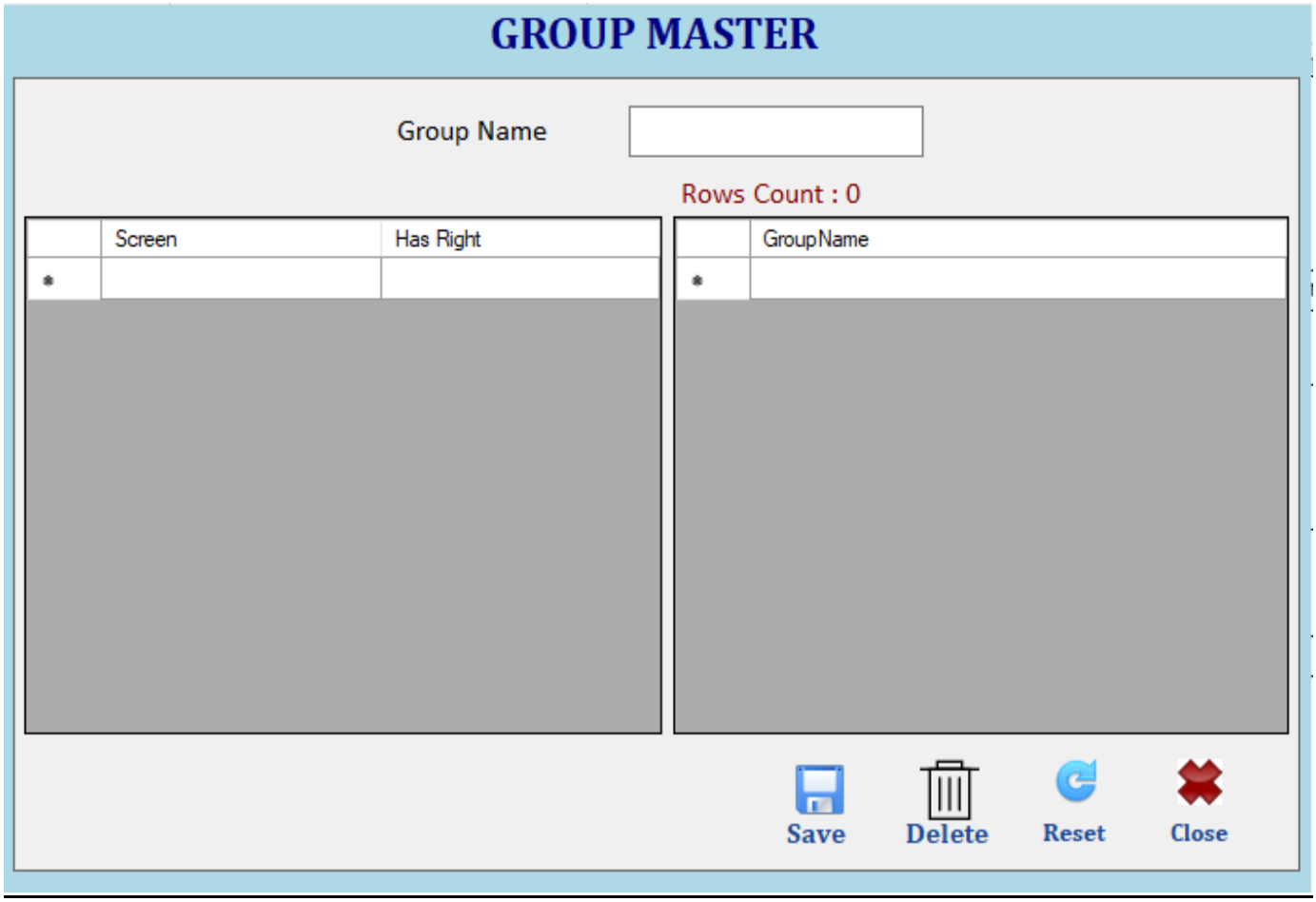
Master Management

User Master

Brief Description: This screen is used to manage User via Save, Delete operations.
Note: UserId Will Be Unique.
Function Description in Detail:

Sr.No.	Function	Description	Remarks
1.	FORM LOAD	→During Form Load all data will be loaded in the Grid	
2.	SAVE	→User will enter all details and click on save button to save the data. →User will double click on any item in the grid to edit the data and click on save button to update the data.	
3.	Delete	→User will double click on any item in the grid to select the data and click on delete button to delete the data.	
4.	ReSet	→It will clear all fields.	

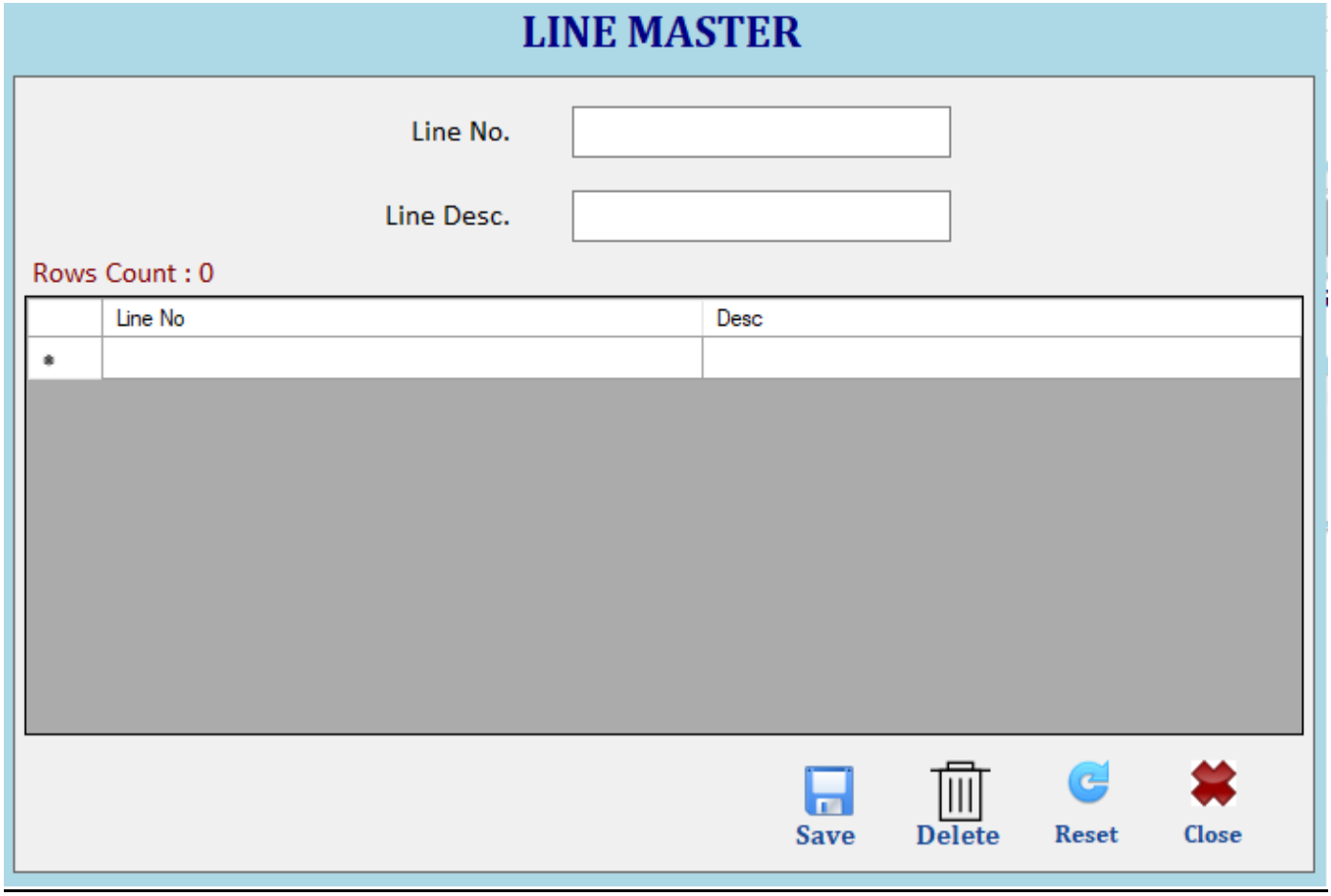
Group Master



Brief Description: This screen is used to manage Group via Save, Delete operations.
Note: GroupName Will Be Unique.
Function Description in Detail:

Sr.No.	Function	Description	Remarks
1.	FORM LOAD	→During Form Load all data will be loaded in the Grid	
2.	SAVE	→User will enter group name and select all the screen for which group has right and click on save button to save the data. →User will double click on any item in the grid to edit the data and click on save button to update the data.	
3.	Delete	→User will double click on any item in the grid to select the data and click on delete button to delete the data.	
4.	ReSet	→It will clear all fields.	

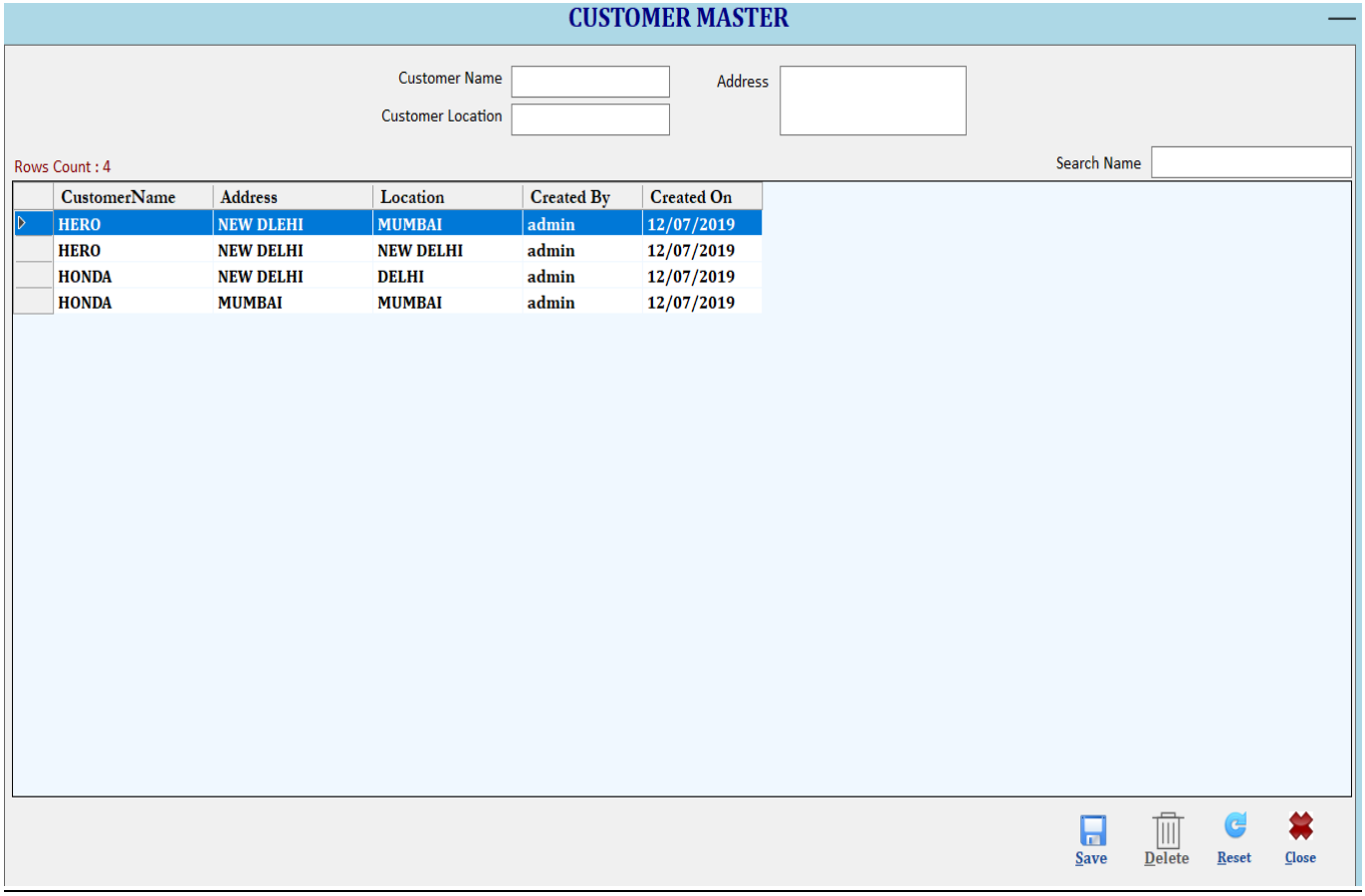
Line Master



Brief Description: This screen is used to manage Line via Save, Delete operations.
Note: LineNo Will Be Unique.
Function Description in Detail:

Sr.No.	Function	Description	Remarks
1.	FORM LOAD	→During Form Load all data will be loaded in the Grid	
2.	SAVE	→User will enter all details and click on save button to save the data. →User will double click on any item in the grid to edit the data and click on save button to update the data.	
3.	Delete	→User will double click on any item in the grid to select the data and click on delete button to delete the data.	
4.	ReSet	→It will clear all fields.	

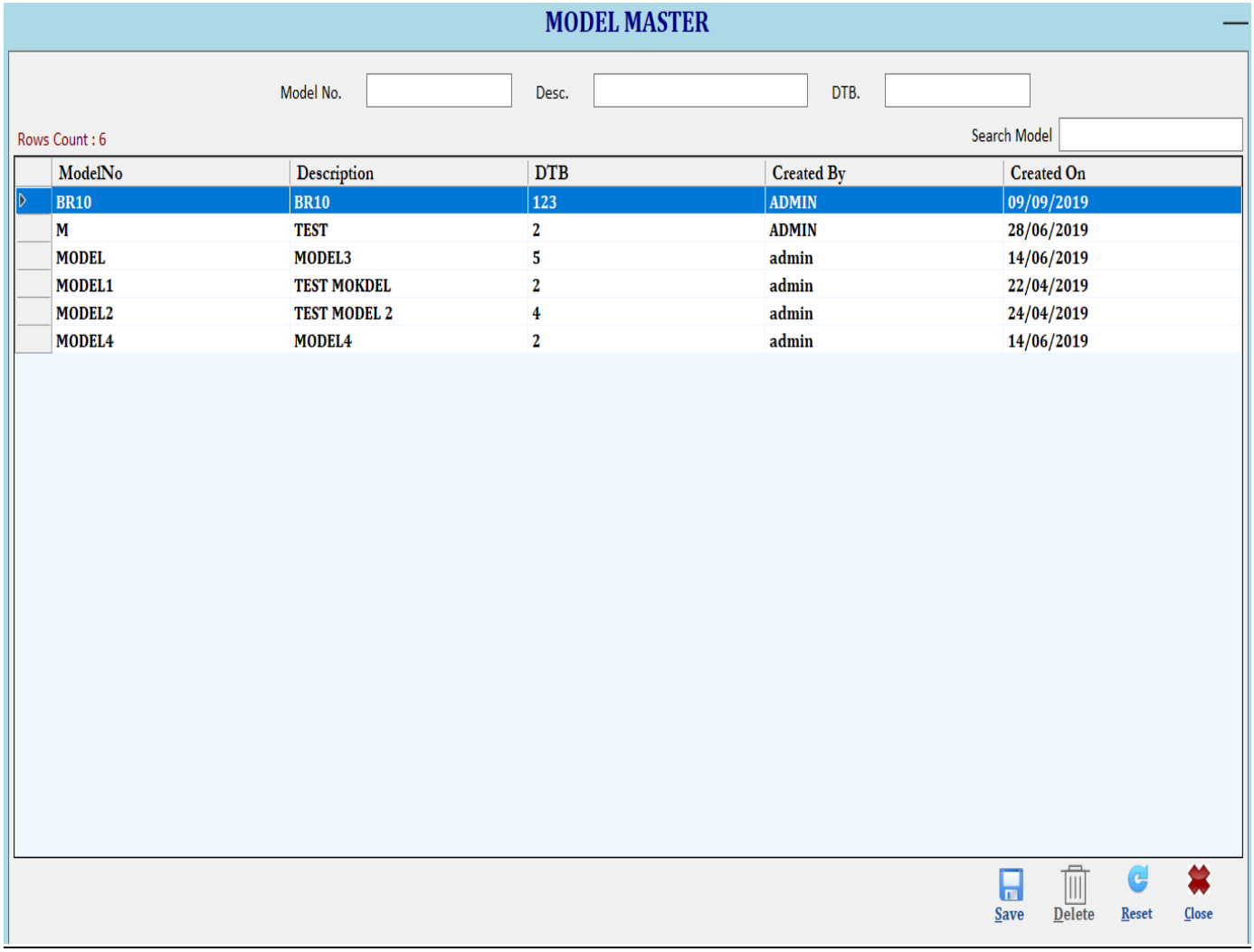
Customer Master



Brief Description: This screen is used to manage Customer via Save, Delete operations.
Note: Customer Name Will Be Unique.
Function Description in Detail:

Sr.No.	Function	Description	Remarks
1.	FORM LOAD	→During Form Load all data will be loaded in the Grid	
2.	SAVE	→User will enter all details and click on save button to save the data. →User will double click on any item in the grid to edit the data and click on save button to update the data.	
3.	Delete	→User will double click on any item in the grid to select the data and click on delete button to delete the data.	
4.	ReSet	→It will clear all fields.	

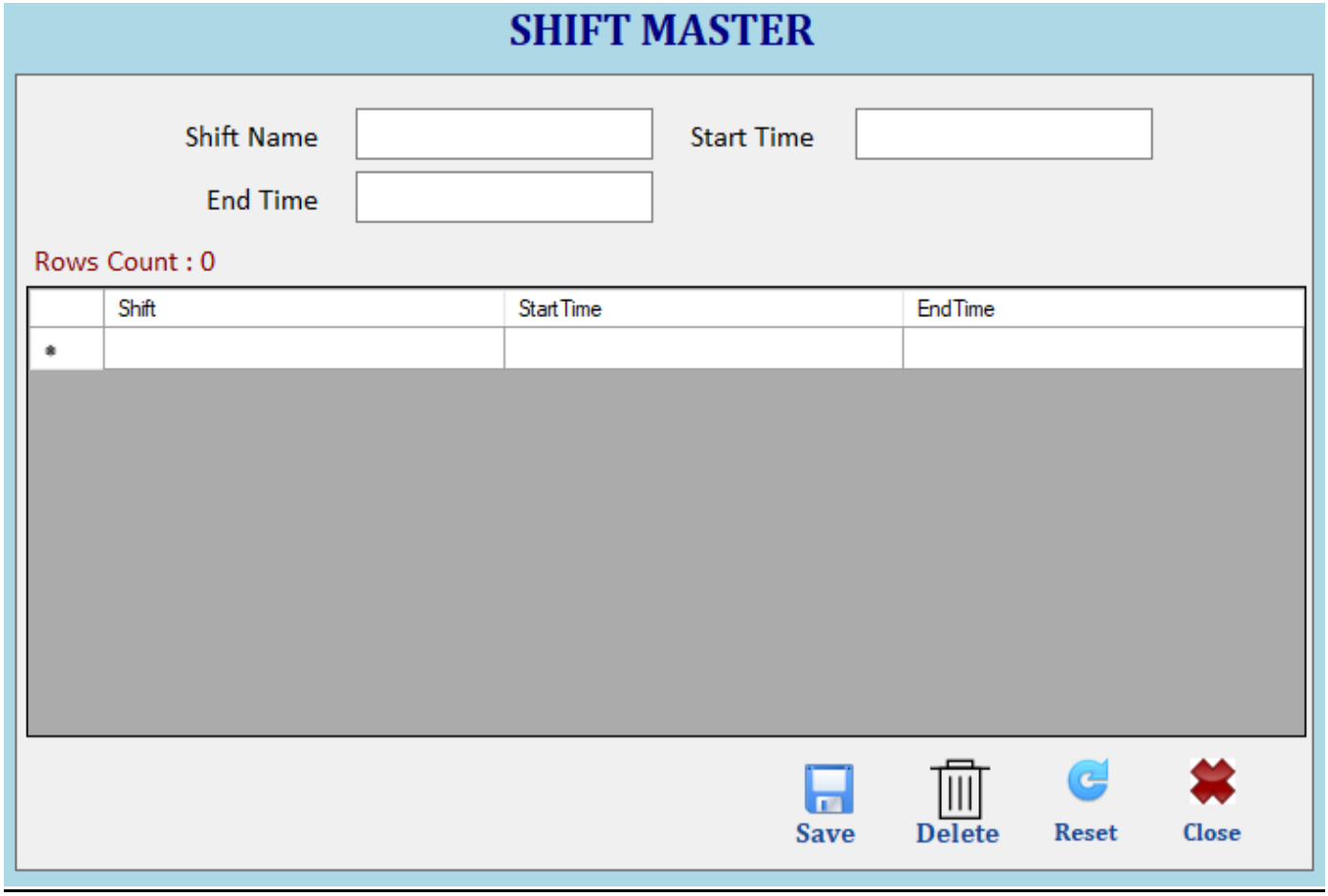
Model Master



Brief Description: This screen is used to manage Model via Save, Delete operations.
Note: ModelNo Will Be Unique.
Function Description in Detail:

Sr.No.	Function	Description	Remarks
1.	FORM LOAD	→During Form Load all data will be loaded in the Grid	
2.	SAVE	→User will enter all details and click on save button to save the data. →User will double click on any item in the grid to edit the data and click on save button to update the data.	
3.	Delete	→User will double click on any item in the grid to select the data and click on delete button to delete the data.	
4.	ReSet	→It will clear all fields.	

Shift Master



Brief Description: This screen is used to manage Shift via Save, Delete operations.
Note: ShiftName and Time Will Be Unique.
Function Description in Detail:

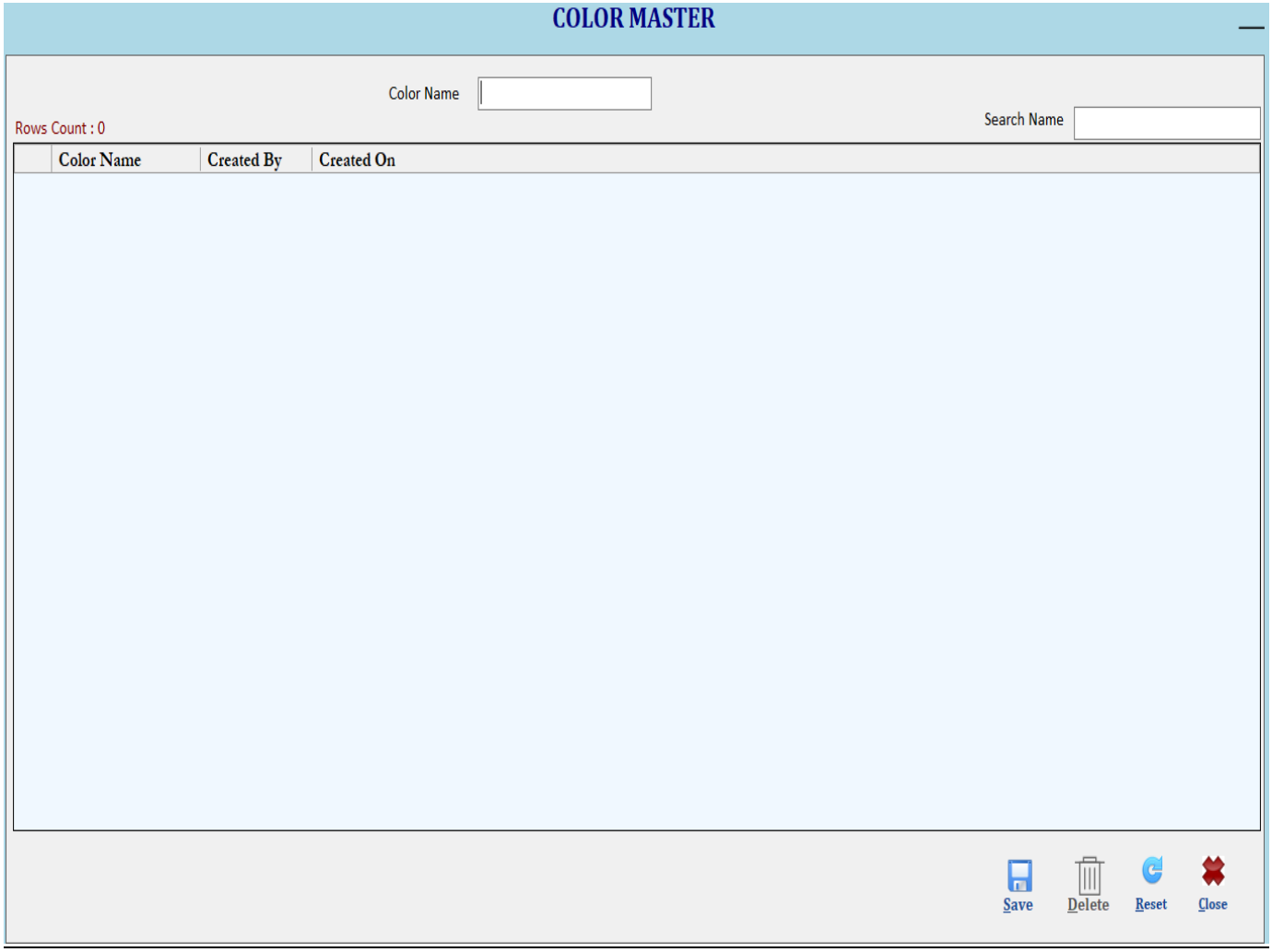
Sr.No.	Function	Description	Remarks
1.	FORM LOAD	→During Form Load all data will be loaded in the Grid	
2.	SAVE	→User will enter all details and click on save button to save the data. →User will double click on any item in the grid to edit the data and click on save button to update the data.	
3.	Delete	→User will double click on any item in the grid to select the data and click on delete button to delete the data.	
4.	ReSet	→It will clear all fields.	

Trolley Master

Brief Description: This screen is used to manage Trolley via Save, Delete operations.
Note: TrolleyNo and Time Will Be Unique.
Function Description in Detail:

Sr.No.	Function	Description	Remarks
1.	FORM LOAD	→During Form Load all data will be loaded in the Grid	
2.	SAVE	→User will enter all details and click on save button to save the data. →User will double click on any item in the grid to edit the data and click on save button to update the data.	
3.	Print	→User will double click on any item in the grid to select the data and click on print button to print the barcode for trolley.	
4.	Delete	→User will double click on any item in the grid to select the data and click on delete button to delete the data.	
5.	ReSet	→It will clear all fields.	

Color Master



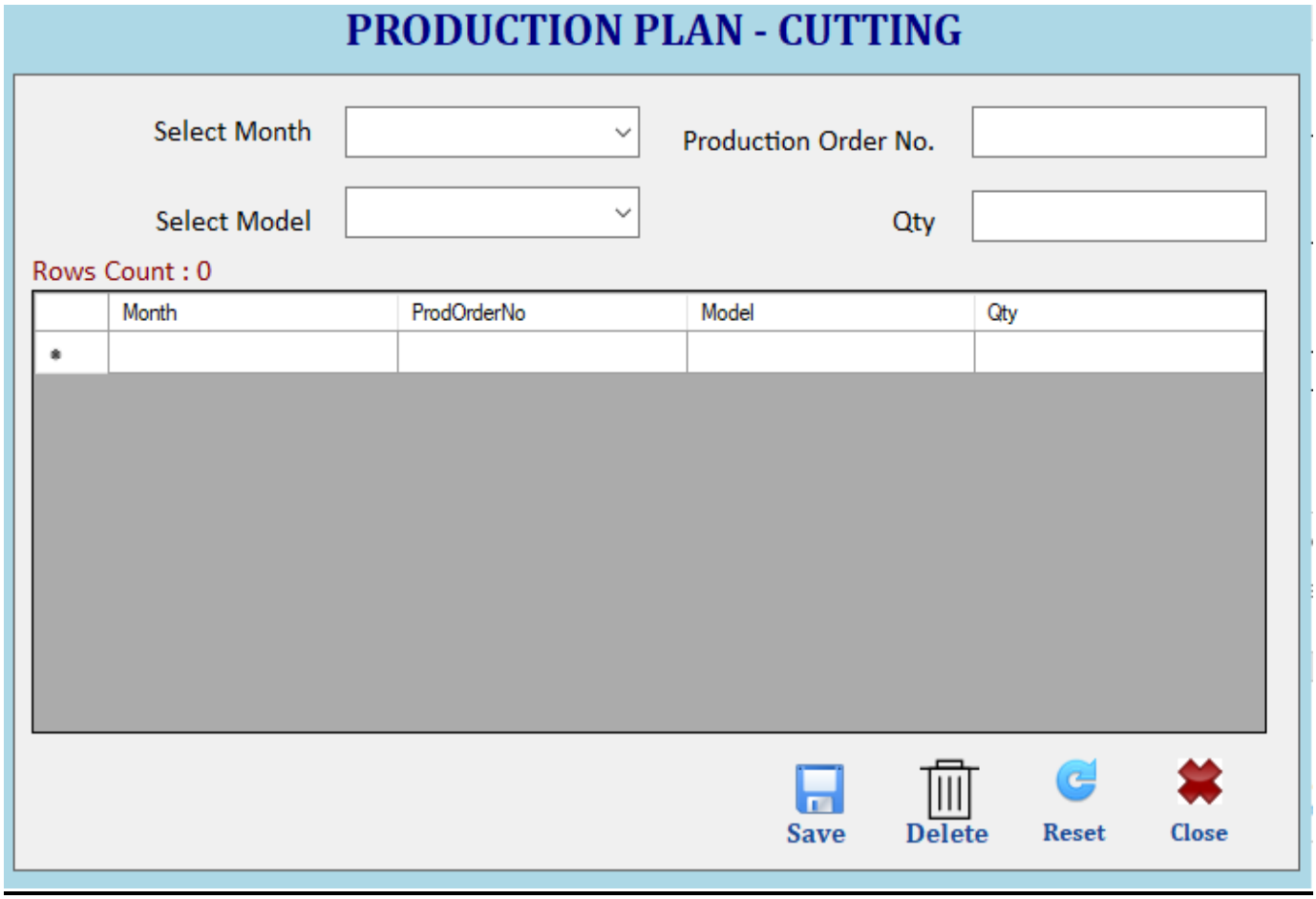
Brief Description: This screen is used to manage Color via Save, Delete operations.
Note: Color Name Will Be Unique.
Function Description in Detail:

Sr.No.	Function	Description	Remarks
1.	FORM LOAD	→During Form Load all data will be loaded in the Grid	
2.	SAVE	→User will enter all details and click on save button to save the data. →User will double click on any item in the grid to edit the data and click on save button to update the data.	
3.	Print	→User will double click on any item in the grid to select the data and click on print button to print the barcode for trolley.	
4.	Delete	→User will double click on any item in the grid to select the data and click on delete button to delete the data.	

5.	ReSet	→It will clear all fields.	

Process

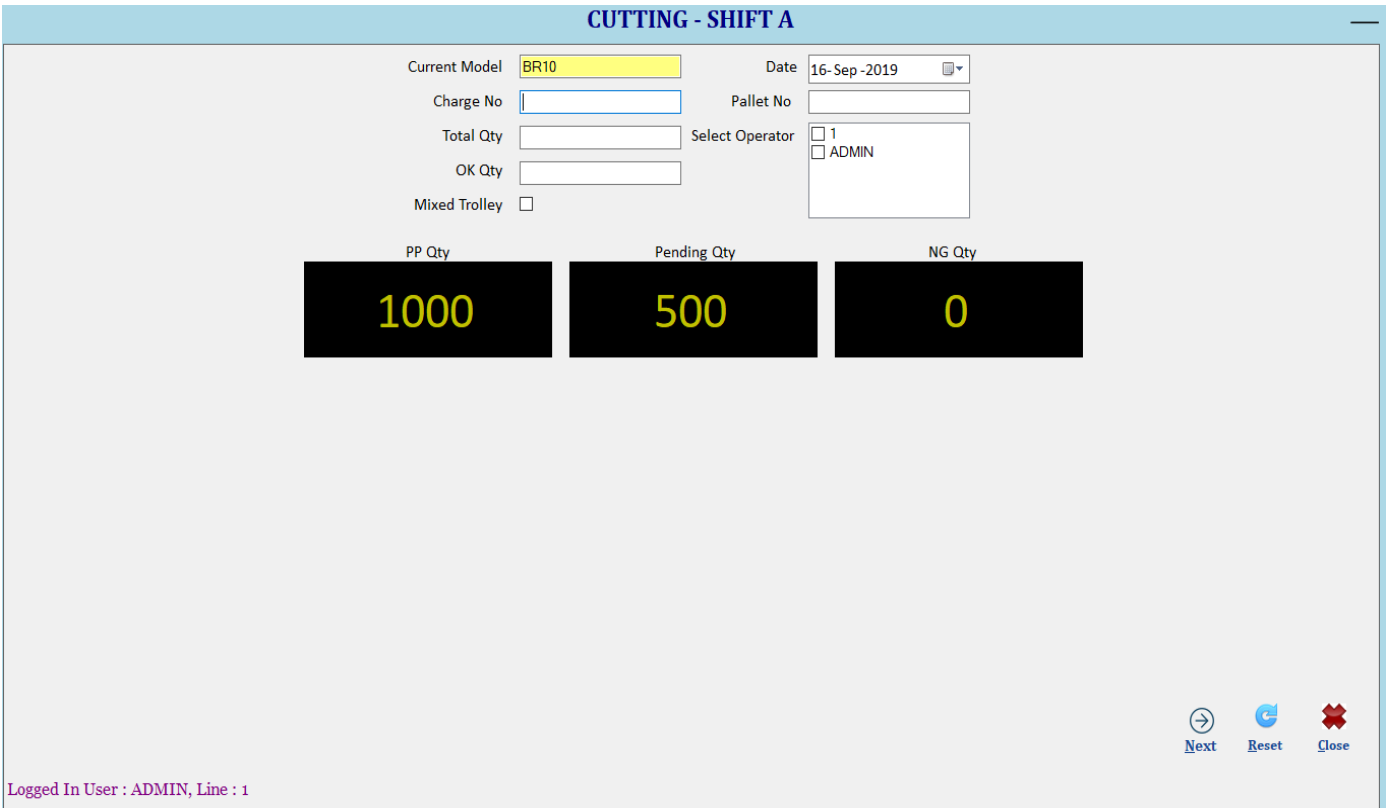
Production Plan



Brief Description: This screen is used to manage Production Plan via Save, Delete operations.
Note: Month,Production Order No and Model combination Will Be Unique.
Function Description in Detail:

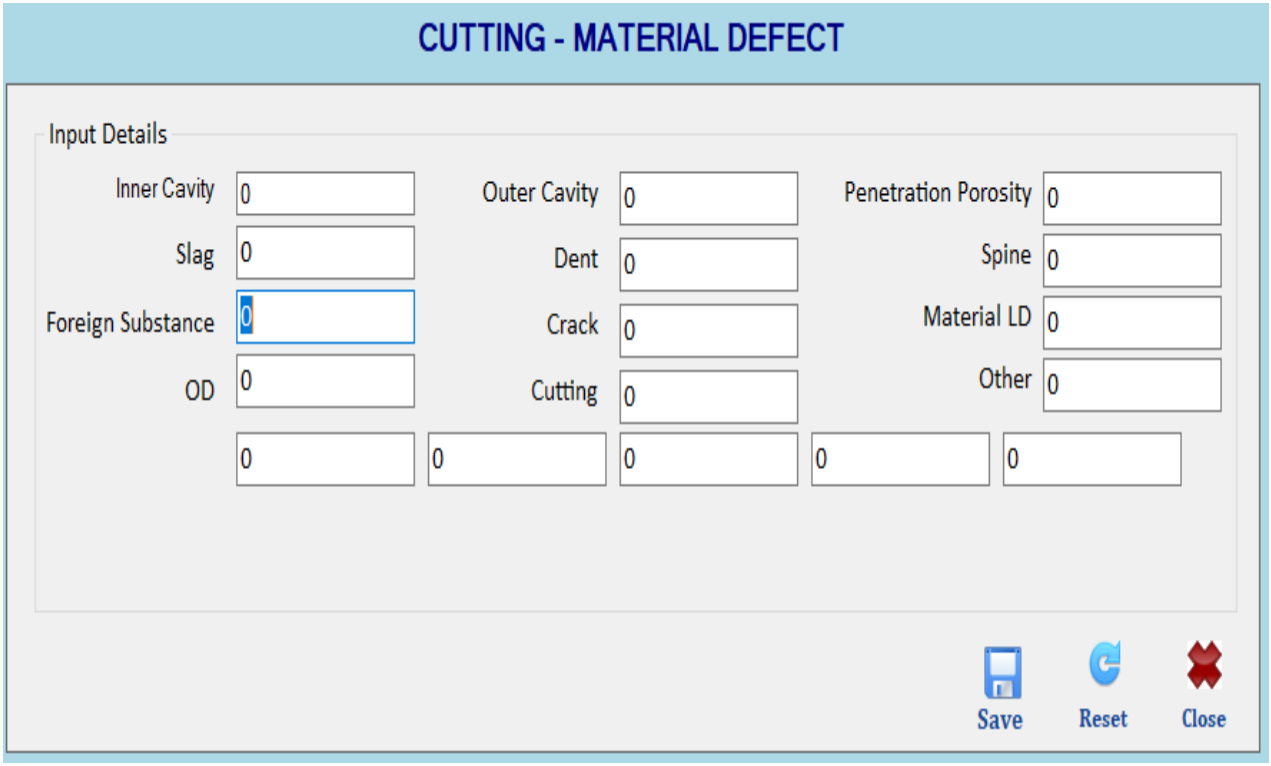
Sr.No.	Function	Description	Remarks
1.	FORM LOAD	→During Form Load all data will be loaded in the Grid	
2.	SAVE	→User will enter all details and click on save button to save the data. →User will double click on any item in the grid to edit the data and click on save button to update the data.	
3.	Delete	→User will double click on any item in the grid to select the data and click on delete button to delete the data.	
4.	ReSet	→It will clear all fields.	

Cutting

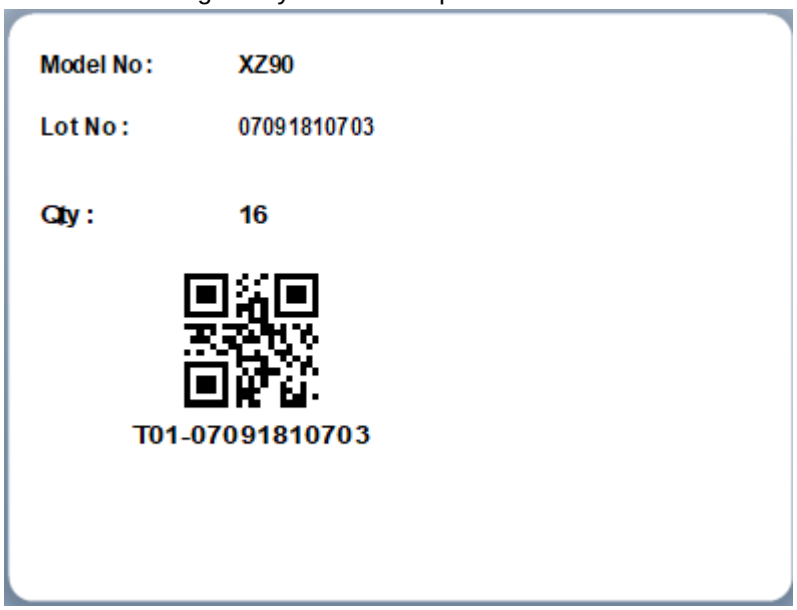


Brief Description: Cutting screen will show shift automatically from system current time.

- Based on current month model will be selected auto as defined in production plan.
- Based on selected model production plan qty and pending qty will come automatically.
- User Will select operator.
- User will enter Lot No.
- User will enter the total qty.
- User will enter OK Qty. Based on total Qty and OK qty, NG qty will be calculated automatically.
- Serial no will be autogenerated.
- If trolley is mixed, means more than 1 lot will be in same trolley(maximum 2 allowed), then user will select the Mixed Trolley. For 1 lot in 1 trolley Mixed Trolley will not be selected.
- User will click on Next button. If NG Qty = 0 then it will print trolley card but if NG Qty > 0 then User has to input defect parameter
- Defect qty should match the NG qty



Following trolley card will be printed.

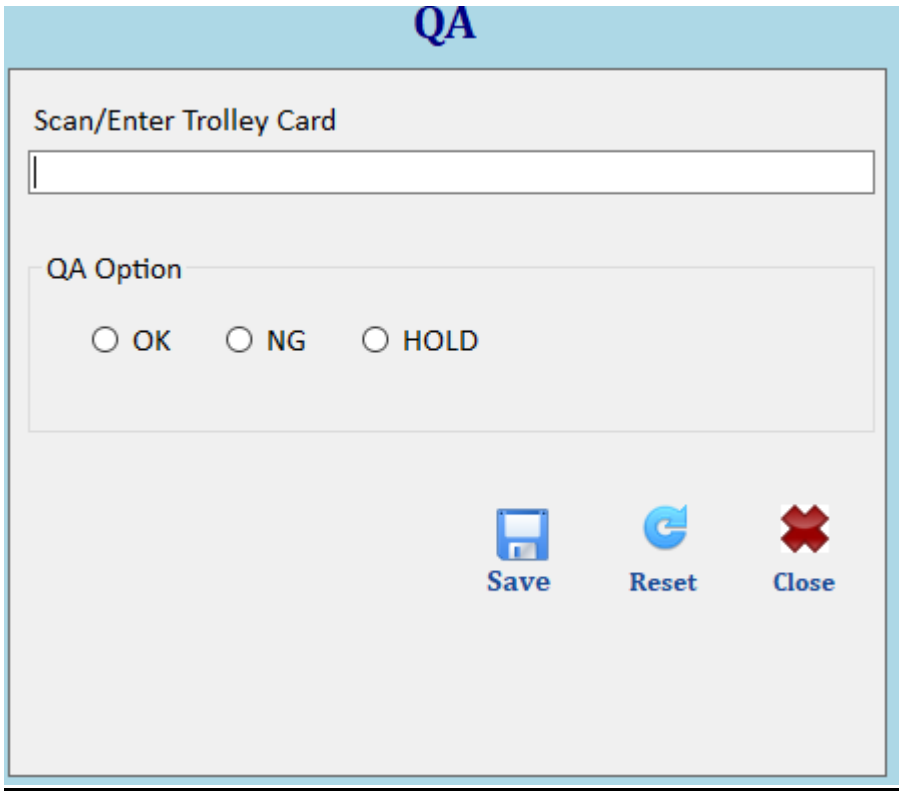


In case of mixed Trolley, When user will click on save button first it will save data then again after inputting the other lot no user will click on next button then same barcode will come but barcode will have following value.

T01-07091810703-0704

Note: Trolley Card Will Be Unique. Leader will come automatically based on login details.

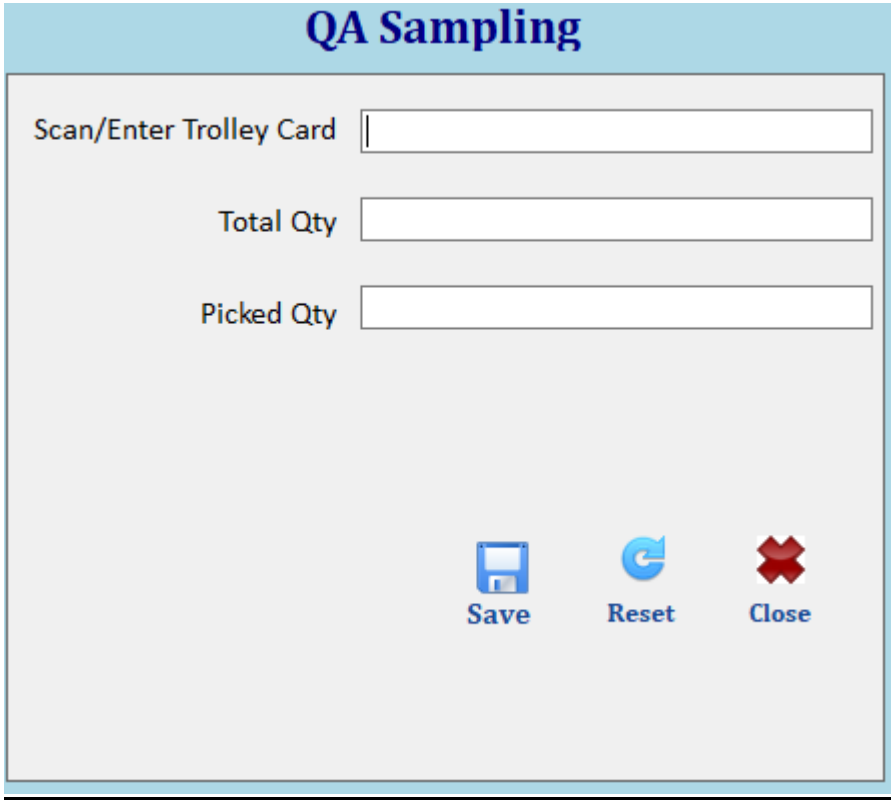
QA



Brief Description: This screen will be used for QA. User will enter trolley card barcode then select the desired option.
OK -> Complete Trolley will be maked as OK
NG -> Complete Trolley will be maked as NG. Further it can not be used for any process.
HOLD -> Complete Trolley will be maked as HOLD. It can not be used for any process untill user mark it as OK. Same screen will be used for UNHOLD trolley.

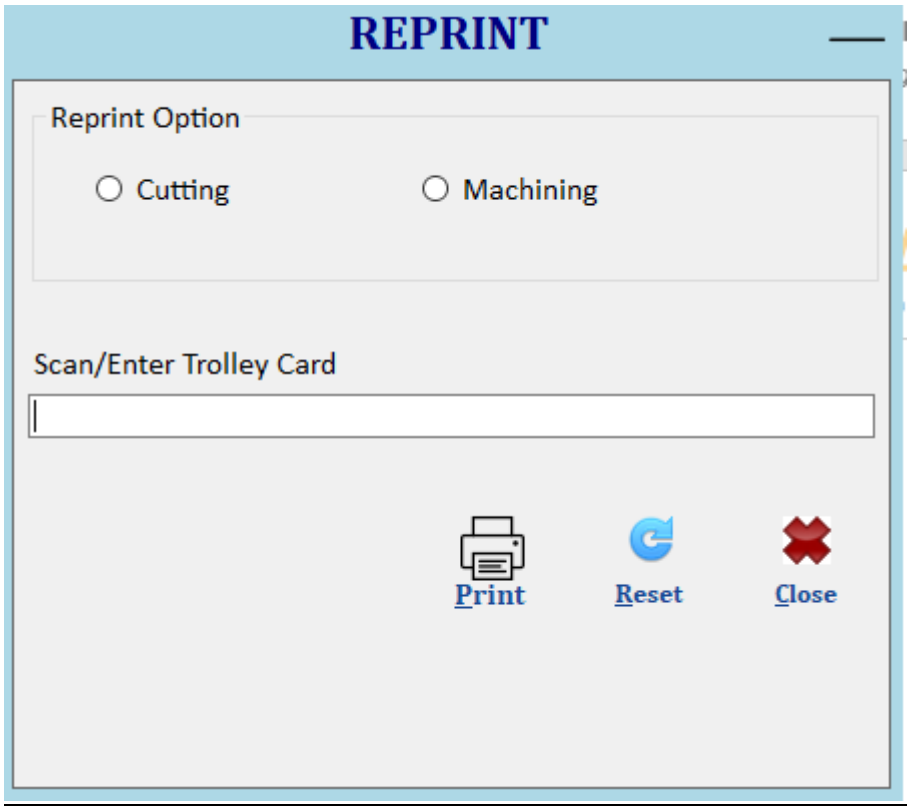
Note:- If user select wrong OK/NG/HOLD option then it can be changed from QA report which will be provided later.

QASample



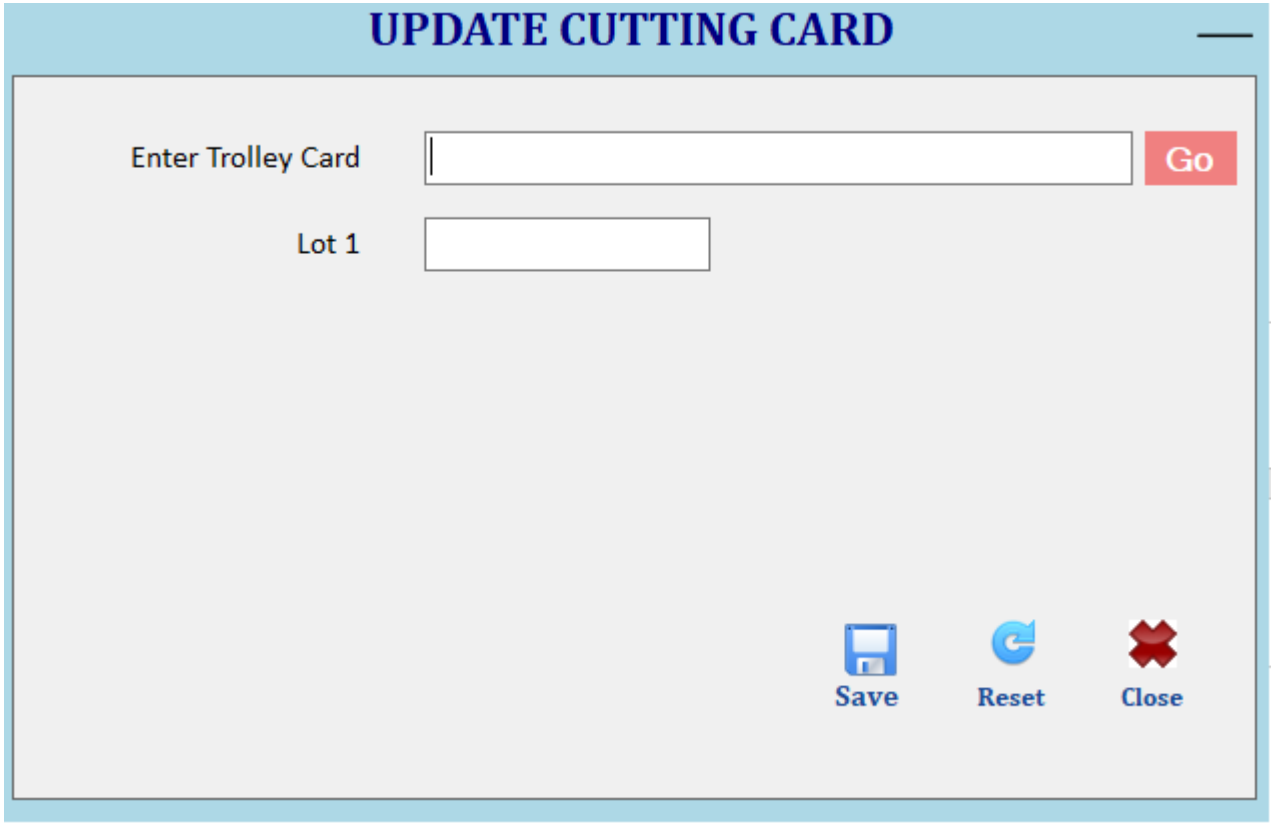
Brief Description: If user want to use more qty for QA then user will enter trolley card barcode then it will show the total qty automatically, user will input the picked qty and can perform QA operation.

Reprint



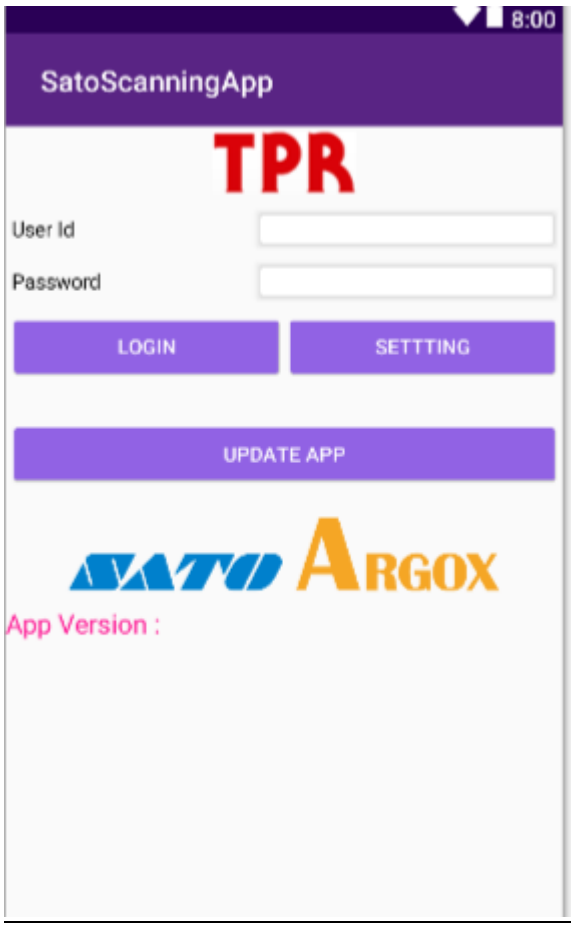
Brief Description: User can select any option Cutting/Machining to reprint the barcode

Updat Cutting Card



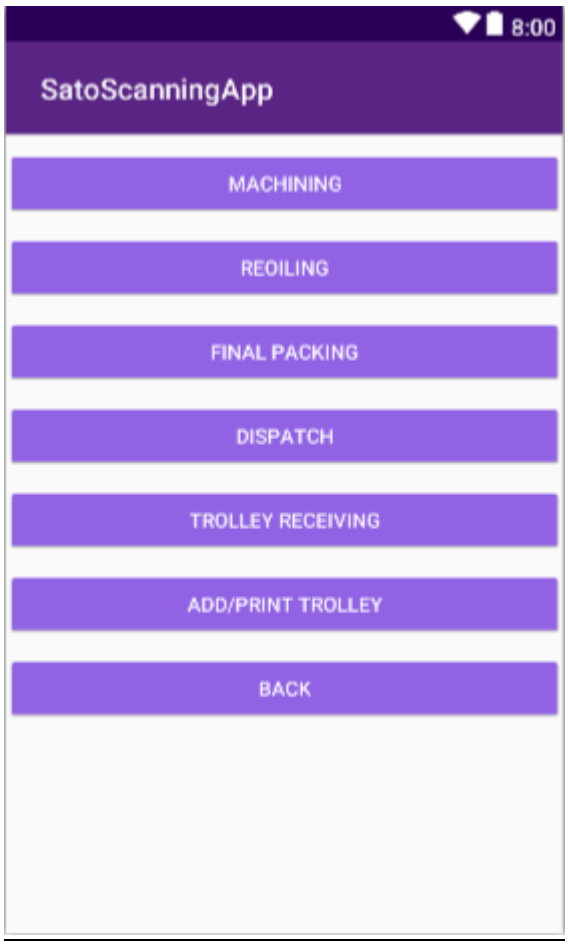
Brief Description: If at the time of cutting user has input some information wrong then use can update the trolley card details again the reprint the new card

Login(HHT)



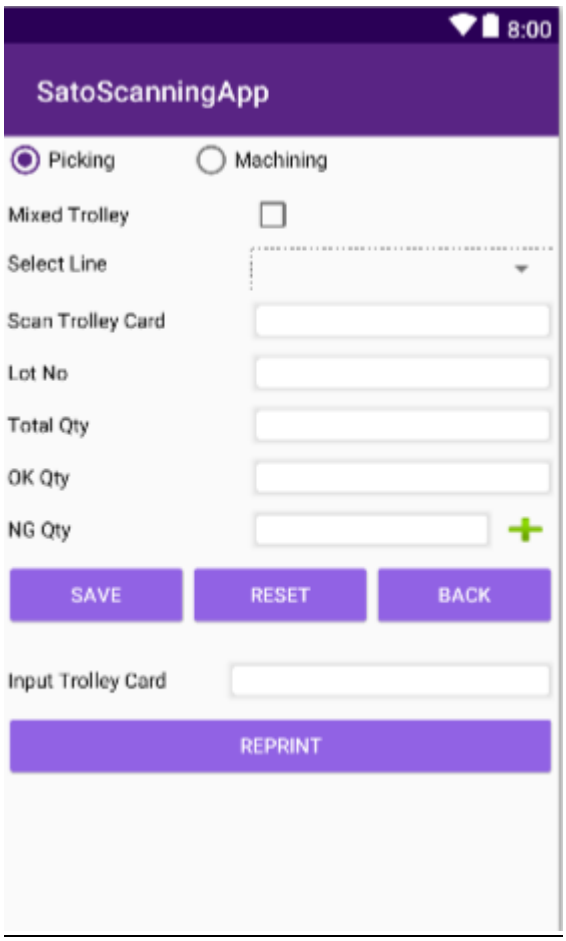
Brief Description: This screen will be used to login in HHT, based on user rights menu will be enable/disable for the user. If there is new version of app is available then user can click on update app button to update the app new version automatically.

Main Menu(HHT)

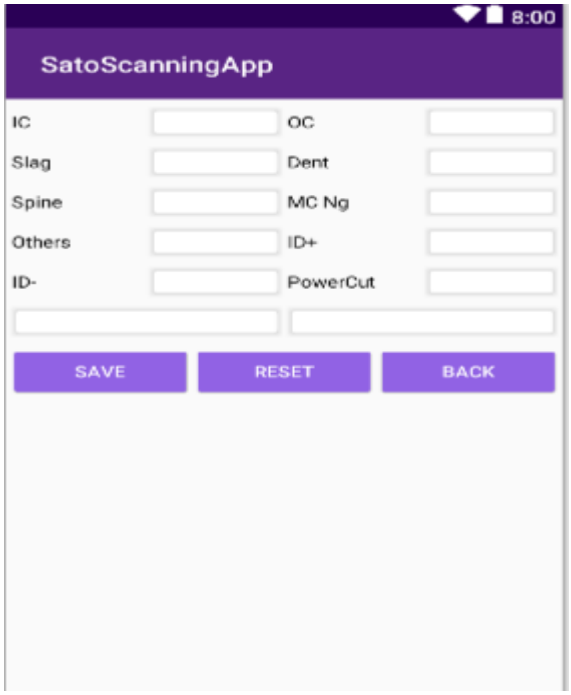


Brief Description: This screen will be used to select different operations in the HHT.

Machining(HHT)



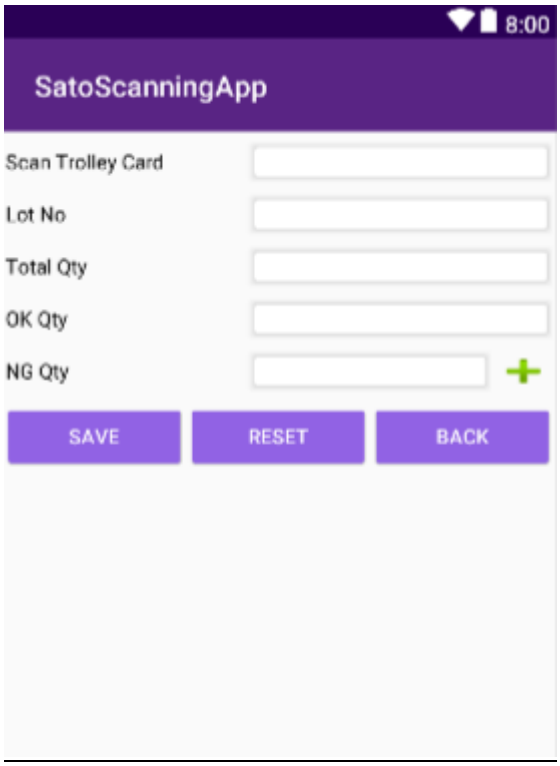
Brief Description: User will select the relevant option picking or machining and scan the trolley barcode, then user will input the qty details and if there is ng qty then user will click on + button to input ng details



Then user will click on save button. If qty validate successfully then new trolley card will print.

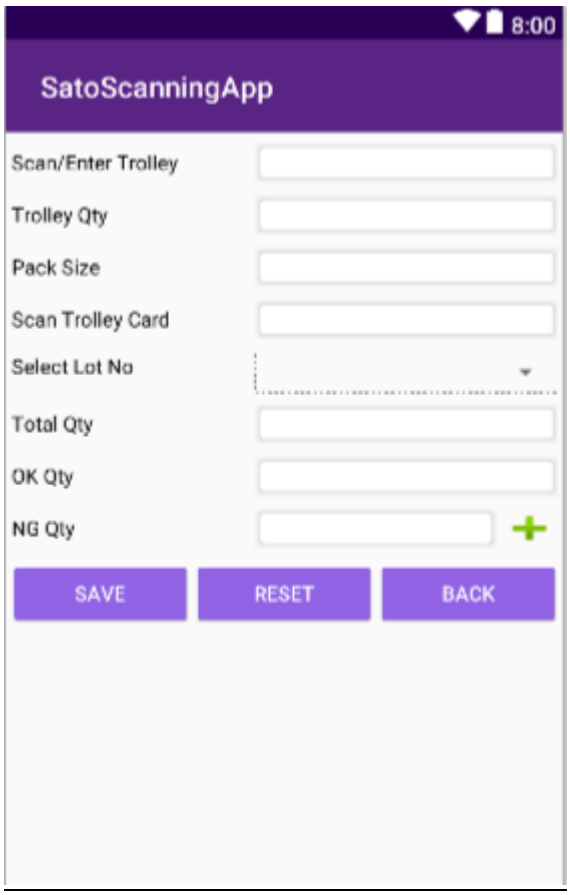
Note:- FIFO will be maintained during machining process based on Lot No Date.

ReOiling(HHT)

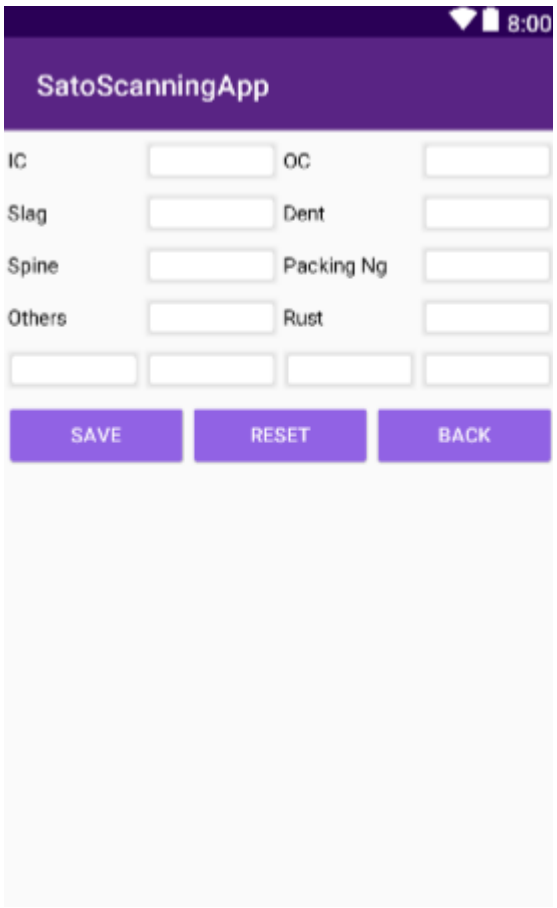


Brief Description: If after machining any trolley is not picked to due to some reason then after certain time period user has to use reoiling process before final packing and if any ng qty found then user will click on + button to specify defect reason.

Final Packing(HHT)

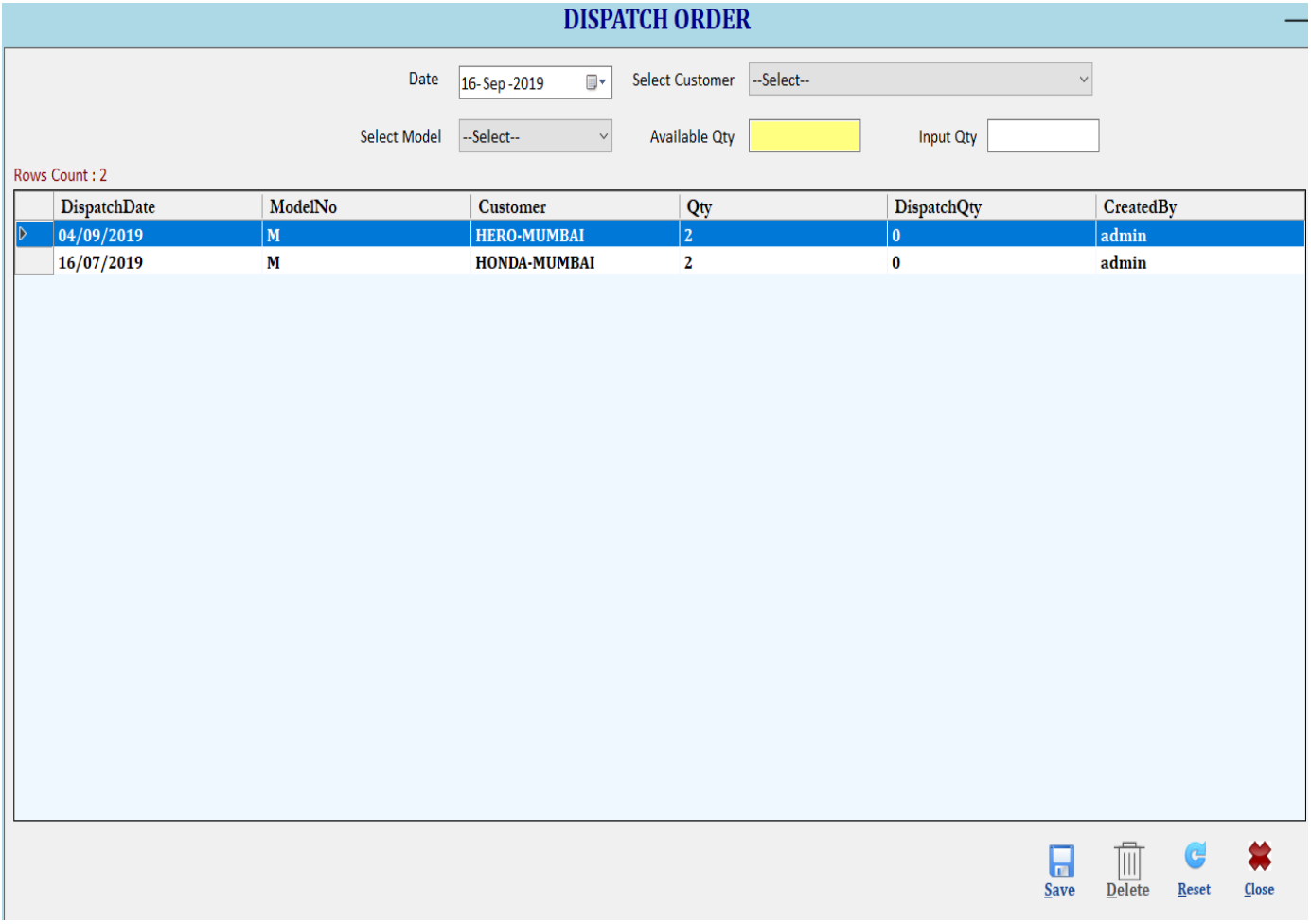


Brief Description: User Will scan customer trolley which will have preprinted unique trolley no barcode, if there is any qty in the trolley already then application will show the qty automatically.
User will scan the trolley card which will show the total qty.
User will input ok qty, Ng Qty. If Ng Qty > 0 then user has to input defect qty.



When user will click on save button if qty is completed then data will be saved.

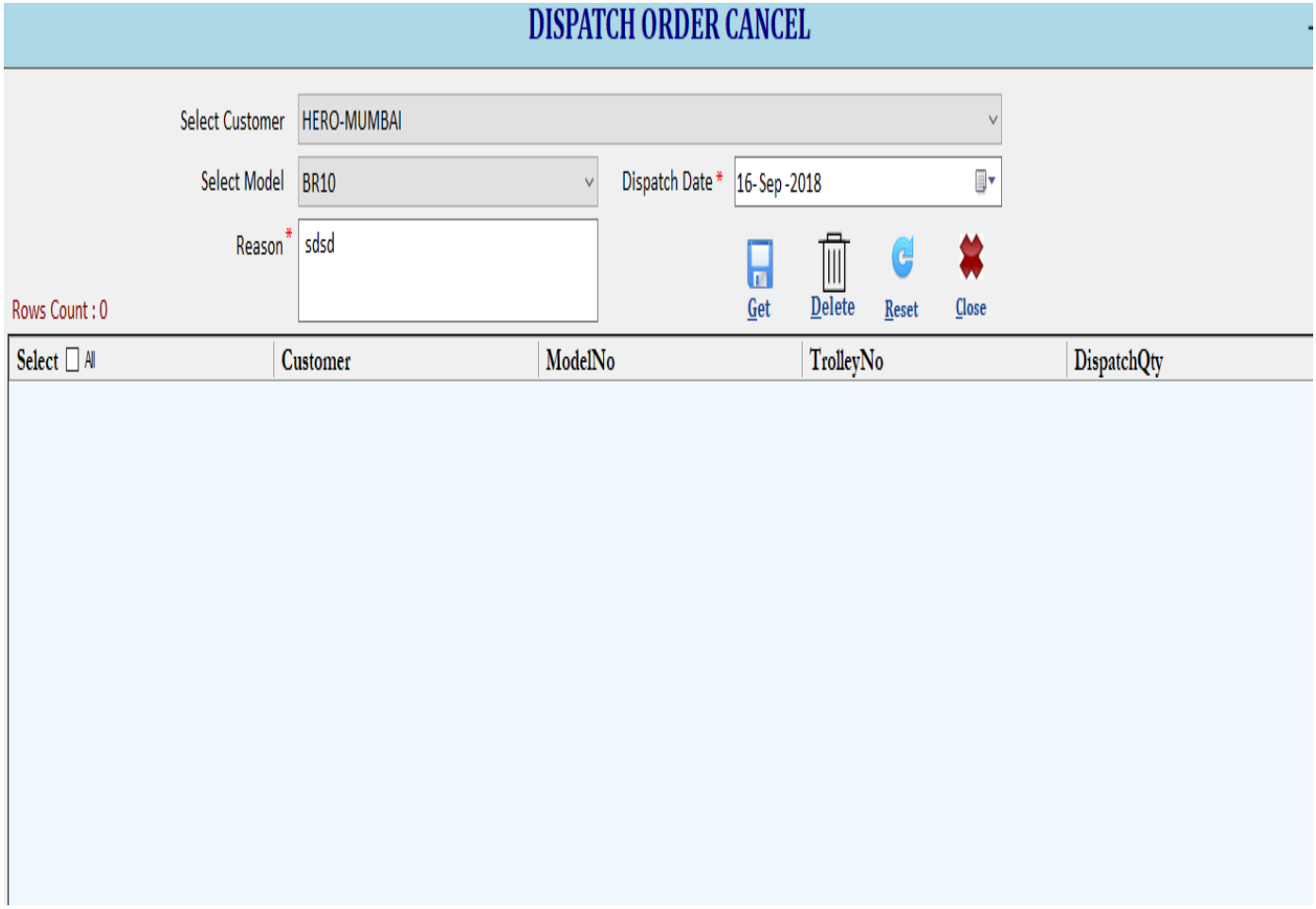
Dispatch Order



Brief Description: This screen is used to manage Dispatch Order via Save, Delete operations.
Note: Date, Model and customer combination Will Be Unique.
Function Description in Detail:

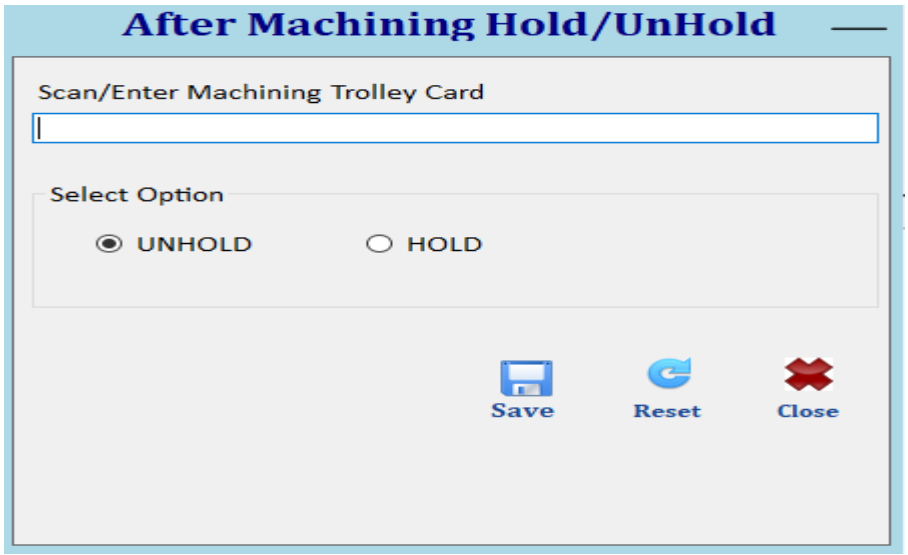
Sr.No.	Function	Description	Remarks
1.	FORM LOAD	→During Form Load all data will be loaded in the Grid	
2.	SAVE	→User will enter all details and click on save button to save the data. →User will double click on any item in the grid to edit the data and click on save button to update the data.	
3.	Delete	→User will double click on any item in the grid to select the data and click on delete button to delete the data.	
4.	ReSet	→It will clear all fields.	

Dispatch Cancel



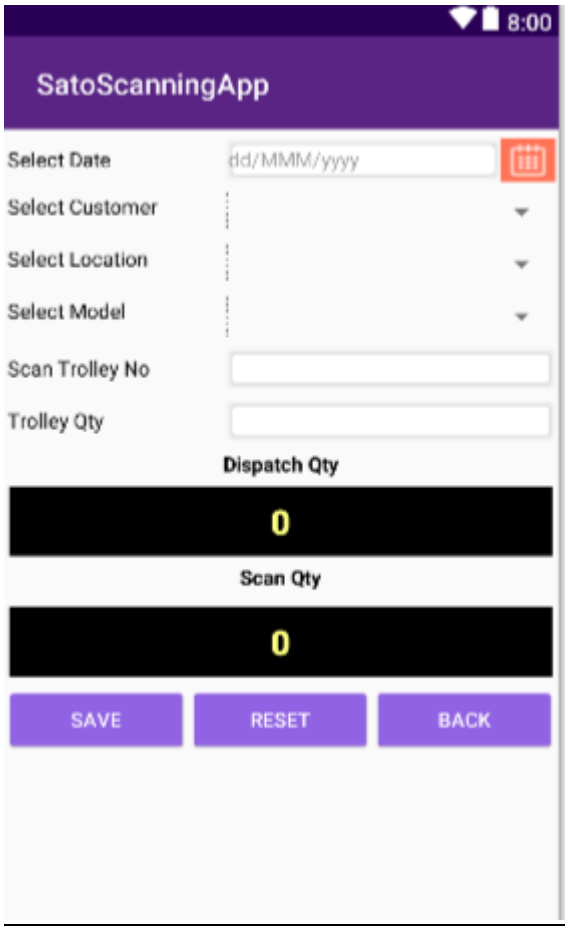
Brief Description: If after dispatch user want to cancel the dispatch then user can select the the dispatch order and delete the order with reason

After Machining Hold/UnHold



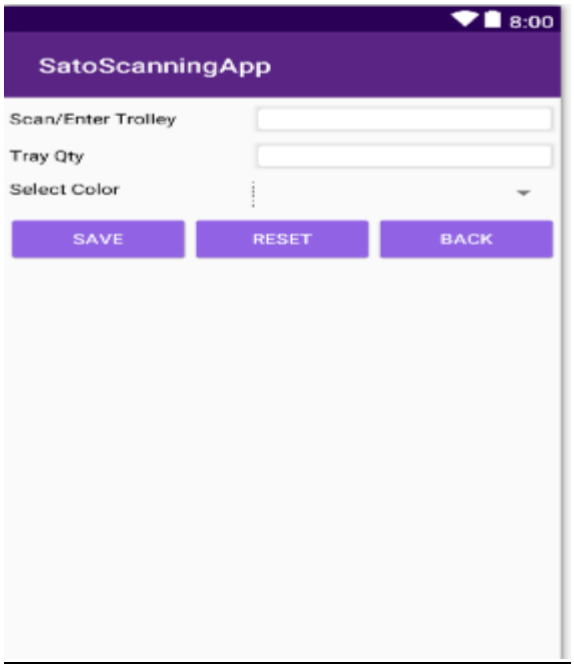
Brief Description: If after machining and during final packing user found that trolley has defect then user can hold that machining trolley for inspection and then after inspection unhold the trolley so that it can be used in final packing

Dispatch(HHT)



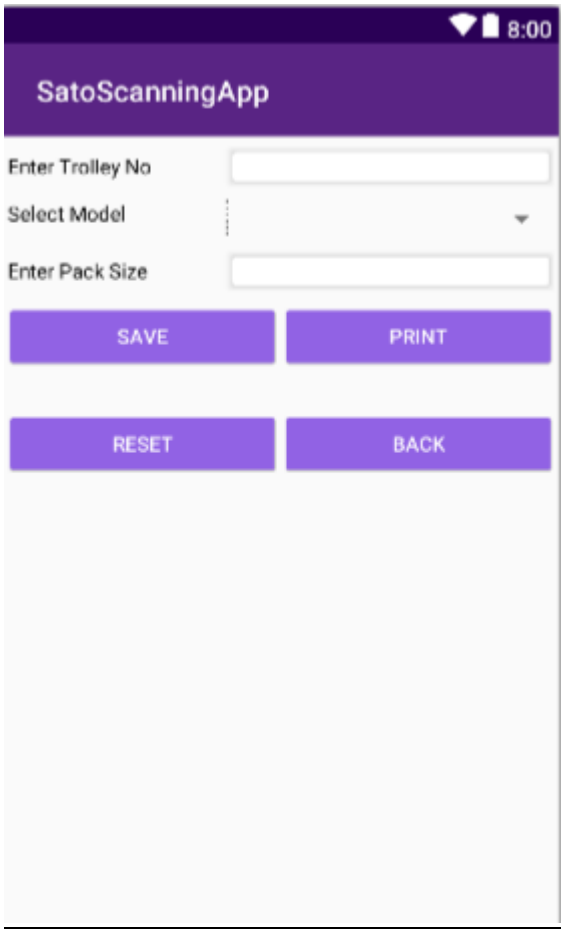
Brief Description: User will select the customer and model which will show the today's dispatch qty that need to be dispatched then user will scan trolley card and it will increase the scan qty.
When Dispatch qty and scan qty will be same then application will show message dispatch complete

Trolley Receiving(HHT)



Brief Description: When the trolley will come back from customer then user will scan the trolley barcode to confirm trolley receiving.

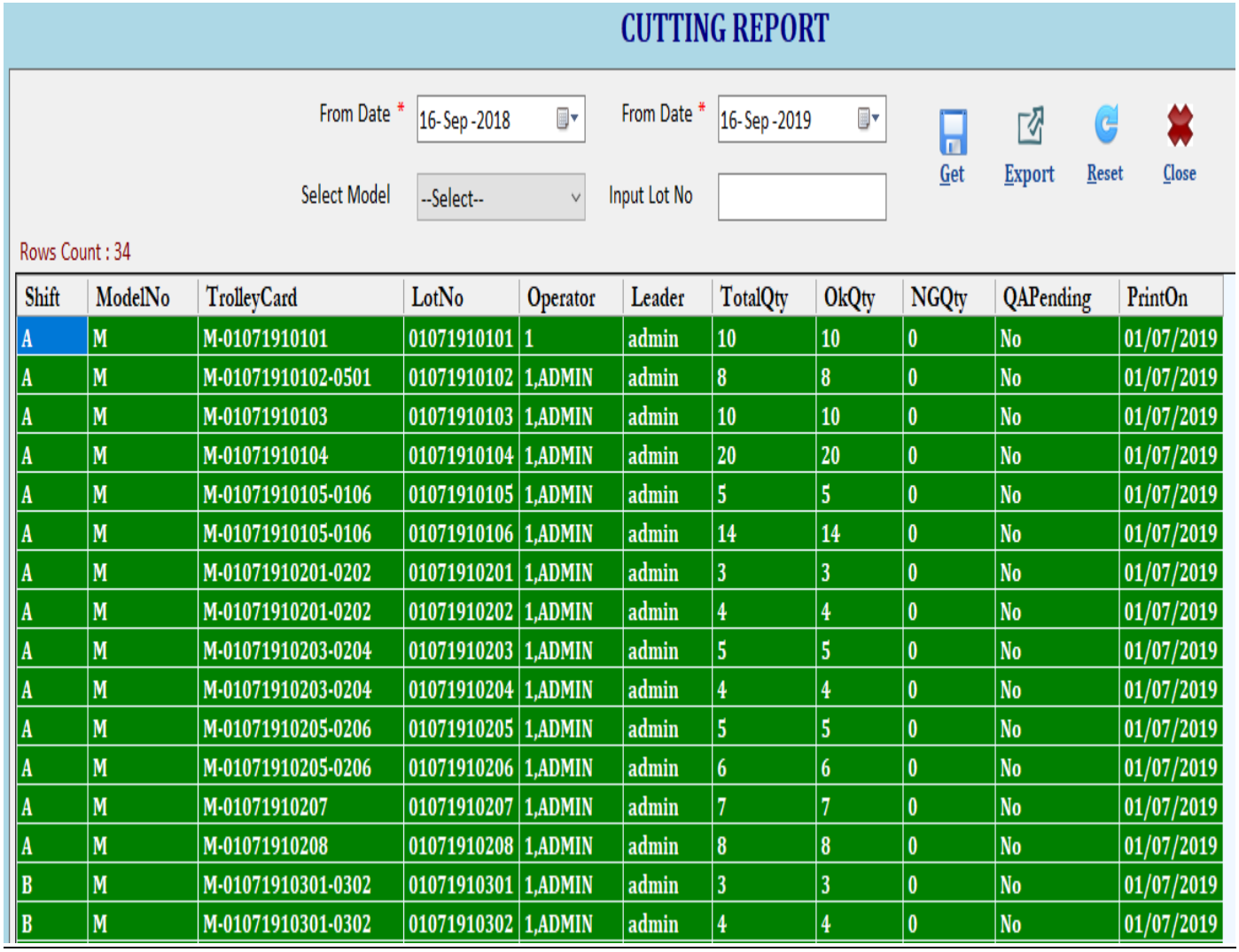
Trolley Print (HHT)



Brief Description: User can create new trolley from the device and then print the barcode for the same.

Reports

Cutting Report



CUTTING REPORT

From Date * 16-Sep-2018 From Date * 16-Sep-2019 Get Export Reset Close

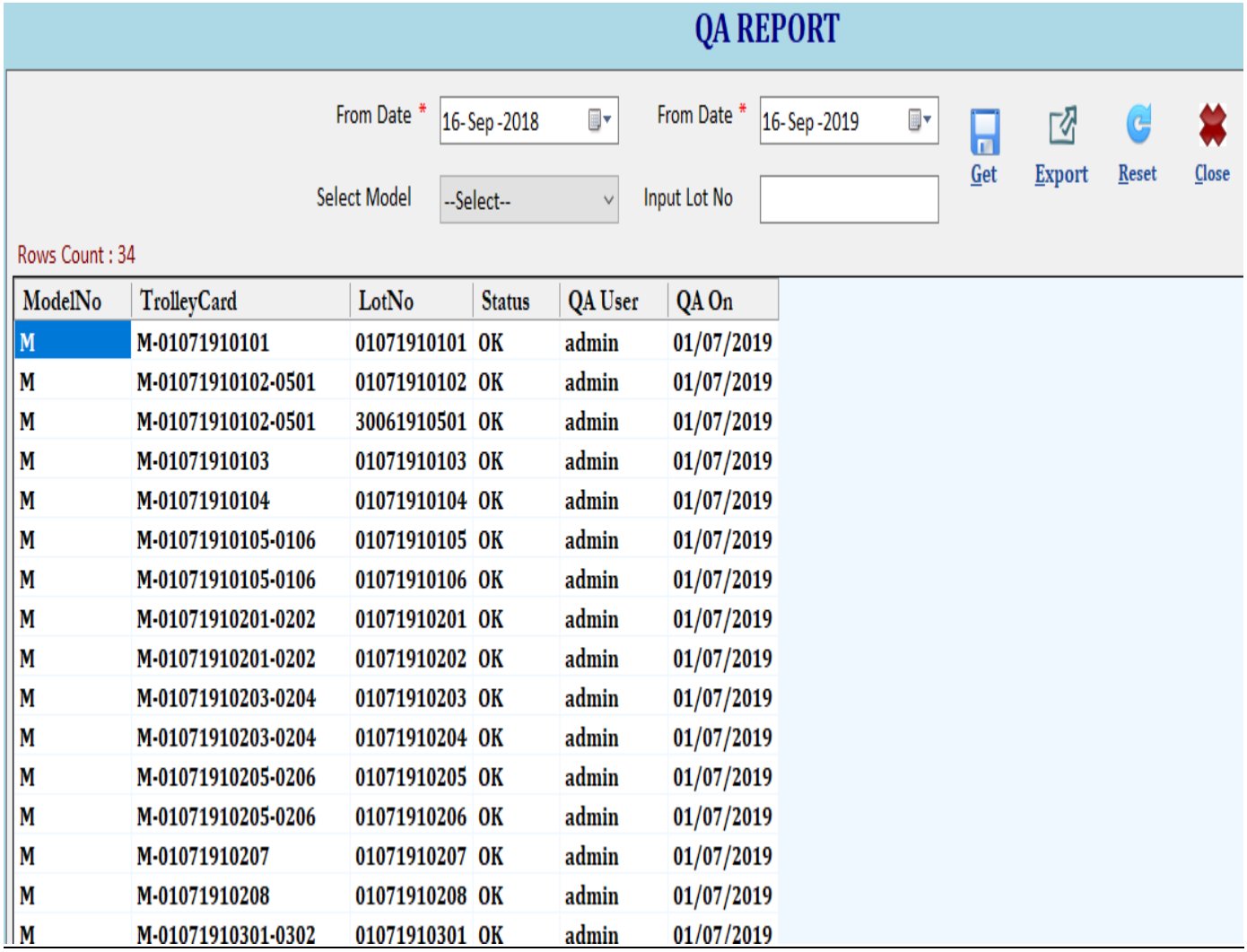
Select Model --Select-- Input Lot No

Rows Count : 34

Shift	ModelNo	TrolleyCard	LotNo	Operator	Leader	TotalQty	OkQty	NGQty	QAPending	PrintOn
A	M	M-01071910101	01071910101	1	admin	10	10	0	No	01/07/2019
A	M	M-01071910102-0501	01071910102	1,ADMIN	admin	8	8	0	No	01/07/2019
A	M	M-01071910103	01071910103	1,ADMIN	admin	10	10	0	No	01/07/2019
A	M	M-01071910104	01071910104	1,ADMIN	admin	20	20	0	No	01/07/2019
A	M	M-01071910105-0106	01071910105	1,ADMIN	admin	5	5	0	No	01/07/2019
A	M	M-01071910105-0106	01071910106	1,ADMIN	admin	14	14	0	No	01/07/2019
A	M	M-01071910201-0202	01071910201	1,ADMIN	admin	3	3	0	No	01/07/2019
A	M	M-01071910201-0202	01071910202	1,ADMIN	admin	4	4	0	No	01/07/2019
A	M	M-01071910203-0204	01071910203	1,ADMIN	admin	5	5	0	No	01/07/2019
A	M	M-01071910203-0204	01071910204	1,ADMIN	admin	4	4	0	No	01/07/2019
A	M	M-01071910205-0206	01071910205	1,ADMIN	admin	5	5	0	No	01/07/2019
A	M	M-01071910205-0206	01071910206	1,ADMIN	admin	6	6	0	No	01/07/2019
A	M	M-01071910207	01071910207	1,ADMIN	admin	7	7	0	No	01/07/2019
A	M	M-01071910208	01071910208	1,ADMIN	admin	8	8	0	No	01/07/2019
B	M	M-01071910301-0302	01071910301	1,ADMIN	admin	3	3	0	No	01/07/2019
B	M	M-01071910301-0302	01071910302	1,ADMIN	admin	4	4	0	No	01/07/2019

Brief Description: This report will show cutting related information.

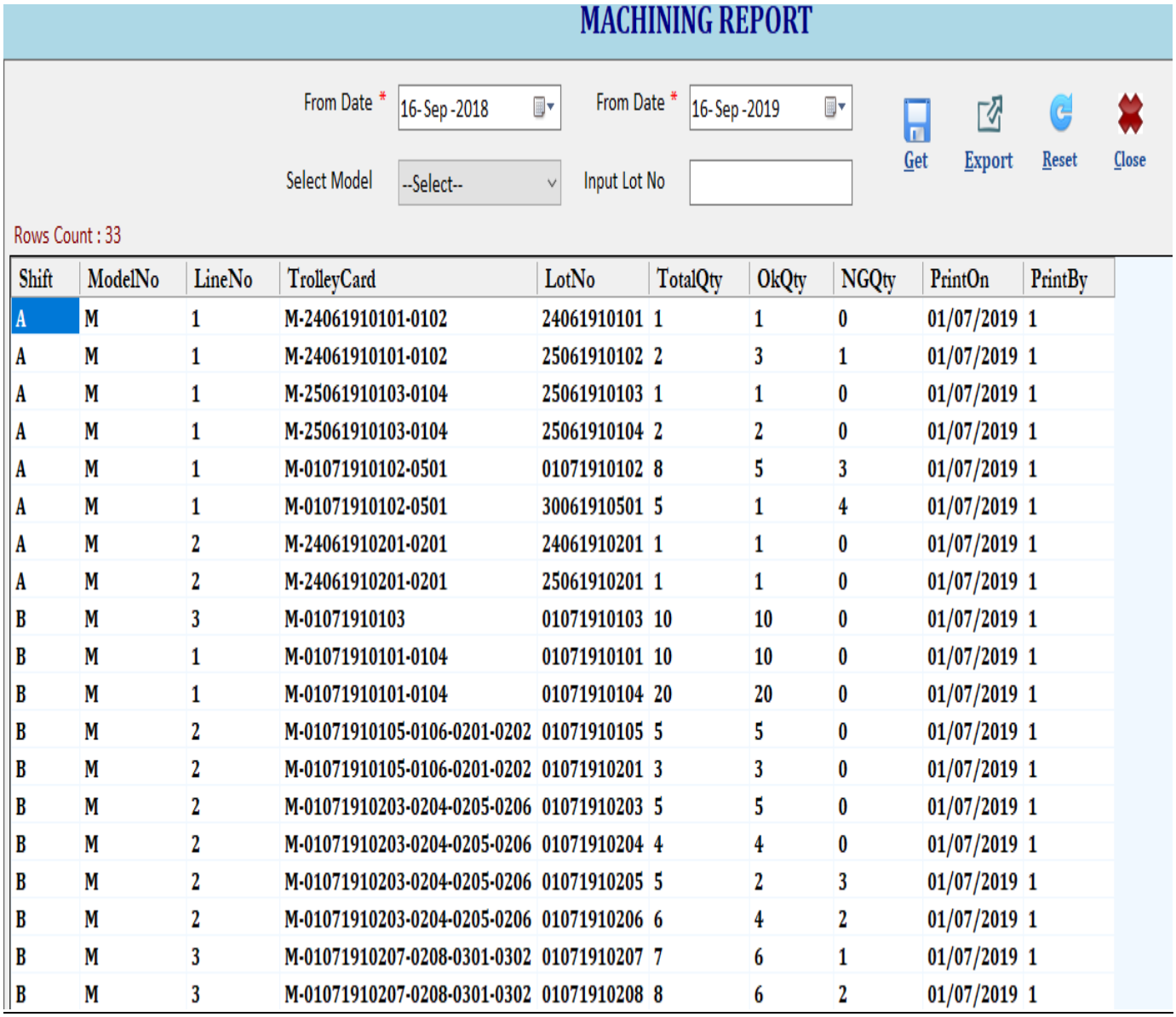
QA Report



ModelNo	TrolleyCard	LotNo	Status	QA User	QA On
M	M-01071910101	01071910101	OK	admin	01/07/2019
M	M-01071910102-0501	01071910102	OK	admin	01/07/2019
M	M-01071910102-0501	30061910501	OK	admin	01/07/2019
M	M-01071910103	01071910103	OK	admin	01/07/2019
M	M-01071910104	01071910104	OK	admin	01/07/2019
M	M-01071910105-0106	01071910105	OK	admin	01/07/2019
M	M-01071910105-0106	01071910106	OK	admin	01/07/2019
M	M-01071910201-0202	01071910201	OK	admin	01/07/2019
M	M-01071910201-0202	01071910202	OK	admin	01/07/2019
M	M-01071910203-0204	01071910203	OK	admin	01/07/2019
M	M-01071910203-0204	01071910204	OK	admin	01/07/2019
M	M-01071910205-0206	01071910205	OK	admin	01/07/2019
M	M-01071910205-0206	01071910206	OK	admin	01/07/2019
M	M-01071910207	01071910207	OK	admin	01/07/2019
M	M-01071910208	01071910208	OK	admin	01/07/2019
M	M-01071910301-0302	01071910301	OK	admin	01/07/2019

Brief Description: This report will show QA related information.

Machining Report



MACHINING REPORT

From Date * 16-Sep-2018 From Date * 16-Sep-2019 Get Export Reset Close

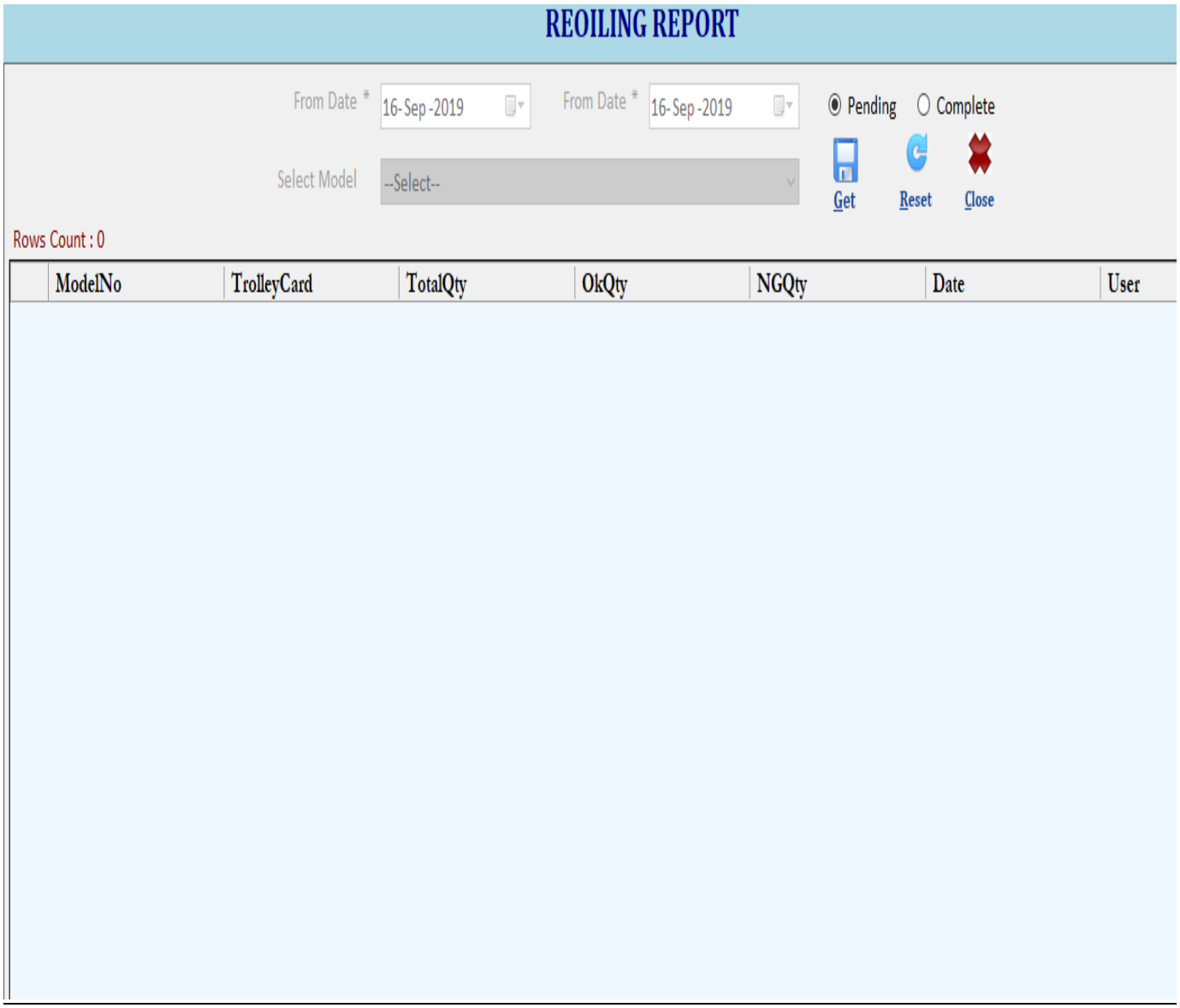
Select Model --Select-- Input Lot No

Rows Count : 33

Shift	ModelNo	LineNo	TrolleyCard	LotNo	TotalQty	OkQty	NGQty	PrintOn	PrintBy
A	M	1	M-24061910101-0102	24061910101	1	1	0	01/07/2019	1
A	M	1	M-24061910101-0102	25061910102	2	3	1	01/07/2019	1
A	M	1	M-25061910103-0104	25061910103	1	1	0	01/07/2019	1
A	M	1	M-25061910103-0104	25061910104	2	2	0	01/07/2019	1
A	M	1	M-01071910102-0501	01071910102	8	5	3	01/07/2019	1
A	M	1	M-01071910102-0501	30061910501	5	1	4	01/07/2019	1
A	M	2	M-24061910201-0201	24061910201	1	1	0	01/07/2019	1
A	M	2	M-24061910201-0201	25061910201	1	1	0	01/07/2019	1
B	M	3	M-01071910103	01071910103	10	10	0	01/07/2019	1
B	M	1	M-01071910101-0104	01071910101	10	10	0	01/07/2019	1
B	M	1	M-01071910101-0104	01071910104	20	20	0	01/07/2019	1
B	M	2	M-01071910105-0106-0201-0202	01071910105	5	5	0	01/07/2019	1
B	M	2	M-01071910105-0106-0201-0202	01071910201	3	3	0	01/07/2019	1
B	M	2	M-01071910203-0204-0205-0206	01071910203	5	5	0	01/07/2019	1
B	M	2	M-01071910203-0204-0205-0206	01071910204	4	4	0	01/07/2019	1
B	M	2	M-01071910203-0204-0205-0206	01071910205	5	2	3	01/07/2019	1
B	M	2	M-01071910203-0204-0205-0206	01071910206	6	4	2	01/07/2019	1
B	M	3	M-01071910207-0208-0301-0302	01071910207	7	6	1	01/07/2019	1
B	M	3	M-01071910207-0208-0301-0302	01071910208	8	6	2	01/07/2019	1

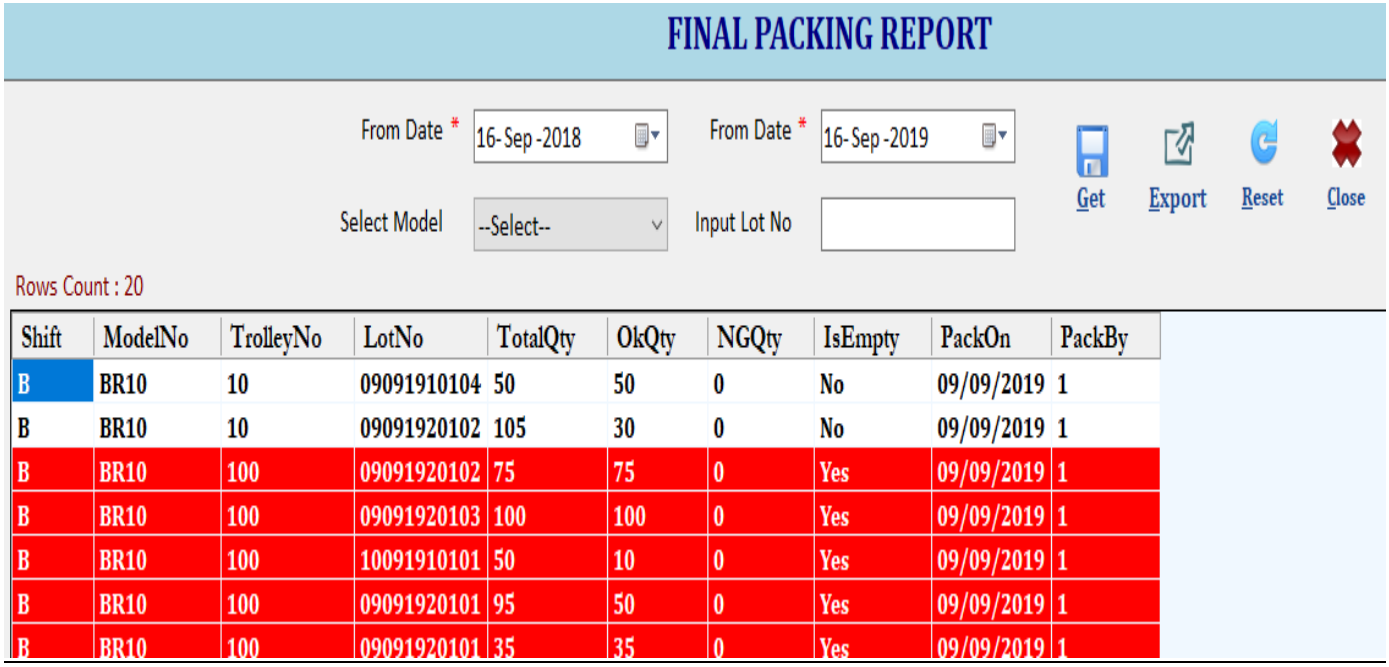
Brief Description: This report will show Machining related information.

ReOiling Report



Brief Description: This report will show reoiling related information.

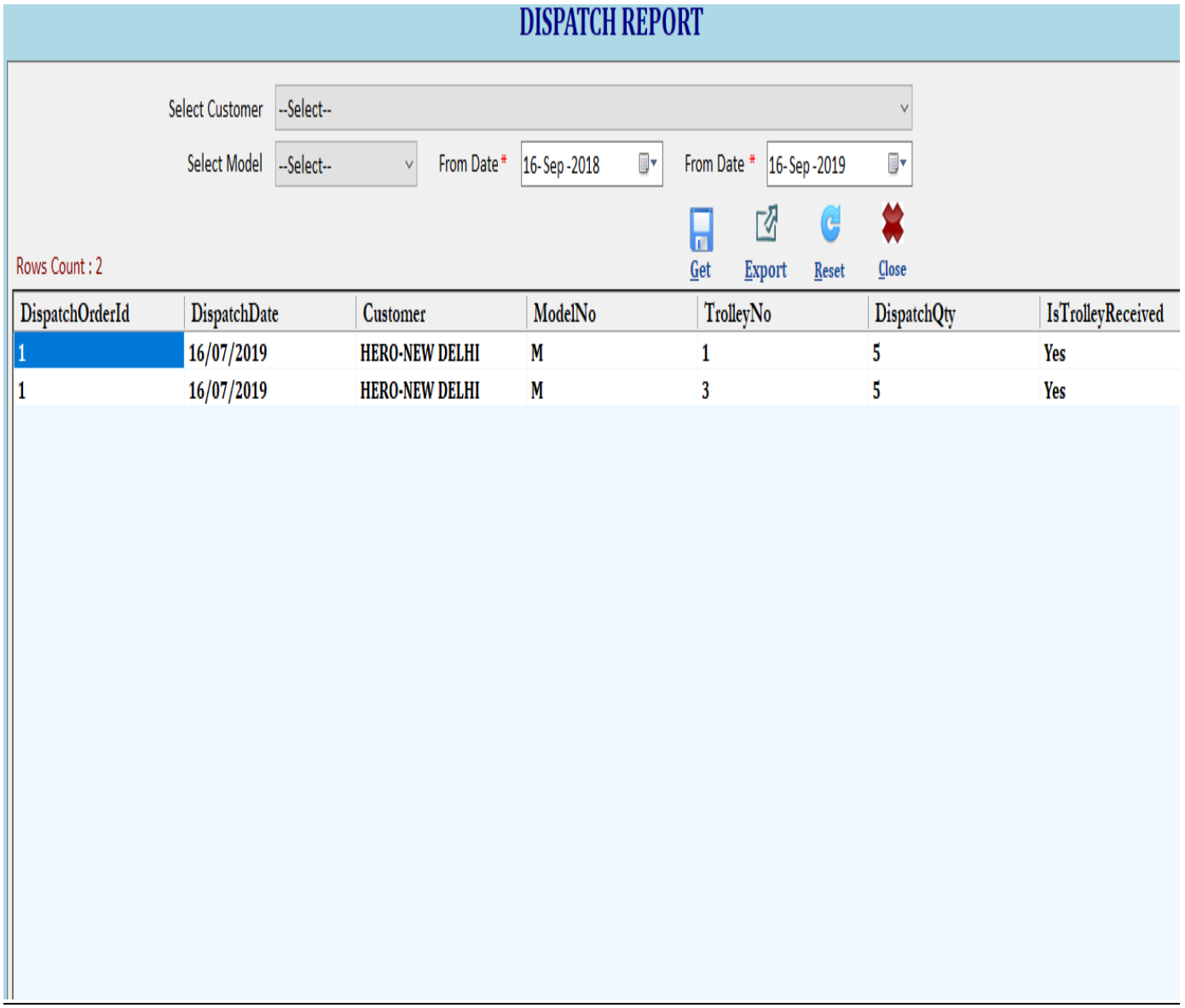
FinalPacking Report



Shift	ModelNo	TrolleyNo	LotNo	TotalQty	OkQty	NGQty	IsEmpty	PackOn	PackBy
B	BR10	10	09091910104	50	50	0	No	09/09/2019	1
B	BR10	10	09091920102	105	30	0	No	09/09/2019	1
B	BR10	100	09091920102	75	75	0	Yes	09/09/2019	1
B	BR10	100	09091920103	100	100	0	Yes	09/09/2019	1
B	BR10	100	10091910101	50	10	0	Yes	09/09/2019	1
B	BR10	100	09091920101	95	50	0	Yes	09/09/2019	1
B	BR10	100	09091920101	35	35	0	Yes	09/09/2019	1

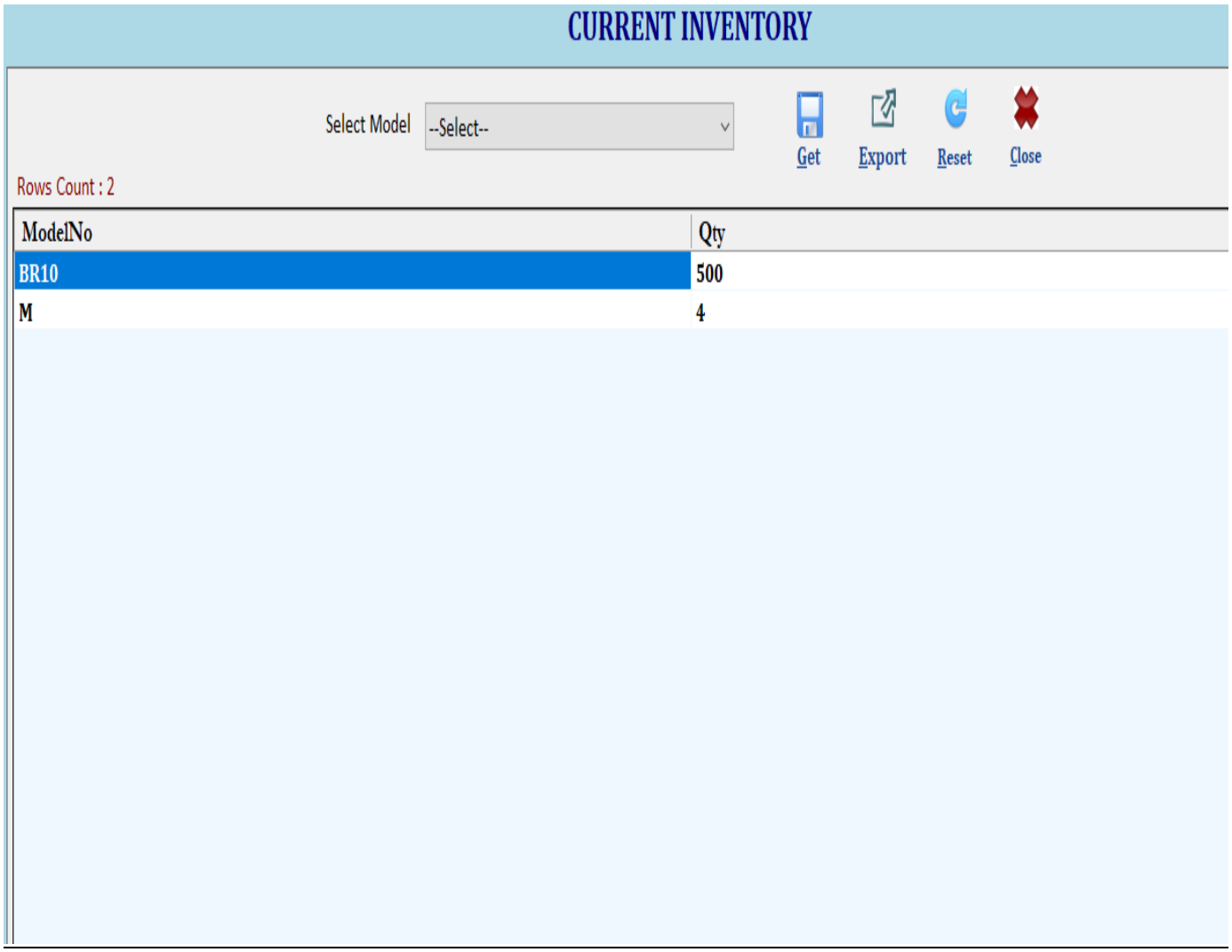
Brief Description: This report will show FinalPacking related information.

Dispatch Report



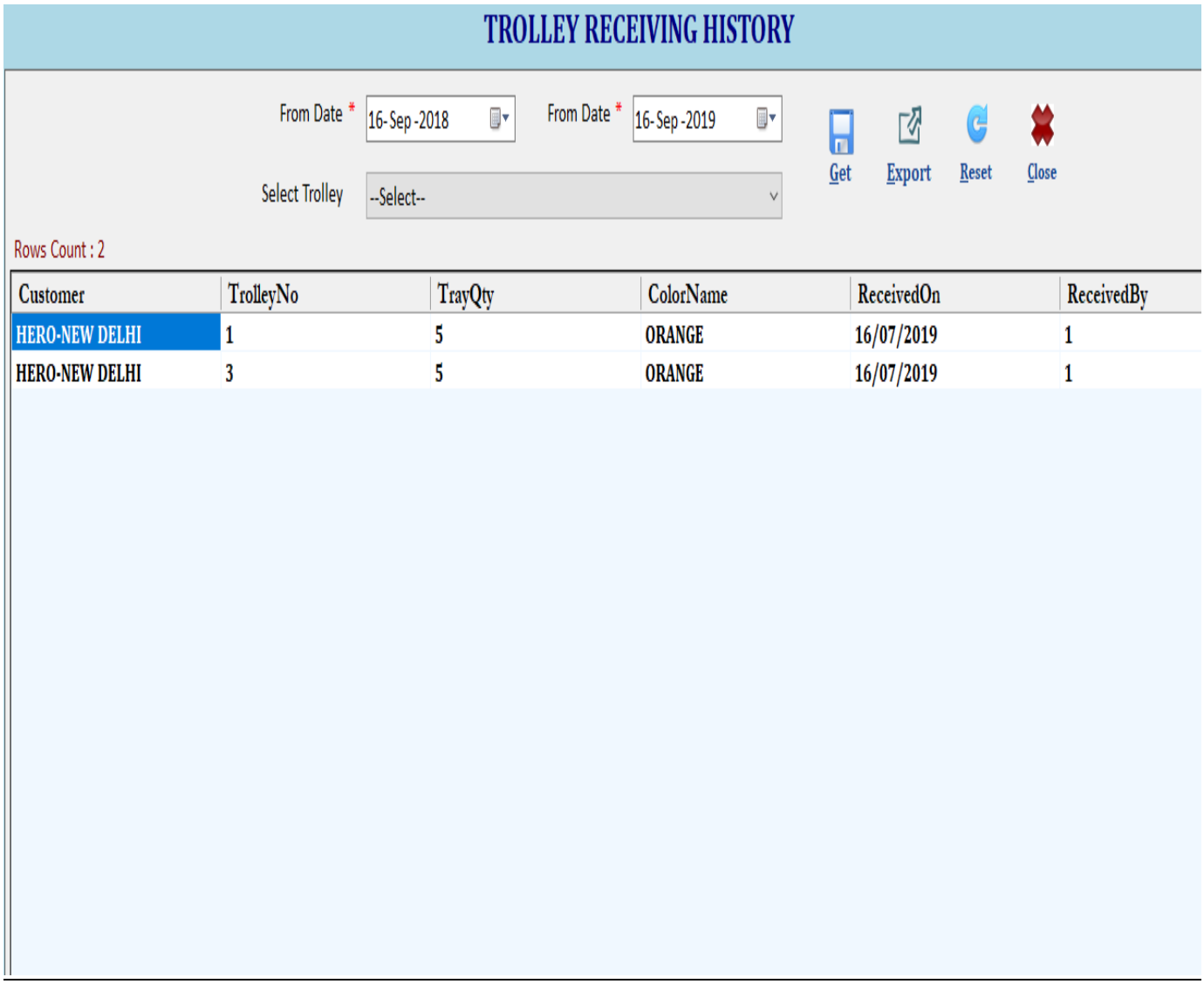
Brief Description: This report will show Dispatch related information.

Current Inventory Report



Brief Description: This report will show inventory data.

Trolley Receiving History Report



Brief Description: This report will show trolley receiving history data.

NOTE:

- **Screen design may change, above are reference screens.**
- **In HHT for every error there will sound and vibration.**

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