WORKSHOP

Feb. 28, 2020

DESIGN, ENGINEERING, SOFTWARE DEVELOPMENT, MANUFACTURING / SUPPLY, INSTALLATION, TESTING, TRIAL RUN AND COMMISSIONING OF QR CODE BASED TRACK AND TRACE SYSTEM ALONG WITH ASSOCIATED WORKS WITH 2 YEAR WARRANTY AND 3 YEAR COMPREHENSIVE AMC FOR LUBE & GREASE LOCATIONS.

SERVO® 100% PERFORMANCE. EVERYTIME.

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GTI Infotel

ISO 9001

CMMI Level 5

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Contents

- Process flow
- Addition in the Process
- Modules:
  - Label Printing
  - Production
  - Inventory
  - Warehouse
  - Transit
  - Distribution
  - Customer Management
  - Analytics
- SAP interface & Cloud hosting
- General operating guidelines
- Do's & Dont's
- Support required from plants (if any).

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Brief description of the system including philosophy of the system:

- The system desires to implement the use of a QR code based methodology that will provide accurate and timely decision support for multiple functional within organization, data collection and dissemination of information for each of its facilities, and any future facilities.
- Help and support IOCL for complete material tracking and also provide IOCL with the ability to take strategic marketing decisions.
- Track all primary, secondary and tertiary (Can, Carton, Buckets, pallet) packing level with a unique id.

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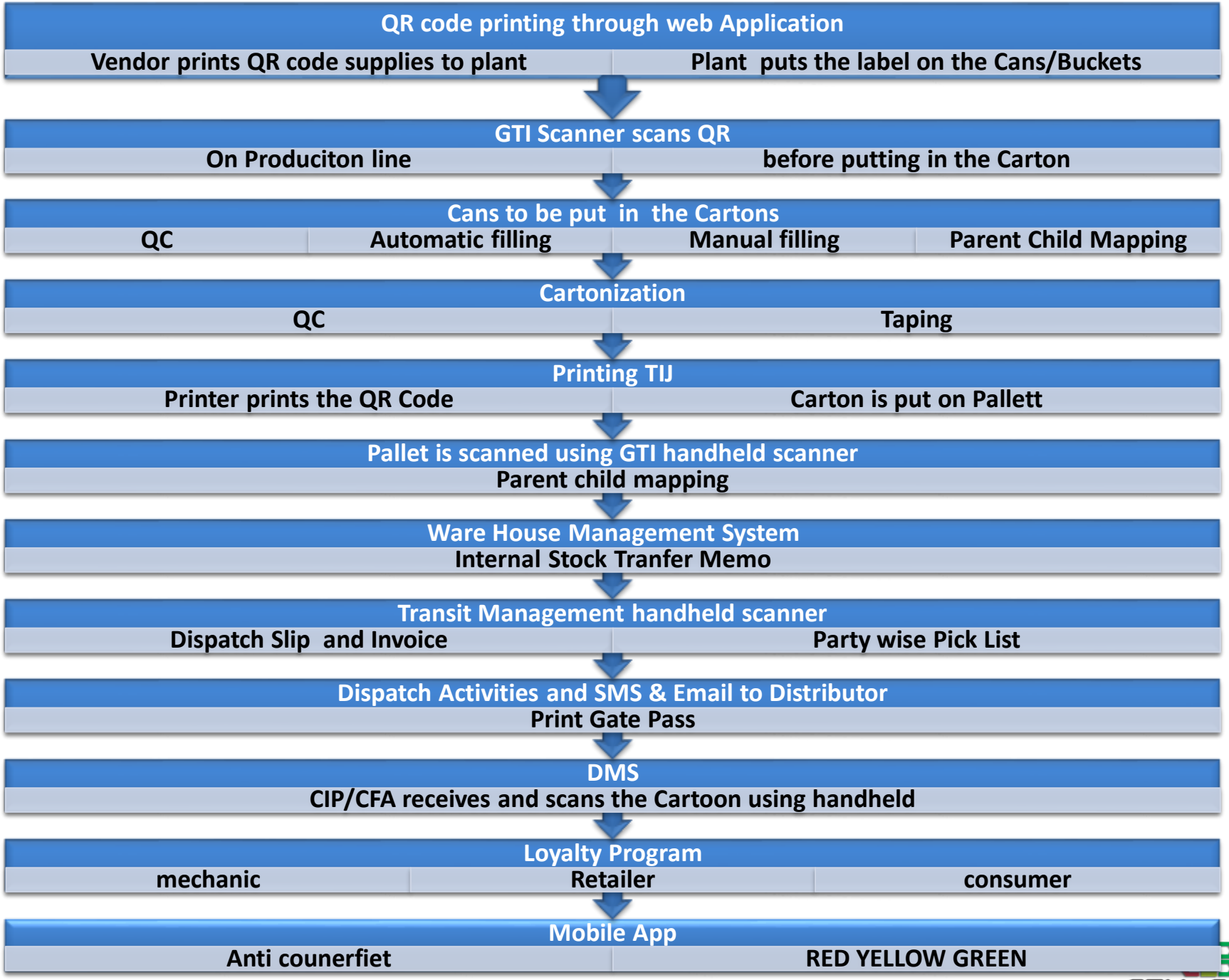
COMPLETE PROCESS FLOW



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DETAIL PROCESS 1 (production)

1. Label Printing

- Printed at the Label Manufacturer
- Realtime with no option to store to curb counterfeit

2. Label Application

- Label Pasting
- Labels with pre-printed QR codes pasted on Cans

3. Filling

- Can Filling
- Oil filled by Auto machine

4. Capping & sealing

- Capping
- Caps put on can by Automatic machine

5. Weight Checker

- Weight Check
- By Auto machine

6. 1st online scanner (CAN Scanner)

- Online QR Code Scanner
- By GTI. To Scan and read QR code of can

Pneumatic rejection system

- Pneumatic Rejection System
- By GTI. Will reject any Bad QR code Read

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DETAIL PROCESS 2 (production)

5. PICK & PLACE SYSTEM
- Pick & Place System
- To put the SKU/Cans in Cartons

6. TIJ Printer
- TIJ Printer
- By GTI to print QR code on the Cartons (Parent-Child)

7. TAPING MACHINE
- Taping Machine
- To tape the cartons

8. 2nd Online Scanner
- Online QR code scanner
- By GTI. To scan the QR code of Carton

9. Palletization
- Palletization
- To put the Cartons on the palettes

10. Pallet Scanner
- Online scanner for Palettes
- By GTI. To scan the Palettes

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Current Process

1. Label Applicator

2. Oil Filling machine

3. Weight Checking Machine

4. Pick & Place Machine

5. Taping Machine

6. Pallettization

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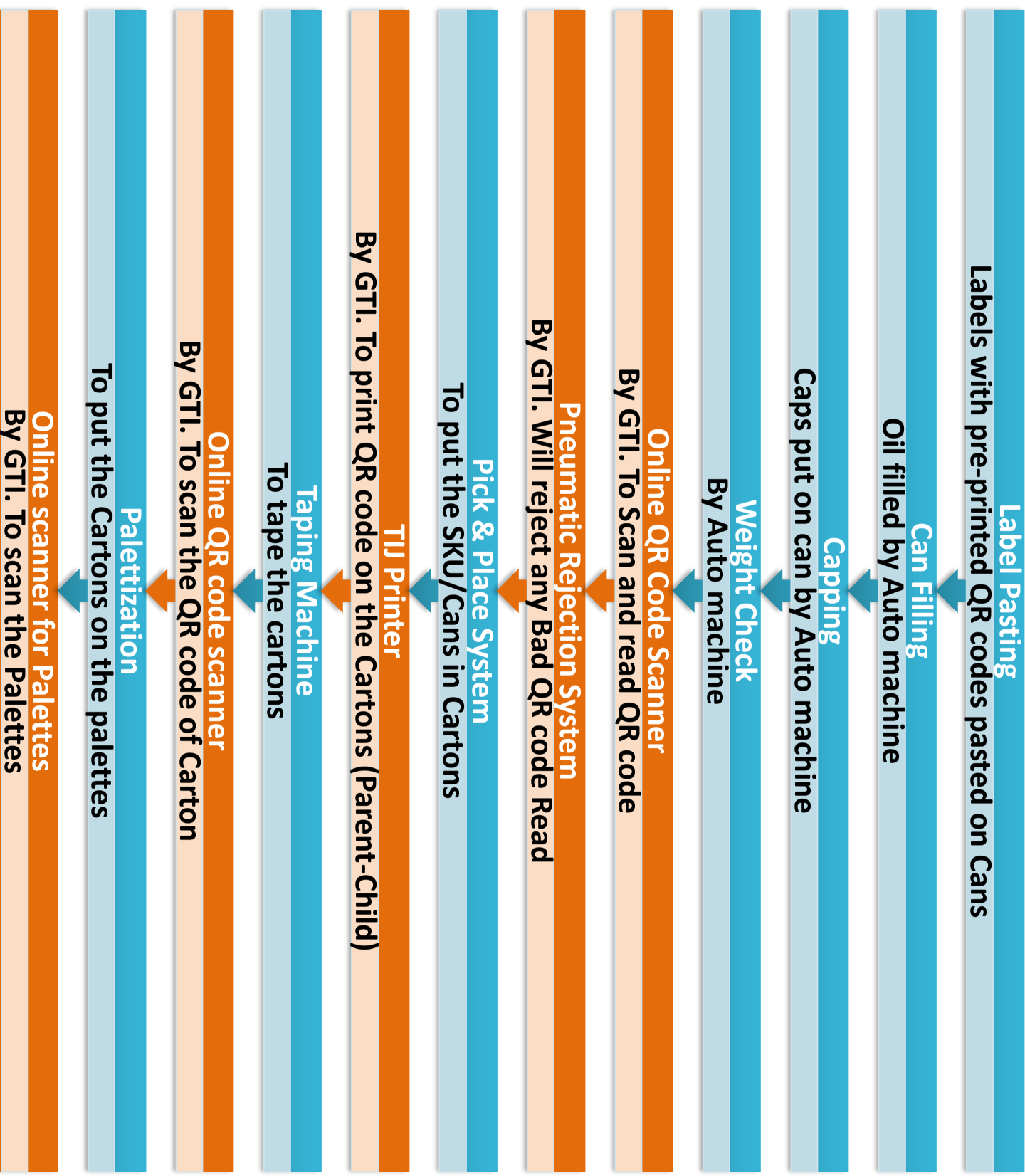
HSR FILLING LINE MANUFACTURING PROCESS (changes made)

(STEPS SHOWN IN DIFFERENT COLOR IS ADDED BY GTI IN THE LINE)



NEWAUTOPACK & OLD AUTOPACK FILLING LINE MANUFACTURING PROCESS (changes made)

(STEPS SHOWN IN DIFFERENT COLOR IS ADDED BY GTI IN THE LINE)

Label Pasting
Labels with pre-printed QR codes pasted on Cans

↓

Can Filling
Oil filled by Auto machine

↓

Capping
Caps put on can by Auto machine

↓

Weight Check
By Auto machine

↓

Online QR Code Scanner
By GTI. To Scan and read QR code

↓

Pneumatic Rejection System
By GTI. Will reject any Bad QR code Read

↓

Manual Pick & Place
To put the SKU/Cans in Cartons

↓

Change need in Production line
Slanted Roller conveyor needed with 1.5 to 2.0 m length (15cm slant)

↓

TIJ Printer
By GTI. To print QR code on the Cartons (Parent-Child)

↓

Taping Machine (if available)
To tape the cartons

↓

Online QR code scanner
By GTI. To scan the QR code of Carton

- Label Printing
- Production
- Inventory
- Warehouse
- Transit
- Distribution
- Customer Management
- Analytics

LABEL PRINTING MODULE: @Label Manufacturer

- Label manufacturer vendor will get an online login based on authorization of IOCL, into the software wherein they can login and print online.
- The numbers generated is never stored/ downloadable in a transferable file thus making the system fool proof in terms of randomized number protection. The numbers are created real time (just while printing).
- The process is defied accordingly as the Data entry of PO will be done in the Portal by IOCL for the respective Vendor to whom the Order for Printing the Wrappers or the Sticker is being given.
- The Fields consists of following:

  PO Number

  PO Date.

  Plant Code. (Dropdown)

  SKU Code. (Auto Completer will Populate from Product Master)

  QR Code Quantity.
- After completing the Data entry, a mail will be sent to a respective Vendor for Printing of QR code on real time basis. A Link of the Software will be provided in the mail
- On clicking the link a Login Page will open and from that page he can Log in to the Software and print the QR Code on Real Time Basis.

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Inputs required for the Process of Printing Labels at Label vendor ends:

- PO NO: PO number will be the Number which is mentioned in PO send by Head Office or by Plant. PO Number have dropdown and fill automatically.
- Plant: Fill Automatically if PO selected
- SKU Code , Item Name , PO Quantity , Balance Quantity: Fill Automatically if PO selected
    - *For Example:*
    - *PO quantity = 100000 Label for printing*
    - *Printing had done for 10000 Label with respect to given PO*
    - *Balance Quantity will be 90000 Labels.*
- Print Quantity: Manually Entry
- Tolerance: Tolerance is average how much quantity of label get wasted due to improper printing of QR code on label. Currently it is 10 percent maximum of total quantity of PO
- Partial PO can be generated and the Printing for the same is also possible.
- Rejection of QR code that are not printed due do any reason to be captured

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Inputs required for the Process of Printing Labels at Label vendor ends:

Then enter details on given fields:
PO number -
skucode –

And rest of the details will automatically populated from the database server.

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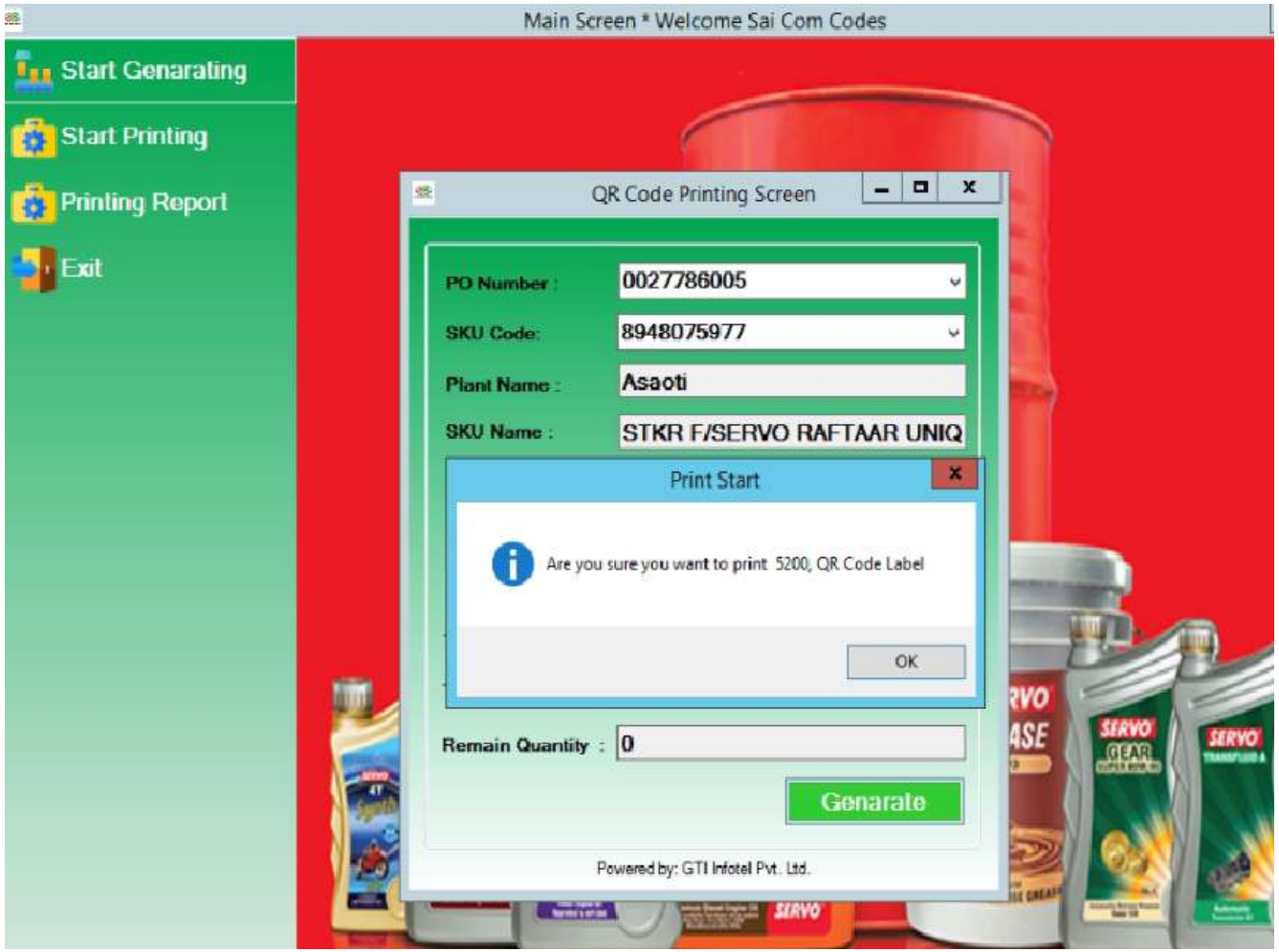
Inputs required for the Process of Printing Labels at Label vendor ends:



When enter Quantity details then this type of pop-up message comes on screen.

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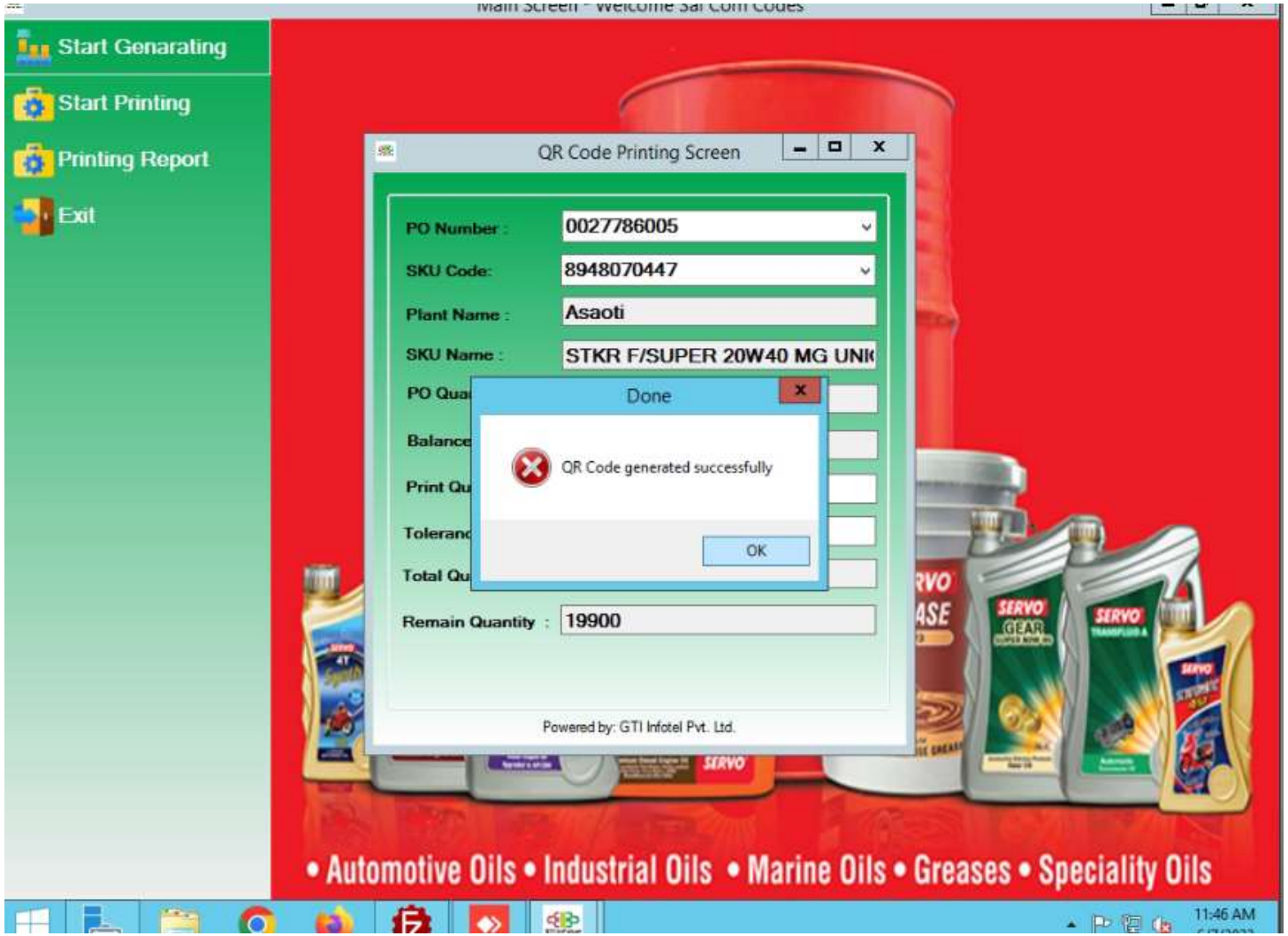
Inputs required for the Process of Printing Labels at Label vendor ends:



When QR Code generated, then successfully generated message comes on screen.

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PRODUCTION MODULE FOR HSR & NEW AutoPack FILLING LINE

- Filling & Manufacturing
  - Label Applicator
  - Oil Filing
  - Weight Check
  - Online Scanner 1
  - Good Read/Bad Read
  - Pneumatic Rejection
  - Online Scanner 2

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PRODUCTION MODULE

- Pick & place of the Cans
  - TIJ Printing to print QR code on the Carton
- Cartonization
  - Taping Machine
  - Scanning to scan the QR code of the carton
- Palletization
  - Scanning the palette

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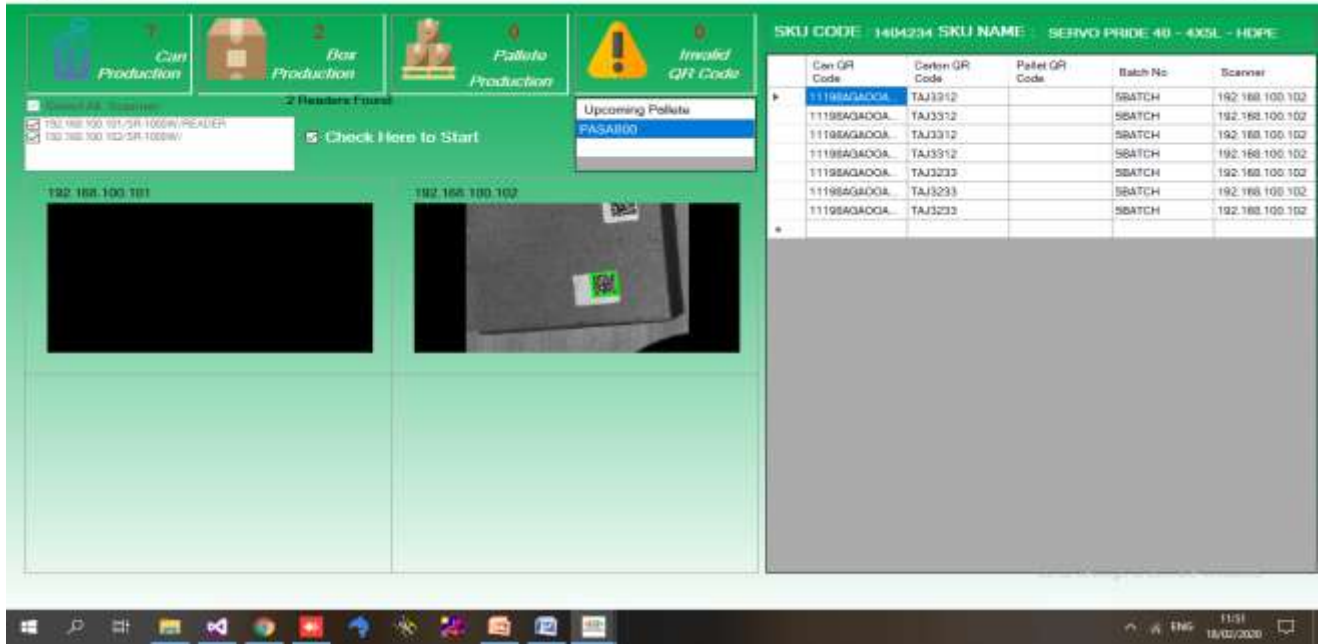
PRODUCTION MODULE: SCREENSHOTS



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INVENTORY MANAGEMENT MODULE

- Inventory Module will take care of all the Inventory of the Production. It will be taking care of the GRN of the material
- The Pick list of the material will be generated from the data received from the IOCL SAP and the User will generate the Pick list of the material to be dispatch from the plant and select the dispatch Bill Wise or Client wise as he fees easy.
- The Pick list will also show him the Pallet and the place of Rack where the material is being stored. So he can easily pick the material by the forklifts and fill the container.
- The HHT will be used for the Picking of the material and Pick list will be generated from the Windows application provided in the Plant App.
- The Picker of the Material can select the Pattern of Dispatch of Material on LIFO/FIFO/Weighted average methods. He can select from the HHT and do the work Smoothly.
- The HHT will manage the Internal Transfer from Production Go down to the respective Storage in Bins and Racks, return of Goods and transfer from go down to Go down.
- This module will cover all the inventory tracking of the Godowns as well as the locations & Racks

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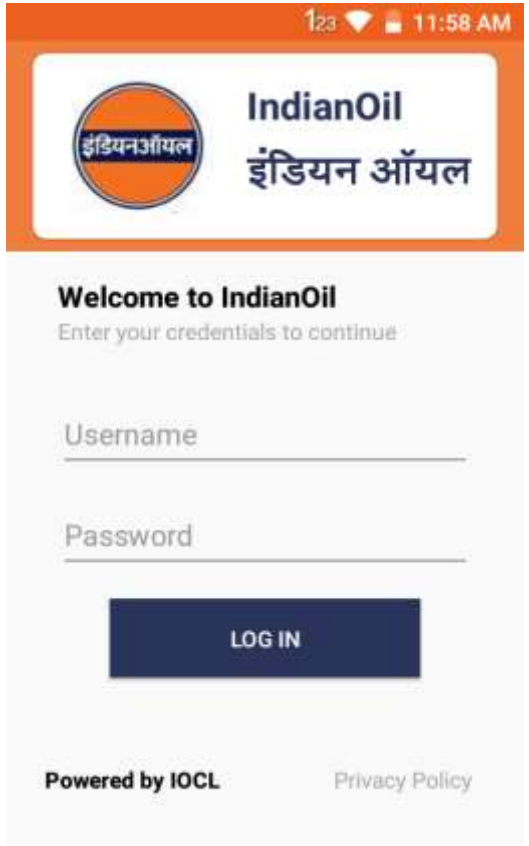
INVENTORY MANAGEMENT MODULE

- The inventory can be traced by SKU, Weight, JARS, Container, Drums, Pallets, Mfg. Date, Batch Number, Production time, Operator, and so on.
- All the inventory of the Location or the Dealer or the Stockiest or the CFA will be managed by this module, provided the data entry is done correctly.



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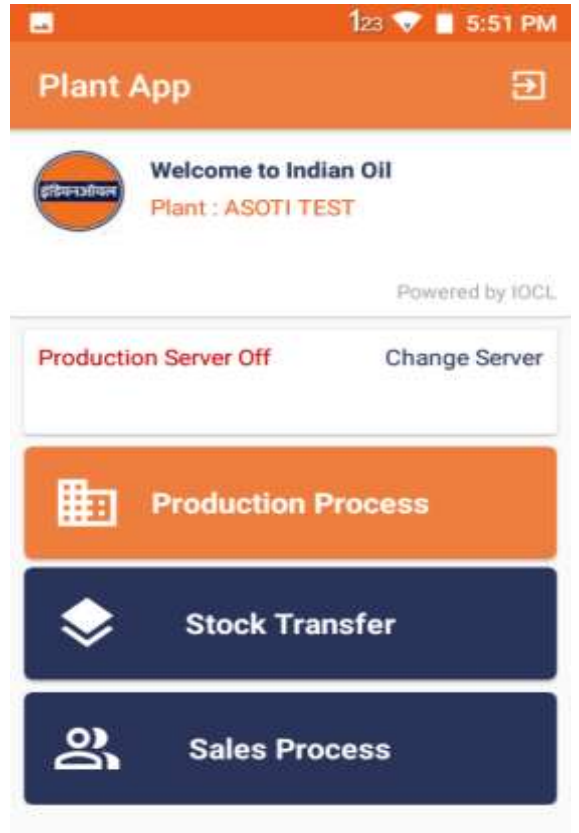
INTENTORY: WAREHOUSE MANAGEMENT SUB-SYSTEM

- The process of Goods dispatch from the Warehouse to the Various agencies will also be carried out by the Software designed for this project. As per the existing process which is carried out manually. The process of software will also follow the same principles of dispatch i.e. FIFO method
- When the Process starts, the user will input the name of the vendor where the goods are to be sent. We request the Data to come from the SAP for integration. As we will sync the data with SAP and make the PICK LIST ready for dispatch
- Pick List Generation.
- Display the Location of All Pallets to be Picked.
- Picker Scans the Pallet to be Picked (ensuring the correct pallet is being allowed to pick. If wrong pallet scanner (Message of Wrong Pallet to Show in RED). If correct pallet scanned will show Green. Also to ensure that the Last dispatch Location to be place at the end of the Vehicle and Picked first.
- Out Gate Pass to be Generated from the System.



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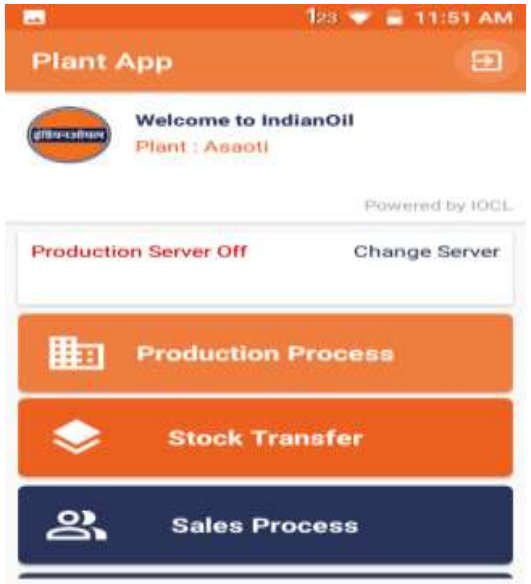
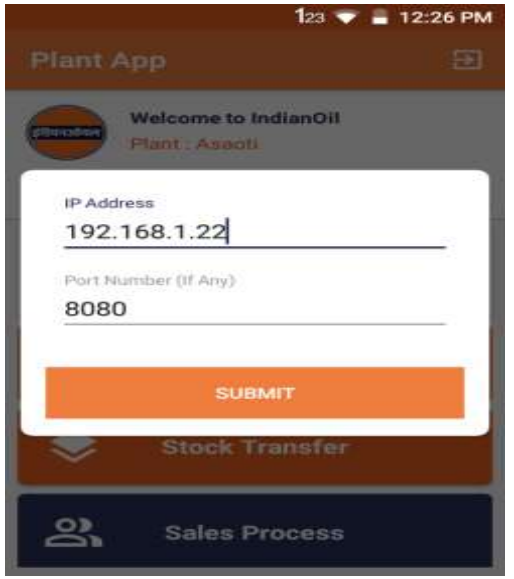
Plant App

- Plant Users login with Username and password
  For example: **Username** – Asaoti
  password - abc@123
- First Click on change server and set IP address.
- Modules that will appear plant users:
- **Production Process** –
  Assign pallate on bucket line, HSR and manual line(NEW AutoPack & Old AutoPack) local server
- **Stock Transfer-**
  CFA BillList (Invoice Details)
  CFA Successful transfer
  Assign Rack
- **Sales Process-**
  Pending sale Bill (Invoice Details)
  Successful sale Bill
  Cancel Bill
- **Discard Stock-**
  when Carton leak or damage then scan cans or carton QR Code.

Login

Main Screen





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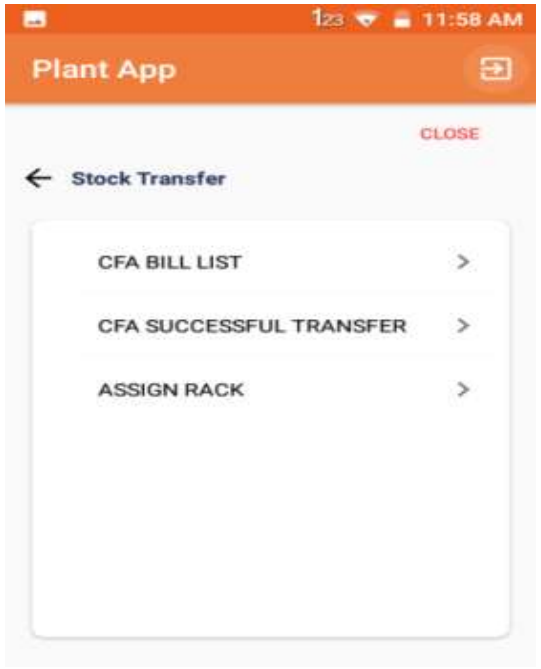
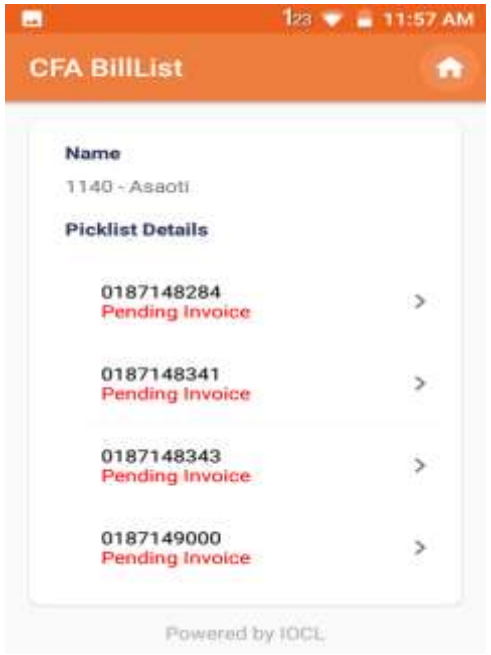
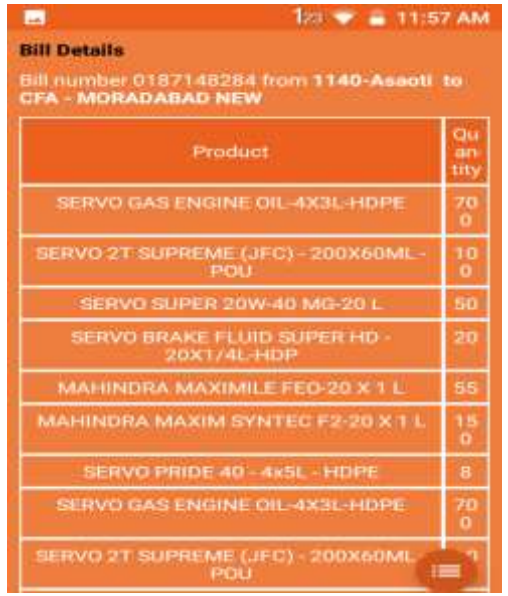
Stock Transfer



CFA Bill list



Invoice Details

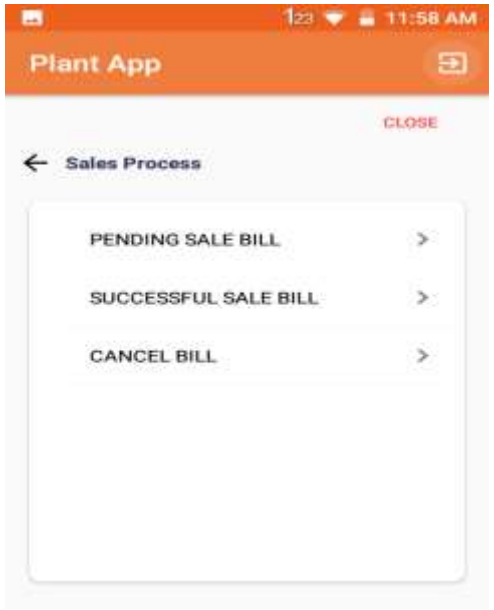


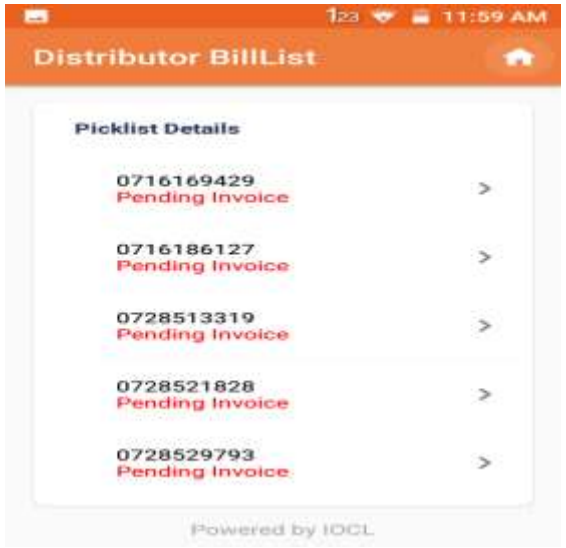
Assign Rack-

Scan assign pallate rack locations to orders.

Display list of recently scanned pallate

Sales Process





Discard Stock

Distributor App

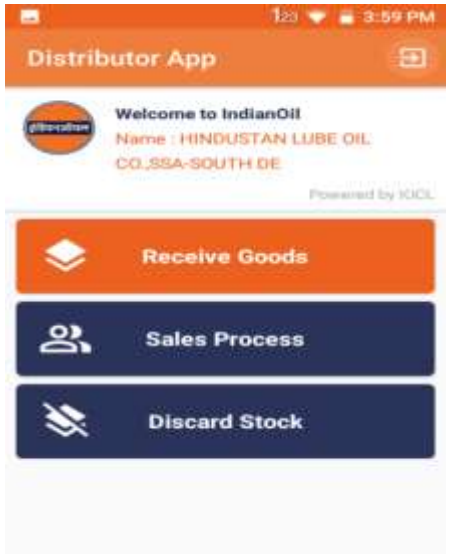
- Plant Users login with Username and password
  For example: **Username** – Dist
  password - abc@123
- Modules that will appear plant users:
- **Receive Goods** –
  Multiple goods inward
  One Touch inward
  Receive goods

- **Sales Process-**
  Pending sale Bill (Invoice Details)
  Successful sale Bill
  Cancel Bill

- **Discard Stock-**
  when Carton leak or
  damage then scan cans
  or carton QR Code.

Login

Main Screen



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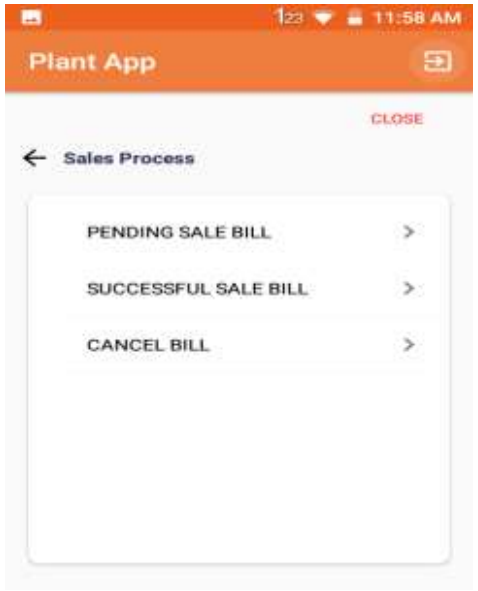
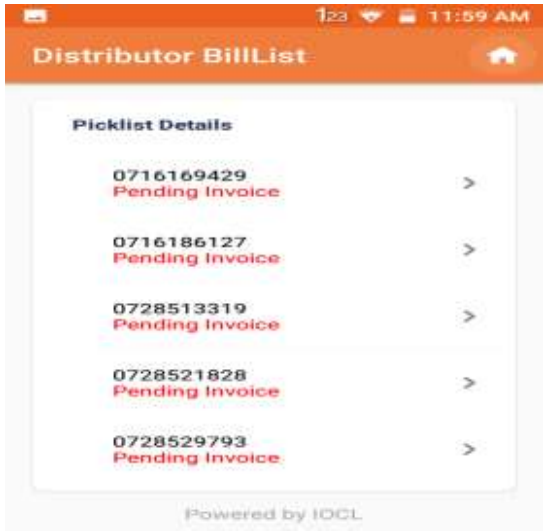
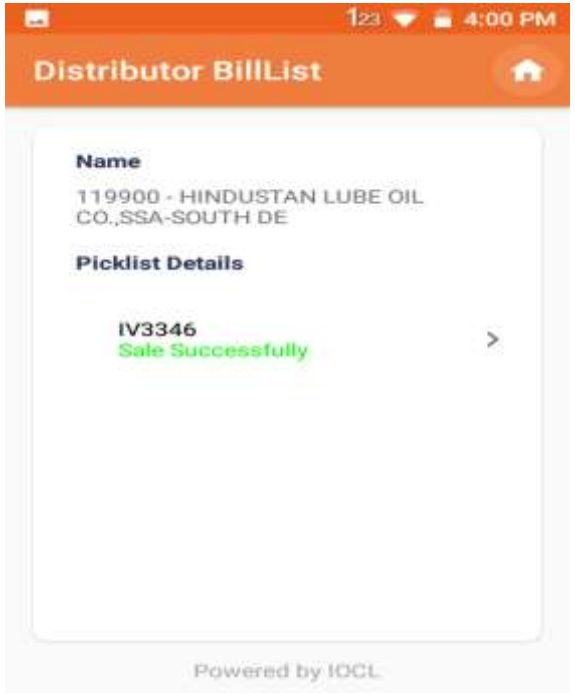
Sales Process







Discard Stock

CFA App

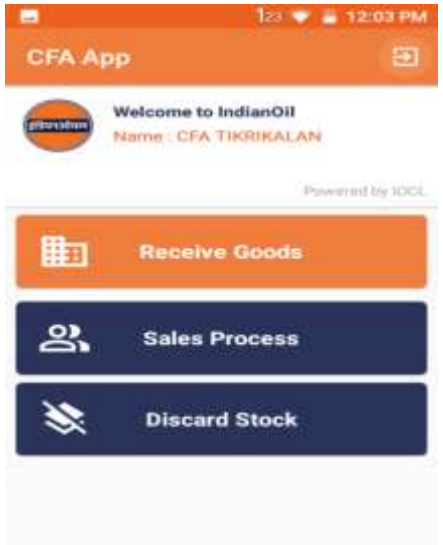
- Plant Users login with Username and password
  For example: **Username** – cfa
  password - abc@123
- Modules that will appear plant users:
- **Receive Goods** –
  Multiple goods inward
  One Touch inward
  Receive goods

- **Sales Process-**
  Pending sale Bill (Invoice Details)
  Successful sale Bill
  Cancel Bill

- **Discard Stock-**
  when Carton leak or
  damage then scan cans
  or carton QR Code.

Login

Main Screen



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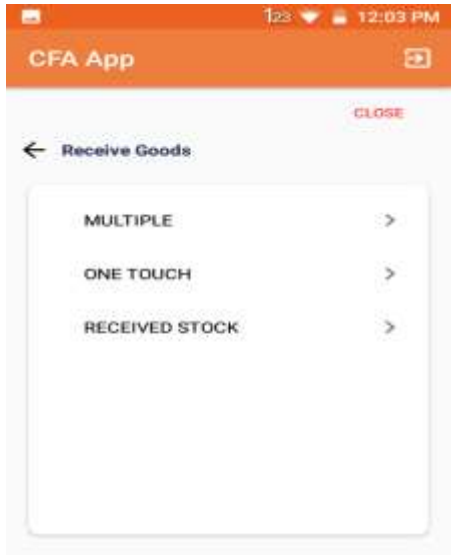
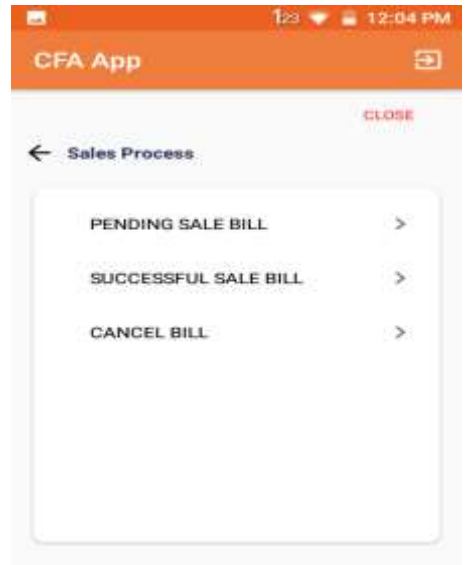
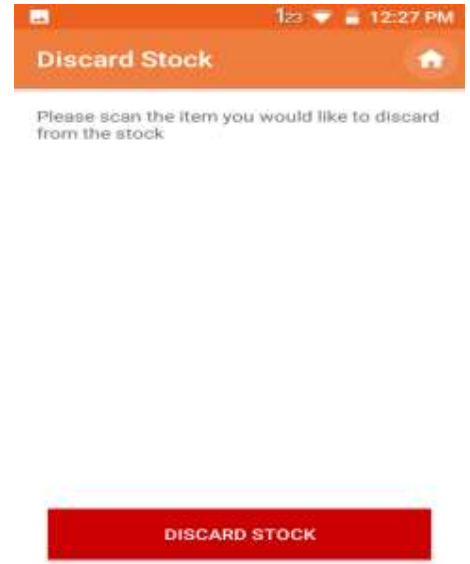
Receive Goods



Sales Process



Discard Stock



TRANSIST MANAGEMENT MODULE

- The Transit Management System will enable the user to visualize the Stock status with location and all the Stock in Transit undelivered to the Customer.
- Enable transit visibility - stock status across the storage locations and in transit stock status visibility. Other features include:
- Provision of advance shipment notice (ASN) to enable stock intake.
- The system should be capable of handling exception at the time receipt of material.
- Exception list includes but is not limited to - In transit damage, missing stock, excess stock.
- The TMS will also displayed the Delivery information of the Goods to the Customer and also will record any mishandling of goods during the transit and the return of goods due to Damages, missing of goods, return of Goods due to Mismatch of Order or Excess stock sent to the Customer.
- The TMS will also display the availability of the stock to enable the ASN module to grow sales better. The data in the ASN will come from the Order Booking Module of the IOCL app.

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A Maharatna Company

Indian Oil Corporation Limited

Plant - ASOTI
M/s. Indian Oil Corporation Limited, Vill. & PO Asaoti, Palwal, Haryana-121102
Phone No: 7045993679 **Email ID:**
GSTN No:

DESPATCH CHALLAN

CFA Name : HINDUSTAN LUBE OIL CO.,SSA-SOUTH DE
Address : 53, Village Bagdola, Opp Dwarka, Sec-8, Palam
GST No : 27AAJPS1483N1Z0

Challan No : 20200129
Transport : RANJI - CHANGE IN VENDOR

Sr No.	SKU Code	Description	Quantity
1.	1404234	SERVO 4T-20X1L-HDPE BIO14042345BATCH301220190210421014 3, BIO14042345BATCH3012201902104710286, BIO14042345BATCH3012201901373537143, BIO14042345BATCH3012201901031403429, B14042345BATCH3012201903525152286, BIO14042345BATCH311220190412471257 2, BIO14042345BATCH2612201918293329286, BIO14042345BATCH311220190412421242 9, BIO14042345BATCH2712201913462246143	4
2.	894807	STKR F/SERVO CBO 4T 20W-40 900ML BIO14042345BATCH301220190210421014 3, BIO14042345BATCH3012201902104710286, BIO14042345BATCH3012201901373537143, BIO14042345BATCH3012201901031403429, B14042345BATCH3012201903525152286, BIO14042345BATCH311220190412471257 2, BIO14042345BATCH2612201918293329286, BIO14042345BATCH311220190412421242 9, BIO14042345BATCH2712201913462246143	5

I/We hereby certify that my/our registration certificate under the GST ACT 2017 is in force on the date on which the sale of goods specified in this tax invoice is made by me /us and that the transaction of sale covered by this tax invoice has been effected by me /us and it shall be accounted for in the turnover of sales while filingthe return and due tax, if any, payable on the sales has been paid or shall be paid.

Remarks:

For Indian Oil Corporation Limited

This is system generated Challan, hence does not require signature.

Authorised Signatory
E& O.E.

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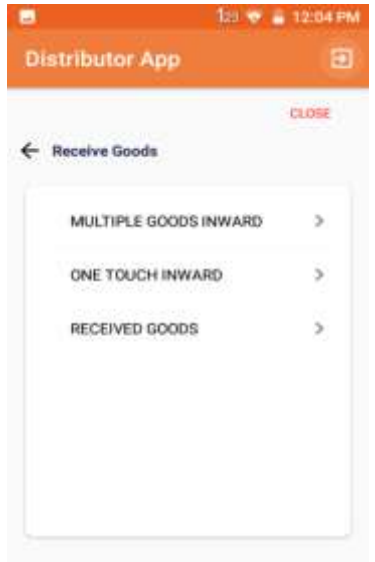
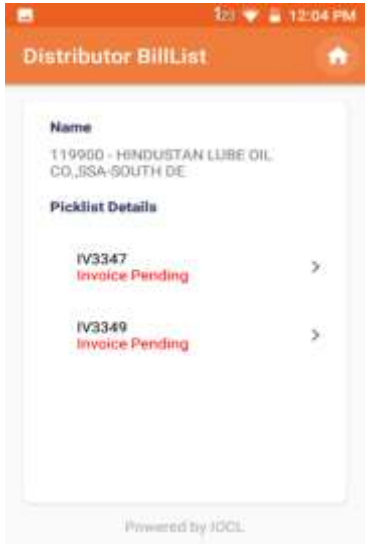
DISTRIBUTION MANAGEMENT SYSTEM

- The DMS will be taken care with either HHT or the client server PC. The Goods dispatched from the Plant Location will be automatically transferred to the distributors
- Distribution Management system module will enable IOCL to automate inward and outward stock process at the distributor end. This module will enable IOCL to have visibility of stock across all locations as well as automate delivery.
- The system will be capable of handling sales returns as well as financial modules like GL, AR and AP
- The DMS module will have a Field force application. The field force module should be mobile based and compatible across all mobile platforms – Android & IOS
- Anti counterfeit





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Distribution Management: Anticounterfeit and Mobile App for Distributors

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LOYALTY PROGRAM MANAGER

- Loyalty program will be enable the features of self-sustaining loyalty program, analytics on the data gathered, user group wise access, Geo mapping, authorization of Distributor, retailer, mechanic and consumer based on the UID such as Aadhar no, PAN or any other KYC as per IOCL instruction. Software shall have the feature to avail the loyalty program by specific consumer.
- We have designed the system in such a way that IOCL will get the below features:
  - End-to-end journey of the SKU (from plant to retail outlet / consumer)
  - Live inventory tracking at each node
  - Stock freshness at each node (% of stock 1-day old, 1-week old etc.)
  - Avg. time spent in transit between each node along with ownership for delay
  - Restricted information and access levels for different stakeholders in the supply chain
  - Tracking re-use of any SKU / bottle in supply chain
  - System / equipment to be compatible with auto-cartonizer and auto-palletizer on filling lines

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LOYALTY POINT PROGRAM

Loyalty program will be enable the features of self-sustaining loyalty program, analytics on the data gathered, user group wise access, Geomapping, authorization of Distributor, retailer, mechanic and consumer based on the UID such as Aadhar no, PAN or any other KYC as per IOCL instruction. Software shall have the feature to avail the loyalty program by specific consumer.

The Android / iOS App will Contain the below feature for the end user to manage the Points.

- Registration Page.
- Dashboard.
- Encash Loyalty Point – Scan Barcode
- Loyalty Points Ledger.
- Product Barcode Authentication.
- Product Gallery.
- API for Payment Gateway (Provided by IOCL)

The more constrain may arise , if the end user will not be using a Smart Phone. He can also manage the Loyalty Point programme via SMS interface provided by the IOCL.

- With this SMS gateway he can
- Register himself once from the Mobile number.
- Can redeem the Loyalty Points.
- Can see the Collection Points Ledger.
- Can Redeem the Points.

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CUSTOMER MANAGEMENT MODULE

Customer management system an important aspect of this project. Also it is integrated with SAP:

- The data may be to and fro transferred if required. All the relevant data belonging to the customer to maintain authenticity is being maintained in this module. This starts from:
- Customer Mater Creation. (ADD/EDIT/DELETE)
- Customer Order Booking (ADD/EDIT/DELETE)
- Customer Order Confirmation (ADD/EDIT/DELETE)
- Customer Billing Gate Pass (ADD/EDIT/DELETE)
- Customer Despatch Billing (ADD/EDIT/DELETE)
- Customer Goods Rejection/Return (ADD/EDIT/DELETE)
- Customer Loyalty Point. (ADD/EDIT/DELETE) Managed by App
- Customer Goods Stock History.
- Customer High / Low Purchase History.
- Customer Grievances
- Customer Feedback
- Customer Inform about Status of Delivery

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ANALYTICS

All the reports related to the Inventory, Production, Storage in Ware House, Transit and so on for all the modules will be coved integrated.Number of times a particular QR code has been scanned

Graphical representation will also be provided for analysis and reports. Graphs such as Pie Chart, Bar Graph, Line Graph will be displayed on dashboard.

The reports includes the following:

- Production reports,
- Planned vs actual metrics,
- Stock ageing report,
- In transit report,
- Channel dispatch report,
- FIFO violation report,
- User activity report
- Capability to scale up for predictive analytics

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SAP AND CLOUD HOSTING

- Track and trace software is integrated with IOCL SAP to fetch data such as
  - PO Number,
  - PO Quantity,
  - Date,
  - Invoice no. and
  - The date to generate reports.
- GTI Cloud is hosted to sync the data from Distribution server at 10 locations and generate reports.

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General Operating Guidelines/Do’s and Don’t

- Please select proper SKU Code, Batch Number as per line
- Please check whether printer & Scanner Power is on
- Please insert cartridge of printer before printing
- Please remove cartridge at end of day and cap it well
- Please do not touch the printer monitor screen
- Do not take out cans that has been scanned
- Keep the Handheld scanner charged
- Keep the Palette placed & scanned before production start
- Palette placement has to be in front of scanner

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SUPPORT REQUIRED FROM PLANT/HO

- No Intervention of any human being between lines after scanning of can and till carton stacking of pallet would be there i.e. Non removal of can/carton or placement of Can/Carton during running of production line software on conveyor.
- Carton which is placed for store can during production process should be in good condition and should be fresh carton,Waviness carton should be not used as printing of QR code on such carton should be non- scannable.
- Matter which is printed on carton should be in same position for every carton of same SKU, Printing of matter should not be upward or downward.
- Require space for printing QR code on carton which is not fixed for 5 Litre,4 Litre and 3 Litrecartons
- Plant should help in protecting material which is installed at conveyor,Reason for asking this that printer screen installed in Taloja plant are destroyed by contract labours.Rules should be there contract worker should not harm to installed component at site

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SUPPORT REQUIRED FROM PLANT/HO

- Plant should have motorised conveyor for scanning QR code of carton.
- Plant should help us by making strict rules that not to remove ethernet adapter for plugging contract worker mobile charger, fan and other Equipment.
- Plant should help us by giving pallet to fix metallic Bar code
- Plant should give lines for testing of software.
- Schemes and claims management – Application linked with UPI / Other payment platforms (Paytm,Ru-pay etc) for direct disbursal of schemes during inward/outward at distributor or bazaar outlet.
- Provision for multiple login credentials in the system for accessing the same by different hierarchy of IOCL Users,resellers,customers in the supply chain for managing the traceability and loyalty program.
- What is the functionality of each login? Needs to be defined.
- Validation check to be defined.
- Plant should provide One small printer for printing QR code-based challan.

THANK YOU!

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