USER'S MANUAL

Electronic Appliances

July, 2016

Revision Sheet

Release No.	Date	Revision Description	Created By
Rev. 1	7/18/16	Creating the User Manual	Asheni De Silva
Rev. 2	8/29/16	Updated the User Manual	Asheni De Silva

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1.0 INTRODUCTION

1.1 About Electronic Appliances

The Internet of Things, the devices and the applications make every day appliances into smart way of the things easy and promising to make all your tasks fulfilled at the flick of a finger from wherever you are in the world.

Electronic Appliances depicts the information of the washing machine located worldwide and from its manufacturing detail to the washes it makes inclusive of faults and error identifications. Two perspectives available in the application as Marketing Manager and Engineering Manager furnishes the capability to view the information in two angles in order to make use of the data to trigger future actions.

Marketing Manager View produces details which are useful in sales and marketing actions. In concert with the details available in the view he could be highly focused, detail oriented and conscientious to meet budget in future actions he could make. At a glance the distribution of the sold products will be exhibited in the view to have a clear understanding. Demographical filter could affect all the choices a business mind makes in developing the marketing plan. Twitter Insights may provide a proactive way to consult the customer in furtherance of presenting better responses in coming products. The configurable Notifications keep the Marketing Manager in alert to move through the contents encountering the defect areas as well as the positive spikes in products to be concerned. All the filtered information available, could be downloaded as reports (pdf in current version) for further references.

Apart from all the Marketing aspects, application provides the Engineering Manager view inclusive the details apparent for an Engineering Manager concerned with the application of engineering principles to business practice with technological problem solving. Basic technological requirements and the consumption of the particulars are framed out in the view to take the understanding before triggering an action. Models with least and most faults, Common faults are in Insights for the knowledge of cause and effects based on identifications of relationships with Notifications prompt in Notification area to solve the technical problems arise in the product.

1.2 Points of Contact

Type of Contact	Contact Name	Department	Telephone Number	E-Mail

2.0 SYSTEM SUMMARY

2.2 User Access Levels

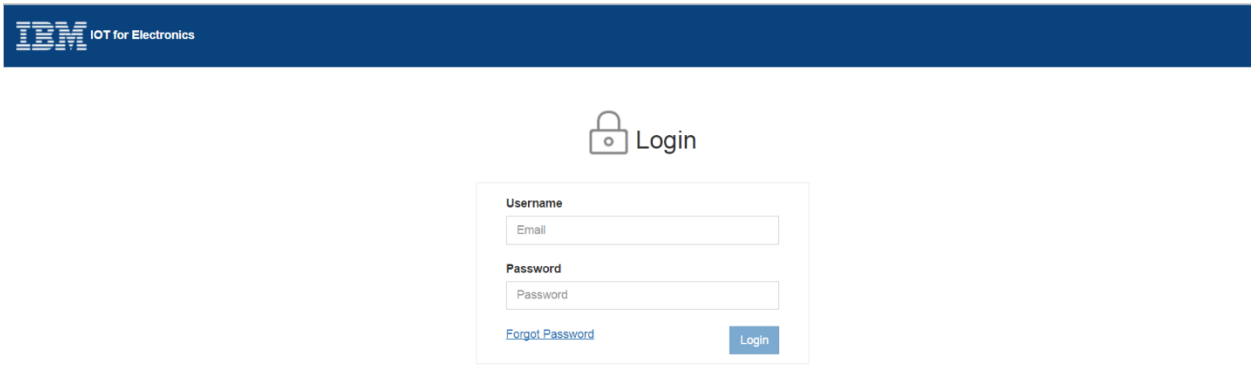
Marketing Manager – This access level provides the Marketing perspective of the application to the user. User would be redirected to the Marketing Manager Dashboard once login to the application. Registering as Marketing Manager cannot contribute content but this may allow the user to configure the Notifications to be prompted in the Notification area and download the reports displayed in the Data Grid. More details of this dashboard would be provided in the section 4.1.

Engineering Manager – Engineering Manager access level allows the user to login to the Dashboard view in Engineering Manager perspective by providing the relevant credentials required. Same Privileges are provided as to the Marketing Manager, where he could configure the notifications and download the data grid details as a report. Further information regarding this view are available in the section 4.2, of the document.

3.0 GETTING STARTED

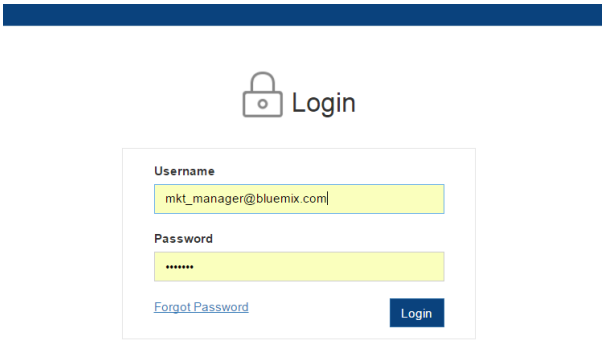
3.1 Logging On

The screenshot below depicts the Login page of the application for the registered user.

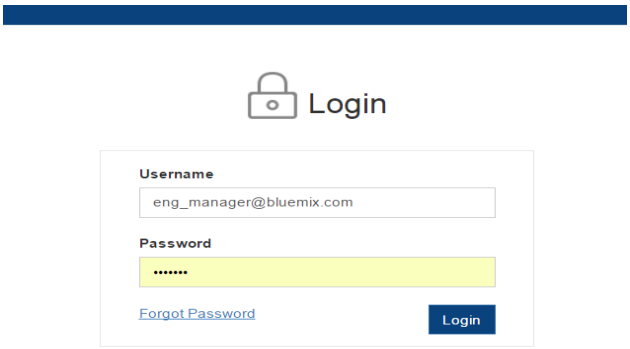


Two user accounts are provided to be logged in with the above user roles for demonstration purposes.

1. As Marketing Manager



1. As Engineering Manager

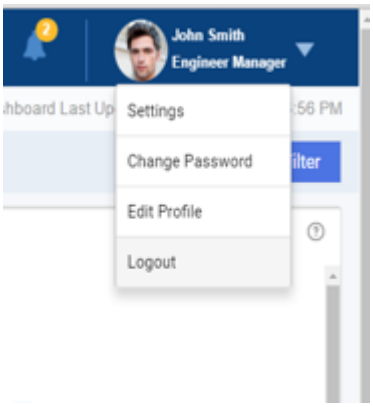


3.2 Changing User ID and Password

Password can be reset by selecting Change Password option given in the User Drop Down of the top right hand corner of the page which is not yet provided but to be built.

3.3 Exit System

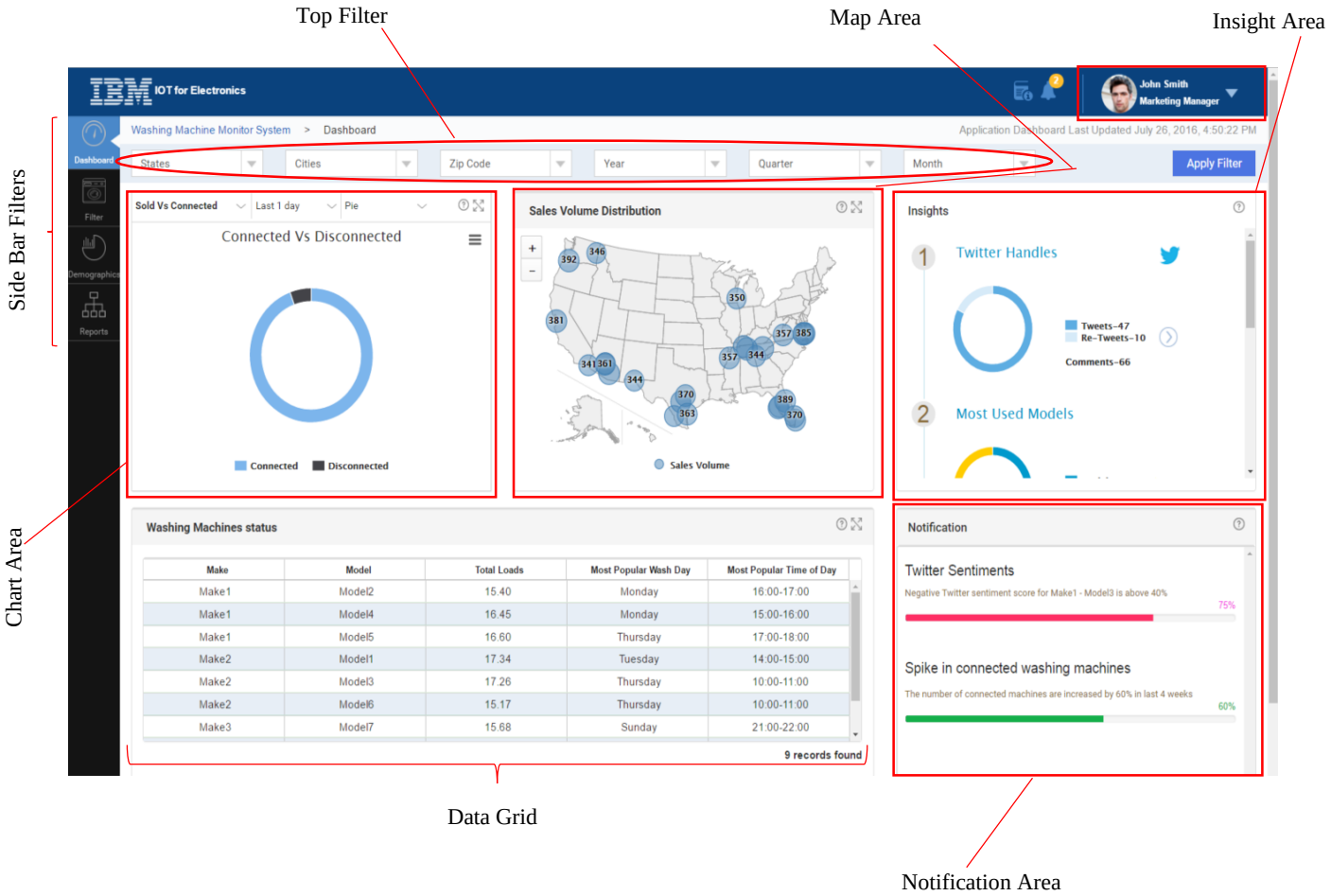
User can be properly logged out from the application by selecting the Logout option given in the User Drop Down of the top right hand corner of the page.



4.0 USING THE APPLICATION (ONLINE)

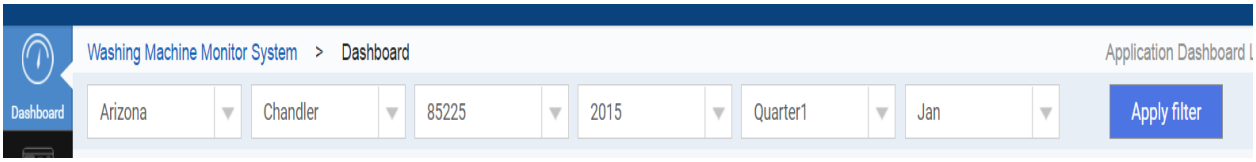
4.1 Marketing Manager View

As per the registered user steps the user will be navigated to the related dashboards, and the Marketing Manager Dashboard view would be as follows,



4.1.1 Top Filter

Provides to make selections according to the State, City, Zip Code of where the washing machine is located (Which will display on the map) and the time period which can be filtered in relate to Year, Quarter of the year and the Month. Each of these fields provides drop downs to be selected according to the requirement.



Example scenario for Top Filter selection
01. Select State as 'Arizona' from States drop down list
02. Select 'Chandler' from the Cities drop down list
03. Select '85225' as Zip code from Zip code drop down list
04. Select '2015' from Year drop down list
05. Quarter can be selected as 'Quater1'
06. Select Month as 'Jan' from the drop down list
07. Click 'Apply Filter' button

The changes occur as following,

- Locations chose appear on the map with denoted bubbles in blue
- Chart area shows the Connected Vs Disconnected machine percentages according to the default selection of the side bar filters
- Data Grid gets updated according to the default selection of the Side Bar Filters

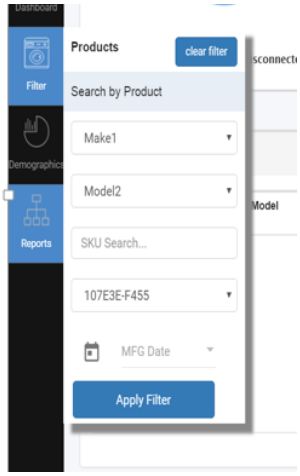
4.1.2 Sidebar Filter

Provides three filtering options

- Dashboard
- Product Filter
- Demographic Filter
- Reports

4.1.2.1 Products

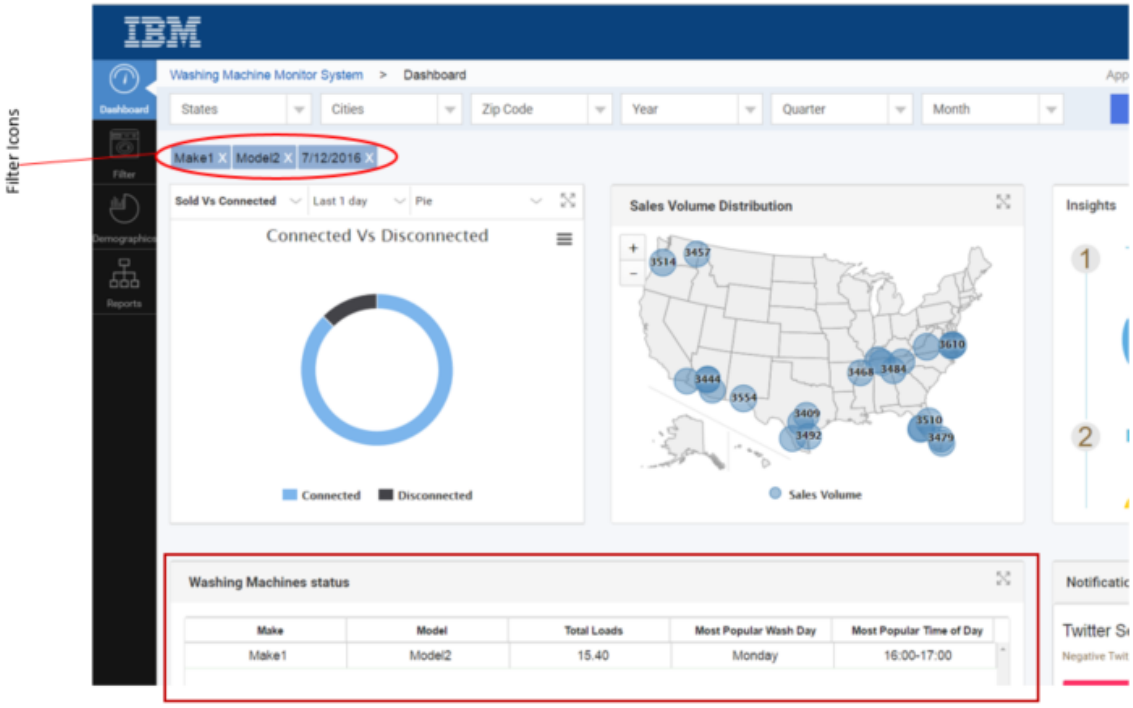
In the Products Filter option it allows the user the capability to search the product from its Make, Type (Model), SKU and Manufactured date (MFG). After this selection user can choose Apply Filter to add the selection or clear filter to cancel the current selection. The selections made will be added and displayed in the grid where the details of a particular washing machine is available (Currently, the multi-selecting feature is not provided).



Example sscenario for Product Filter
01. Select 'Make1' from make types' drop down list
02. Select ‘Model2’ from the model types' drop down list
03. Type SKU as "5KW7UN-0XC0” in SKU search dialog box
04. Select SKU from drop down list
05. Select manufactured date from MFG Date calendar
06. Click 'Apply Filter' button.

Following changes are applied in the view after applying Filter

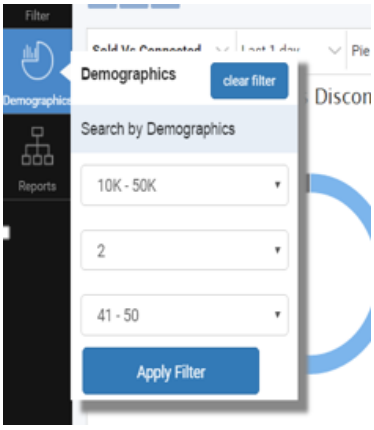
- The Filter pane gets closed when the button is clicked.
- Chart Area gets prompts the Connected Machines against Disconnected as per the selection
- Washing Machine Status data grid is updated according to the filtered items.
- Map will be rendered as per the side bar filter selections



In the data grid it displays total load of clothes the machine washed, the day of the week which the machine do most its washes and the time period taken.

4.1.2.2 Demographics

Demographic filtering option provides the user to make a selection based on the buyer population of the device. First dropdown will show several income ranges of the Buyers of the washing machine to make a filter. Second dropdown will allow the user to select the desired number of family members for the selection. The third drop down gives the age groups to be displayed in the particular selection.

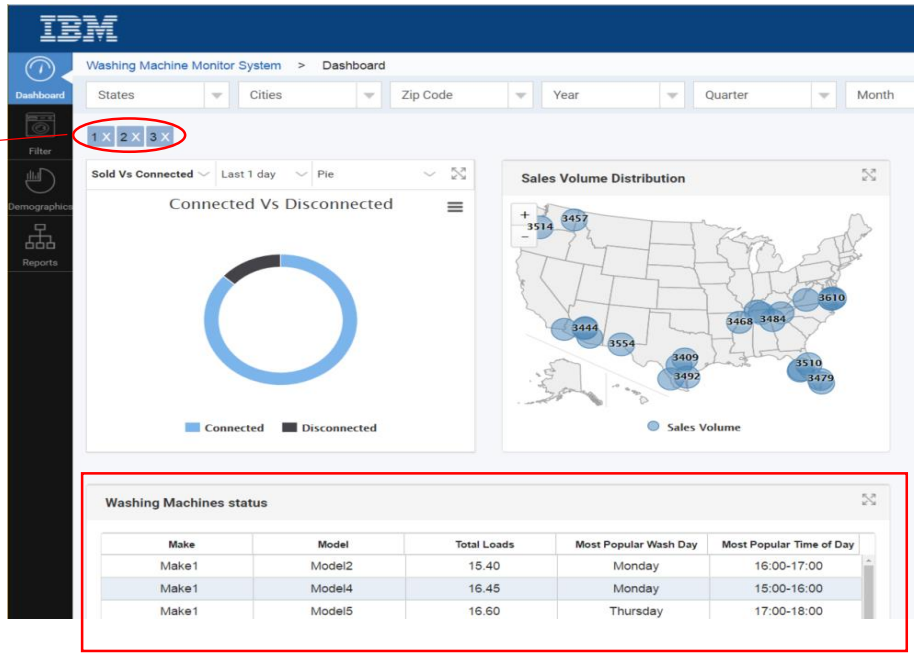


Example scenario for Demographics Filter
01. Select '10K-50K' from Income Range drop down list
02. Select '2' from the Family members drop down list
03. Select 41-50 from the Age Group drop down list
04. Click 'Apply Filter' button.

Following changes are applied in the view after applying Filter

- The Filter pane gets closed when the button is clicked.
- Filter icons in blue appear under the top filter bar
- Chart Area gets prompts the Connected Machines against Disconnected as per the selection
- Washing Machine Status data grid is updated according to the filtered items.
- Map elaborates the default selection of the Top Filter

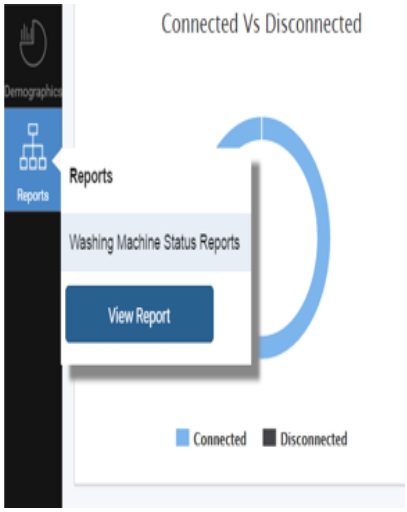
Filter Icons



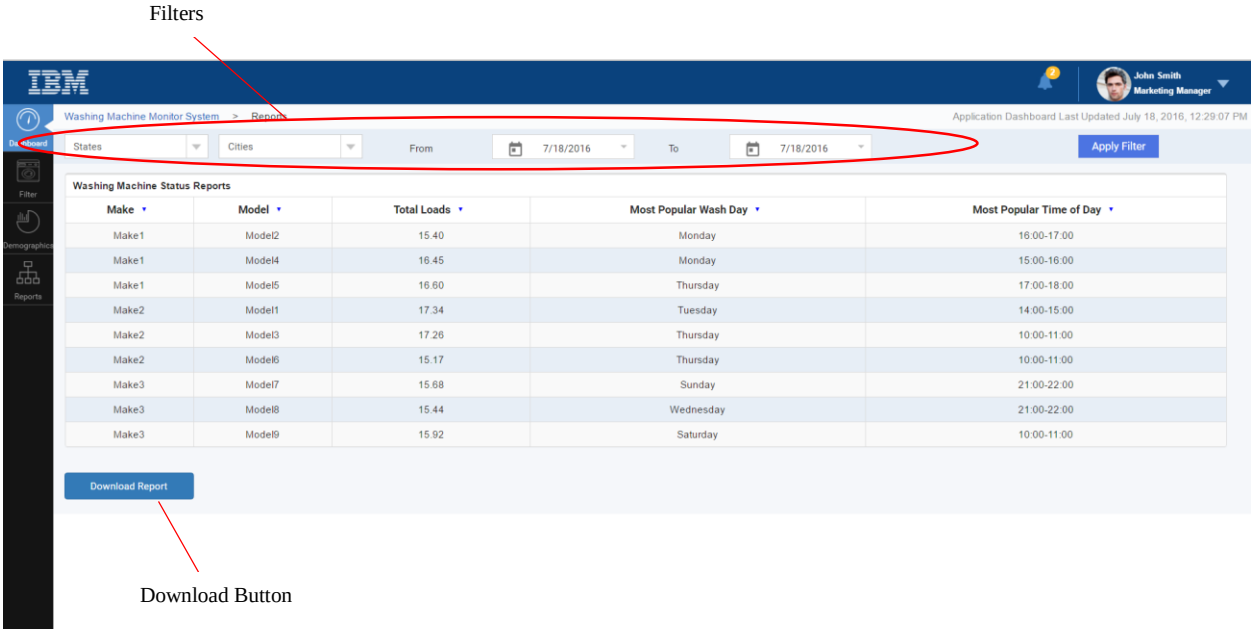
In the data grid it displays the Total load of clothes which a particular washing machine from the selected Make and Model washes that relates to the selected Demography.

4.1.2.3 Reports

This allows the user to filter all the data in the data grid and analyze the information of the Washing Machines as per the selections. Moreover, Reports provides capability to download all the current records displayed in the grid in pdf format to be referred when in need. Filters available there may lend the user to fetch the details required to be displayed in the grid.



The user will be navigated to the Reports by clicking the button, “Washing Machine Status Report”.



Filtered records in the grid may available to be downloaded by clicking the Download Report button where the user will get the details in pdf format.
According to the selections made in the Top and Side Bar filters following areas in the view will be updated,

- Chart Area
- Sales Volume Distribution (Map)
- Washing Machine Status Data Grid
- Insights.

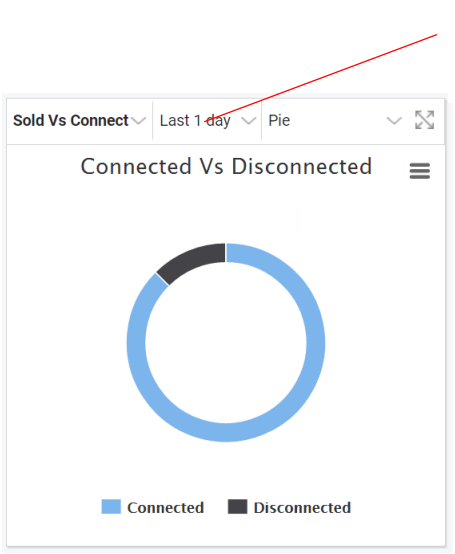
4.1.3 Chart Area

Chart area allows the user to select the following options to observe the details in charts related to the sales of the Washing Machines

- Sold Vs Connected
- Top 3 Selling Models
- Sales volumes

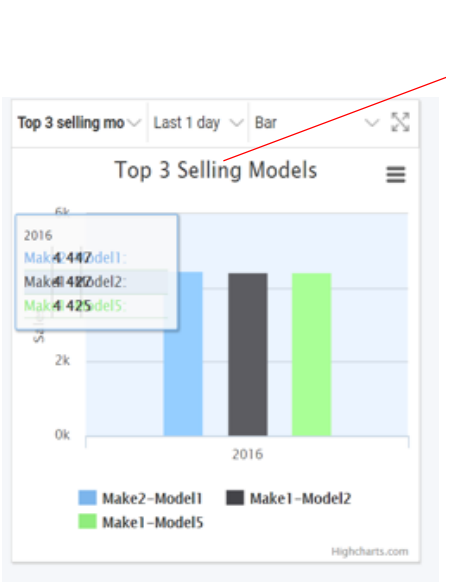
4.1.3.1 Sold Vs Connected

This will show the overall Washing machines which have currently been sold and the number of washing machines which are being connected to use among sold according to the time period selected from the dropdown. Blue color area of the chart shows the number of washing machines connected as a percentage value and the black color area displays the percentage value of the disconnected number of washing machines as a whole.



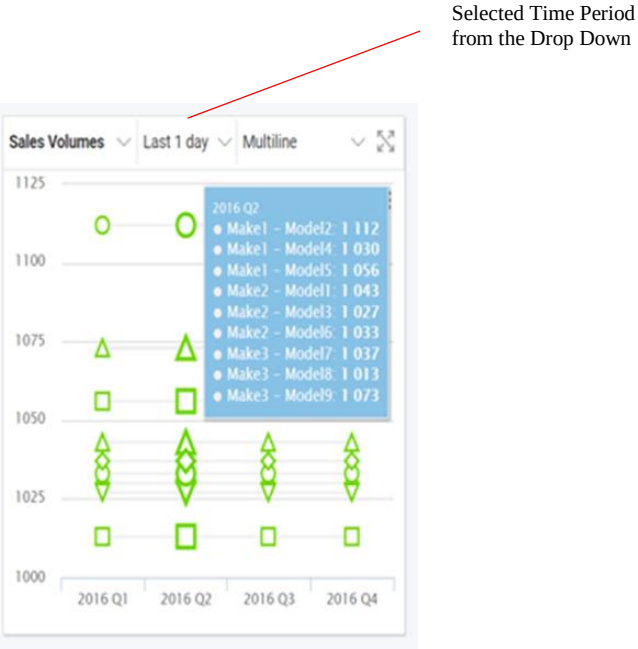
4.1.3.2 Top 3 Selling Models

The Bar chart displays most purchased washing machine Makes and Models over a period of time. Here it considers the top 3 models which have marked the best-selling.



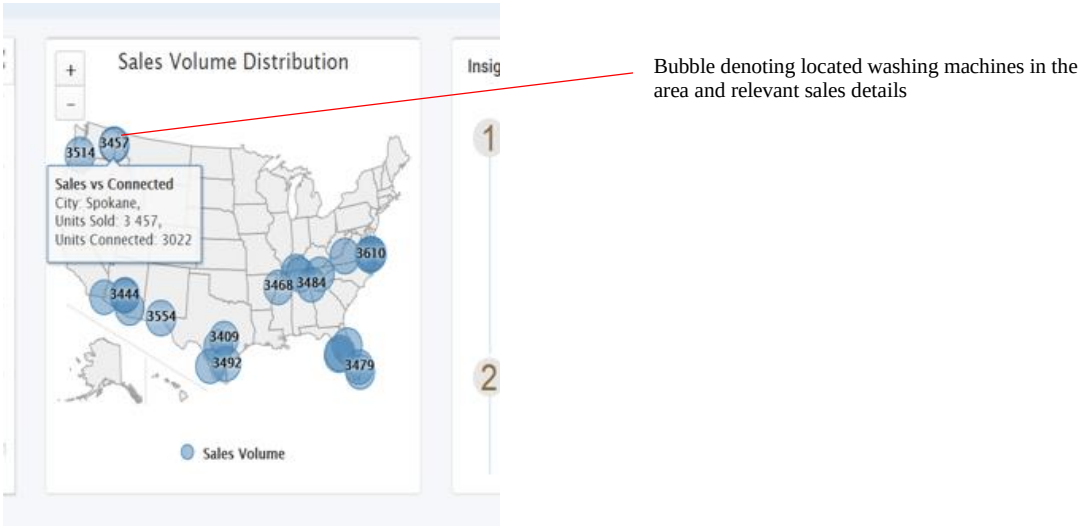
4.1.3.2 Sales Volumes

Sales Volume layouts the quarterly distribution of washing machines over the selected time period from the filters. The default value shows the distribution of current year in quarters.



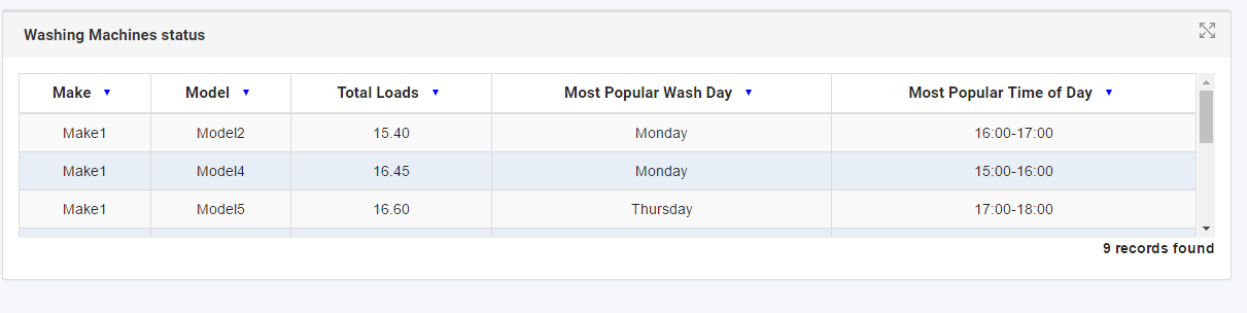
4.1.4 Sales Volume Distribution (Map)

This layouts the Map area of the view. As explained before, this is the area where the locations of the Washing Machines according to the selections are displayed on the map. A bubble on the map denotes to a washing machine and the details where the device is located. The default view provides the information of sold and connected devices in state wise. This can be filtered up to Zip Code to get the most corresponding detail of a particular washing machine sold.



4.1.5 Washing Machine Status Data Grid

Washing Machine Status Data grid indicates the information of the Washing Machine with its manufacturing details (Make, Model) and the total load of clothes with its most common time period which can be identified as the time slot the washing machine does its most washes. The selections of the filters are applied here.



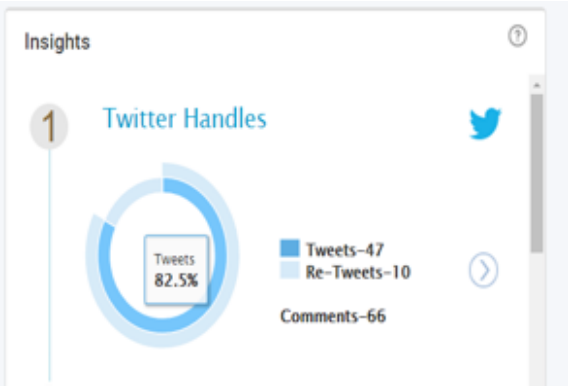
4.1.6 Insights

The Insight area consists with pie charts and legends to frame up the following information according to the selection made,

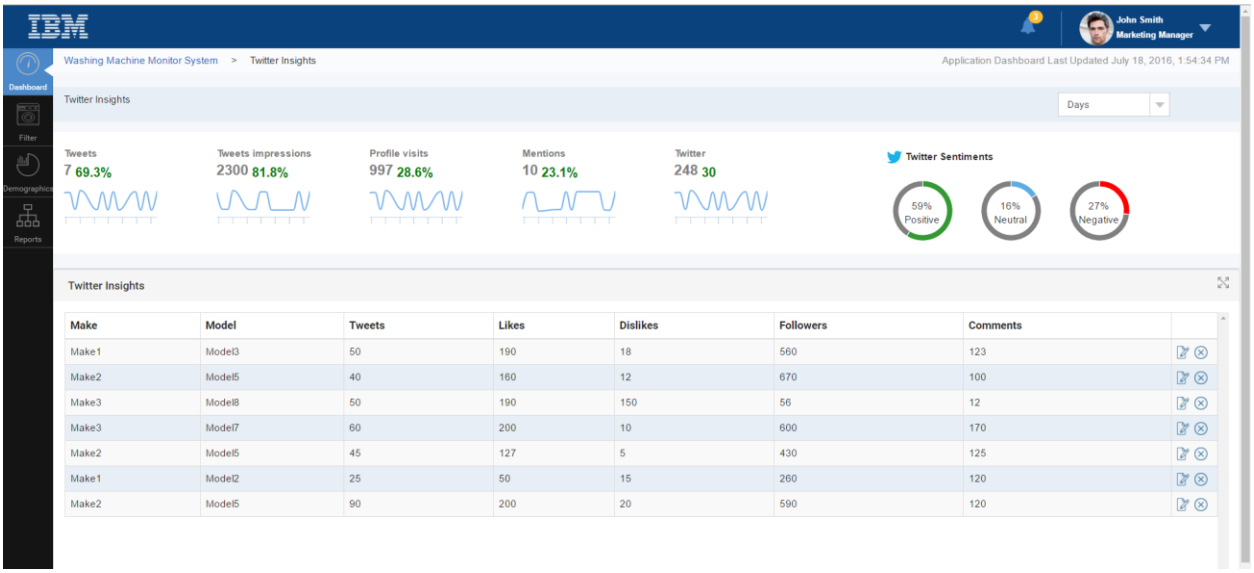
1. Twitter Handles
2. Most Used Models
3. Most Used Wash Cycles
4. Not Connected Machines

4.1.6.1 Twitter Handles

Insights Twitter Handles emphasizes the Tweets and Re-Tweets of the buyers with considering the hash tags to splash the buyer preferences and rejections towards the product. Furthermore the Twitter Handles extracts the number of comments being posted on the product to understand the popularity among the users within a configured time period.

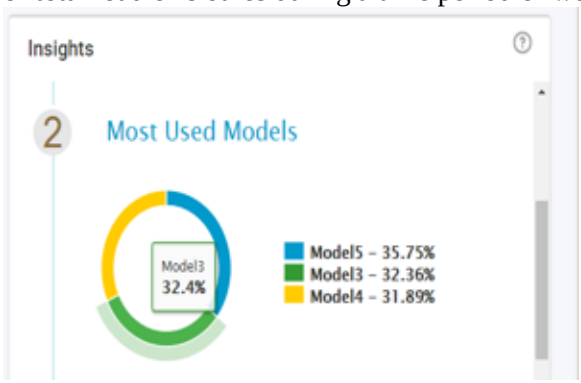


Clicking the arrow icon on the view navigates the user to the Twitter Insights page where more elaborated details about Tweets and Re-Tweets may explained. This will allow the user to get detailed insights into what are the models being discussed most, who your audience is and the nature of the impression in related to the products over a period of time. Each record lend the user the edit option to configure notification (may describe in section 4.1.7) or delete a record when required.



4.1.6.2 Most Used Models

Most Used Model Insight pie chart denoting the washing machines which have washed the highest weight of total load of clothes during a time period of week as a percentage.

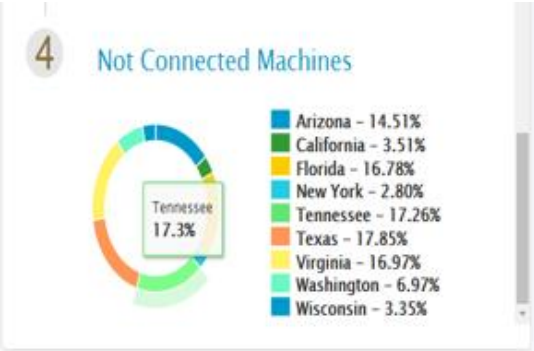


4.1.6.3 Most Used Wash Cycles

Particular wash cycle in a washing machine goes through the "Filling →Washing → Dinning" Stages and this may vary according to the preferences of the user. Therefore cycles been used in common scale is framed out here to take a view in general.

4.1.6.4 Not Connected Machines

Not Connected Machines Insights the Connect machines against the disconnected machines which have been purchased within a time span in state wise. The percentage value displayed in the chart manifests the Machines, not connected among sold.

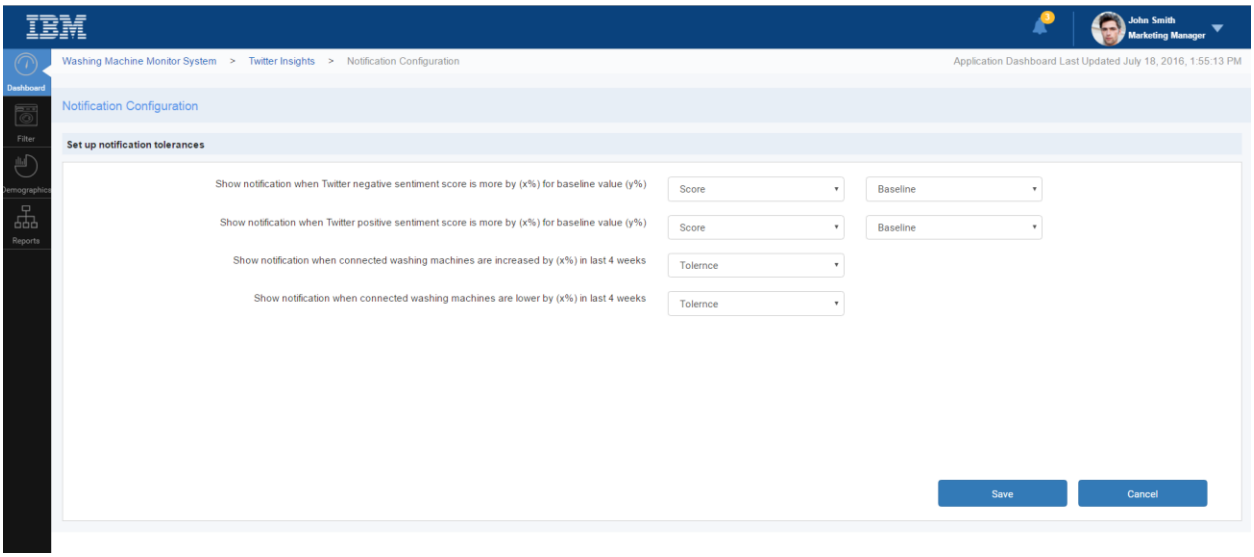


4.1.7 Notification

Configurable observations are notified here in the Notification area. Two aspects are depicted here as follow,

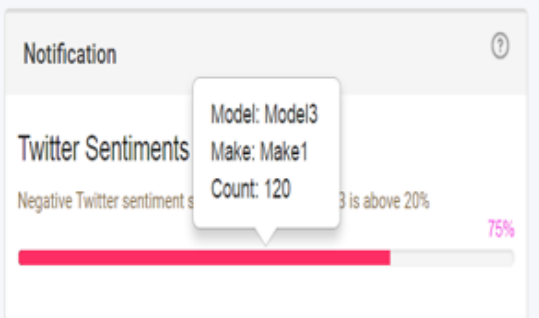
- Twitter Sentiments
- Spike in connected washing machines

Values in the Notification area can be configured as per the preference. For this, user is required to go to the Insight area and click the arrow button which is navigated to the Twitter Insights page. By selecting the edit button given in each row of the grid will allow the user to direct to the Notification Configuration page. There the user will have the capability to configure the Twitter Sentiments notifications as well as the Spike in connected washing machines. All the changes made can be saved by clicking the Save Button on the view. Scores and Tolerance levels may configured here in order to decide the nature of the Notifications prompt in the Notification area.



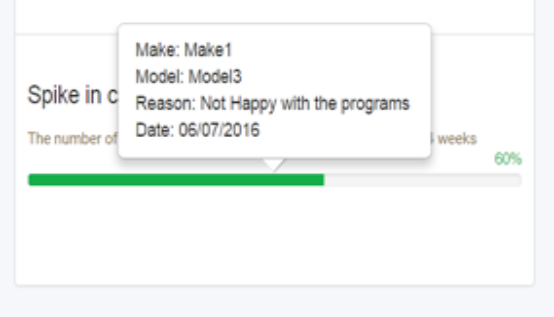
4.1.7.1 Twitter Sentiments

Positive and Negative sentiments of Tweets and Re-Tweets are showboated here and the Specific color in the view may sensor the Negative (in Red) and Positive (in Green) Notifications with the associated description. Notification Bell located in the top right hand corner of the view may highlighted in yellow color with indicating the number of new notifications.



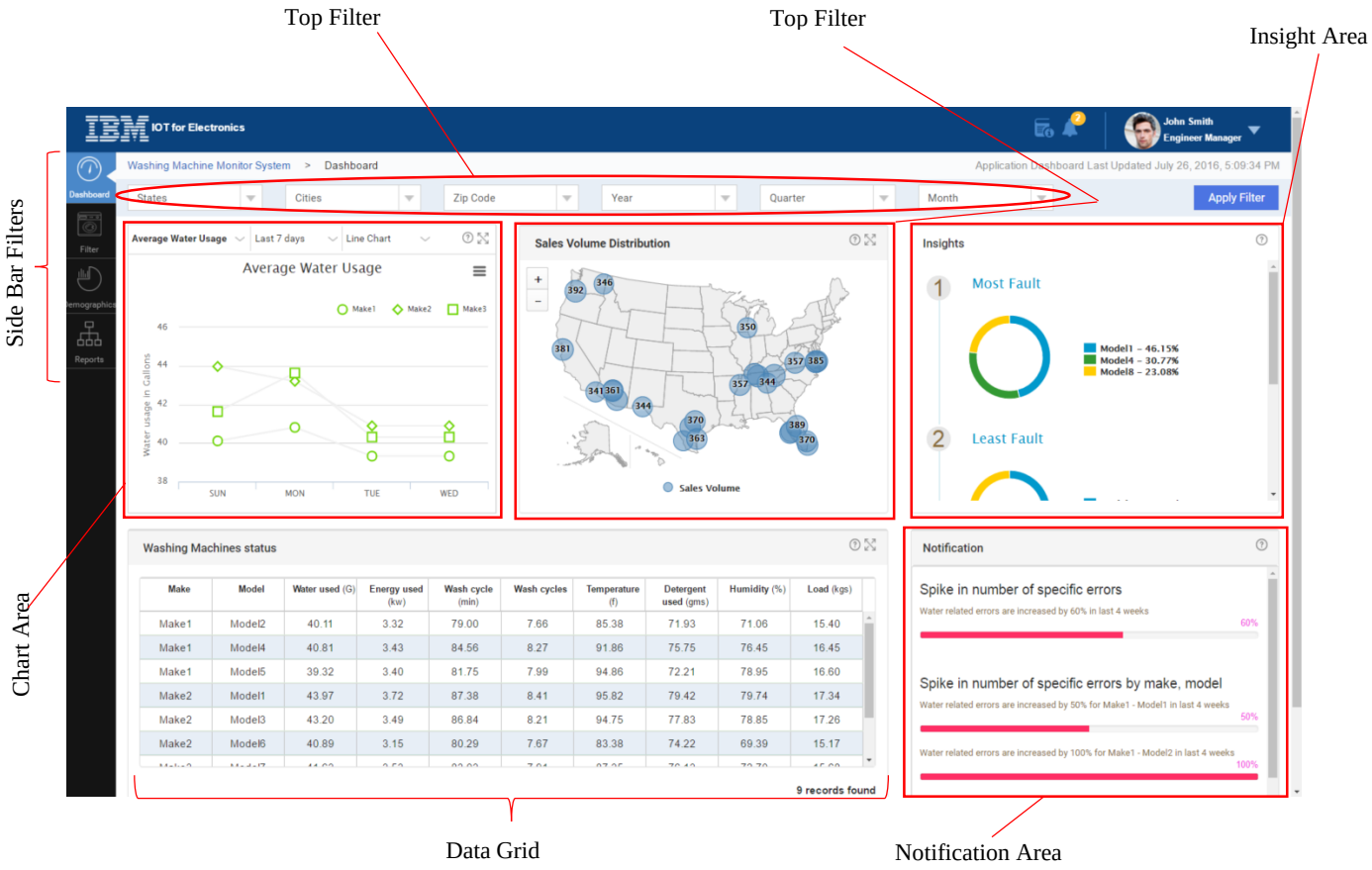
4.1.7.1 Spike in connected washing machines

Notification area notifies if there is an error or spike in the connected washing machines. This may consider the Make and Model type of the machine. Reason and the reported date will be shown in the notification which may convey the Positive or Negative status via the color displays.



4.2 Engineering Manager View

Registered Engineering Manager View would be as follows,



Top and Side Bar filters do the same tasks as in the Marketing Manager view. The selections made in the filters will be applied in the following areas of the view,

- Chart Area
- Sales Volume Distribution (Map)
- Washing Machine Status Data Grid
- Insights
- Notification

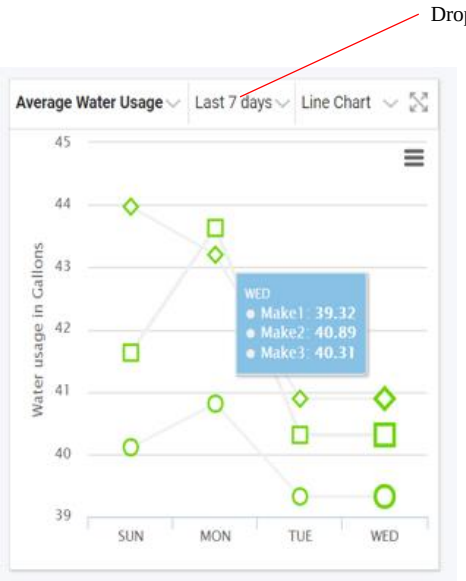
4.2.1 Chart Area

With regards to the Chart Area in Marketing Manager view divergent charts are available in the view of Engineering Manager as below listed to be selected from the Drop Down,

- Average Water Usage
- Average Power
- Average Wash Cycle Duration
- Average Wash Cycles
- Average Temperature
- Average Detergent Used
- Average Humidity
- Average Load

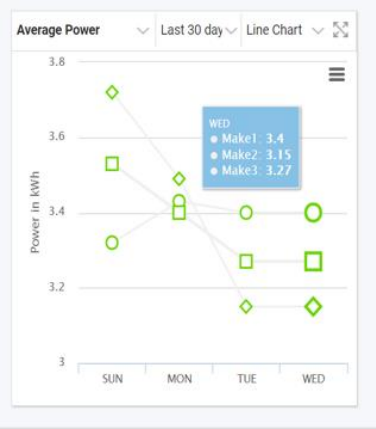
4.2.1.1 Average Water Usage

Average Water Usage chart may signify the average value of water been used by the washing machine over a selected period of time in the X axis. Time period can be elected from the drop down provided in the chart area view.



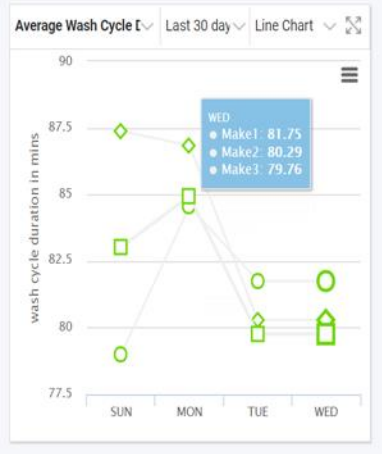
4.2.1.2 Average Power

This chart implies the distribution of Power as an average value which the Washing Machine was requiring when it works. The Power Usage will be displayed over the selected time period in the X axis as before.



4.2.1.3 Average Wash Cycle Duration

In this chart also it demonstrates the average value of the wash cycles durations against a selected period of time. Here the Y axis denotes the wash cycle duration in minutes while the X axis bares the dates.

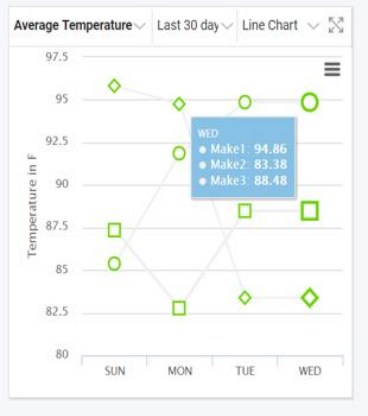


4.2.1.4 Average Wash Cycles

Average value of the Wash Cycles took place in the washing machines may fronted here in this area of the chart. Distribution of cycles in Revolutions per Minute (RPM) is charted here against the days selected.

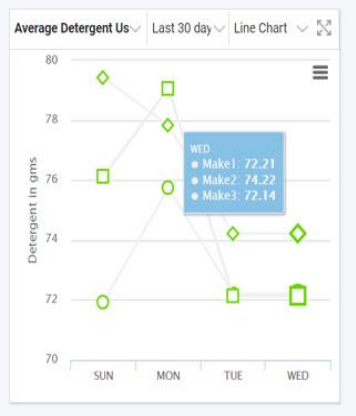
4.2.1.5 Average Temperature

In the Average Temperature chart the averaged value of the temperature been generated in the washing machines are demonstrated against the days chose. Temperature has been measured in Fahrenheit.



4.2.1.6 Average Detergent Used

Average value of the consumed detergent of the washing machines is dashed here over the period of time in the Average Detergent Used chart. The detergent weight is denoted in grams here in the Y axis of the chart.

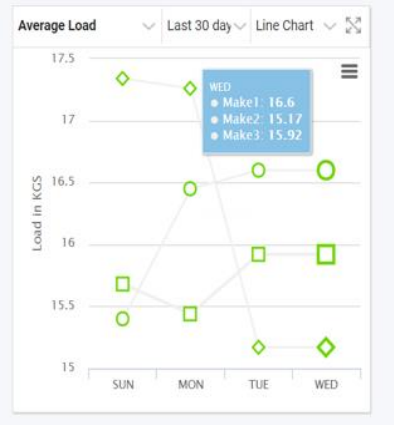


4.2.1.7 Average Humidity

Humidity is the amount of water vapor in the air. This value within the washing machines while they are working is calculated and demonstrated in this chart to show the distribution of the average humidity against the percentage humidity value and the days selected.

4.2.1.8 Average Load

This is the average load of the clothes been washed by the washing machines over the time span selected from the drop down. The clothes load is weighted in Kilograms in the Y axis of the chart while X axis holds the days.

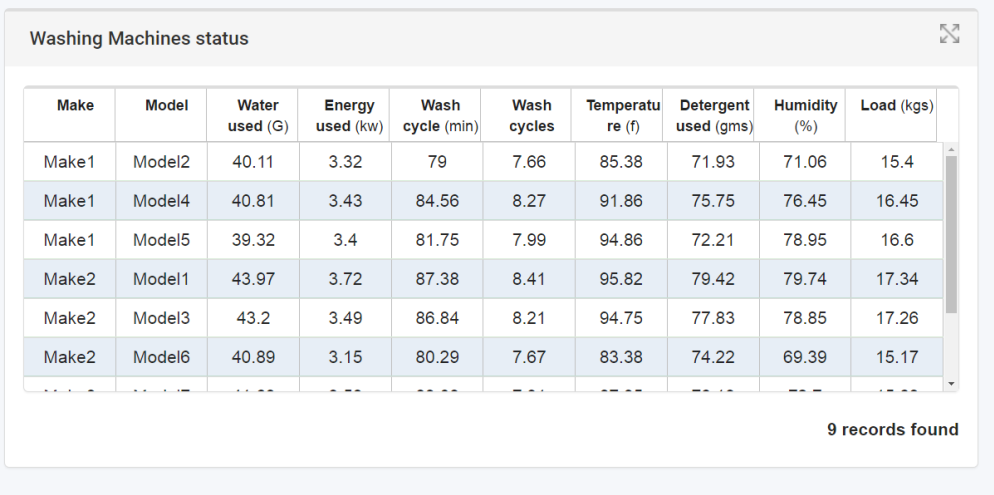


4.2.2 Sales Volume Distribution (Map)

The Map area in the Engineering Manager view is correlative as the Map area in the Marketing Manager view. It exhibits the locations of the washing machines which the bubble denotes in the map. Selections made in the filters will be applied in the map area and most corresponding location of the sold machines may layouts on the map.

4.2.3 Washing Machine Status Data Grid

Correspondent to the selection made in the filters the data will be fetched in the Data Grid. Data Grid frames up the details as record by record of the washing machines which the Chart Area demonstrated as a distribution of the details in average values.



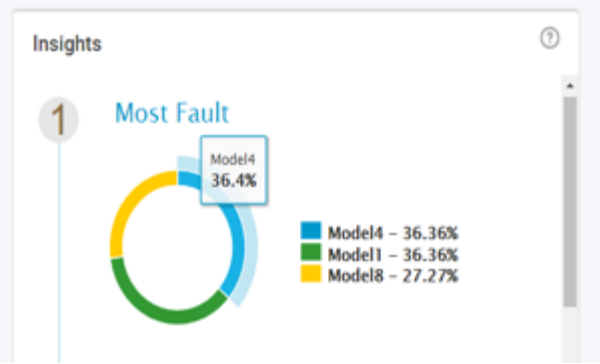
4.2.4 Insights

In the Insight area of the Engineering Manager view provides understanding of the inner nature of following aspects regardless of the Insight Area of the Marketing Manager View.

1. Most Fault
2. Least Fault
3. Common Fault

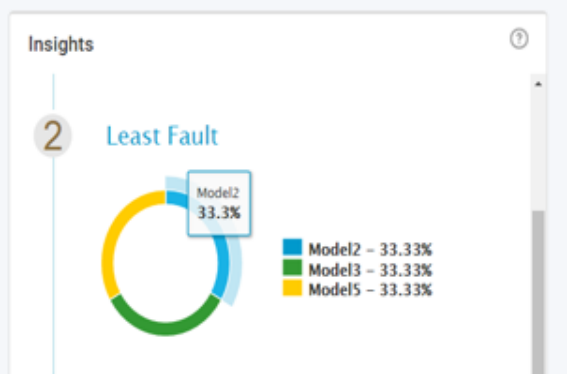
4.2.4.1 Most Fault

Most Fault Insight afford the capability to have a clear picture about the Models which bare most of the faults been identified. The Model with the highest percentage value can be determined as the Model with the maximum number of faults.



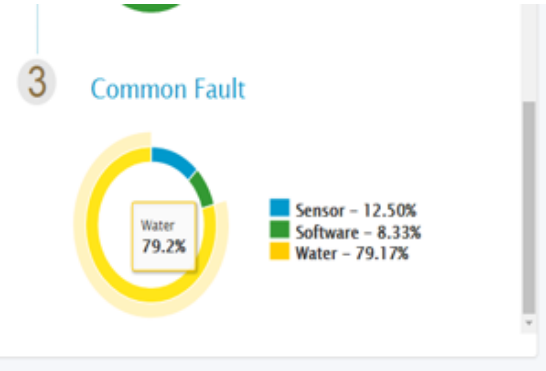
4.2.4.2 Least Fault

Contradicting to the Most Fault Insight, Least Faults identifies the washing machine Models with less number of faults. These can be classified as the better Models than the models been identified in the Most Fault Insights.



4.2.4.3 Common Fault

This part of the Insights marks the Common Faults been identified. Engineering Manager can have a better understanding about the areas to be concentrated to avoid faults in the products to be designed in future in order to introduce machines with least number of defects.

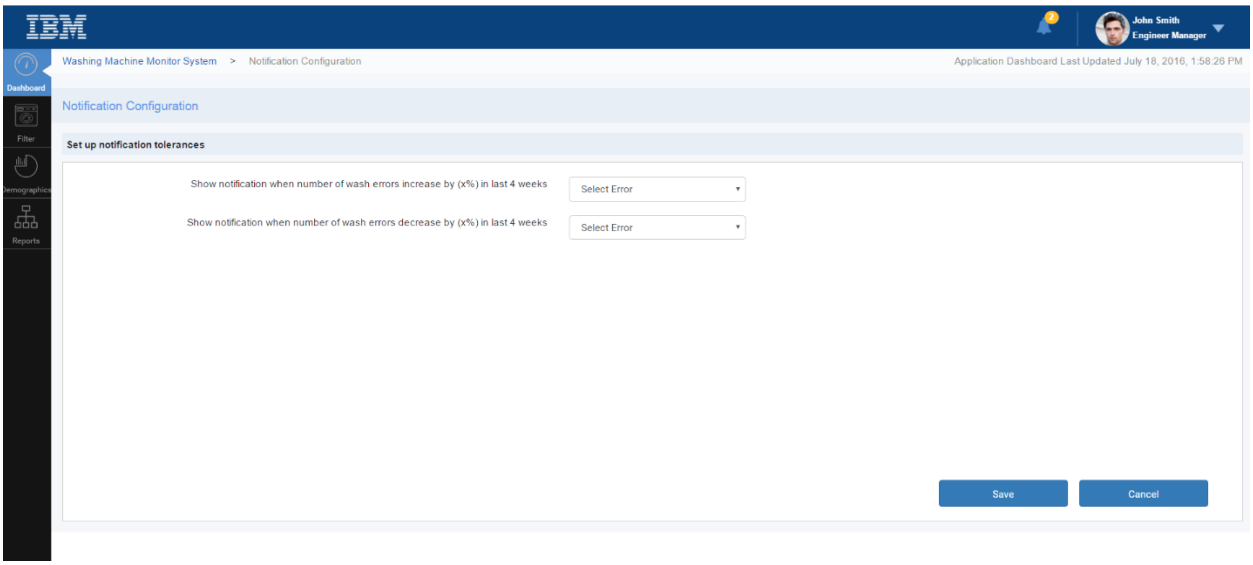


4.2.5 Notification

Notification area in the Engineering Manager view diverse from the same in the Marketing Manager with having following two Notification types.

- Spike in number of specific errors
- Spike in number of specific errors by make, model

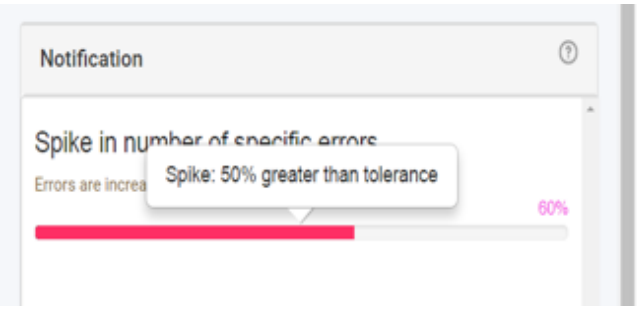
Similar to the Notifications in Marketing Manager view, the Notifications popped up in the Engineering Manager can be configured. Configuration can be done by selecting the Settings button provided in the User Drop Down of the top right hand corner of the view.

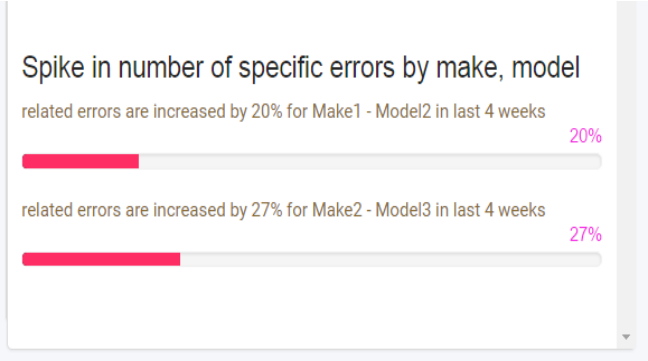


Errors which should be notified through the Notification area can be selected from the options given in the drop downs available in the Notification Configuration page in the Engineering Manager view. Made changes in the configuration can be saved by clicking the Save Button provided with the view.

4.2.5.1 Spike in number of specific errors

Specific errors can be set with a threshold level in the area to be notified when there is a spike in the error specified over an indicated time period.



4.2.5.2 Spike in number of specific errors by make, model

Make and Models which bares the error identified are notified in this area to sense a more clear understanding of the spike in the threshold value specified