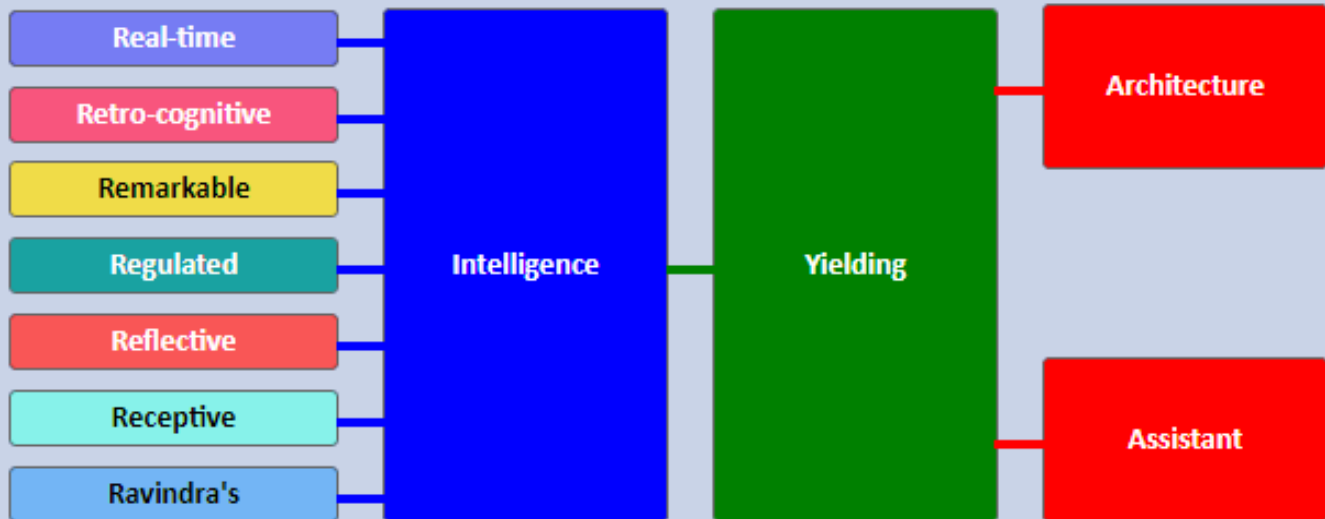




**TATA MOTORS**  
Connecting Aspirations



## Battery Checking System

## Battery Health Monitoring System

RAVINDRA GAIKWAD  
[TMPV, Manufacturing, Pune]

10/16/2024



# Battery Checking System

RIYA 0.3.24 – Battery Checking (PowerApps + RIYA Web )

User Manual

## About RIYA:

**RIYA** is web development platform built in-house by Manufacturing Engineering, RIYA is abbreviation of Real-time Intelligence Yielding Architecture. It is still under development and yet to be developed to its desired potential. It uses minimal resources from user side, yet many of its algorithms are run at user computer. Its User Controls, UI/UX design, Charts and widgets are all developed in house. (Only JQuery and Bootstrap are open source tools used at backend which are not developed in-house). Since it is built on Intranet it is only accessible on TML Network, and impossible to access outside TML Network. It has Unified User Access system i.e. we can define Area specific and/or Page specific restricted user access.

- **Real-time:** It provides results and output without any delay.
- **Retro-cognitive:** It has ability to teach itself based on past data and user experience.
- **Remarkable:** It works unusually and surprising in a way that people notice
- **Regulated:** It is self-regulated and has provision to regulate its algorithm from server side.
- **Reflective:** Its algorithm makes it think deep and silently in background without consuming much of Resources e.g. RAM and Processor.
- **Receptive:** It has ability to understand user's speech synthesis more and more as one uses it.
- **Ravindra's:** Because it is developed by Ravindra Bhalchandra Gaikwad, also called as Ravindra's Intelligence Yielding Architecture.
- **Intelligence:**
  - It is newly invented Artificial Intelligence algorithm. There may be similar algorithms in use but it is built from scratch and runs on minimal resources.
- **Yielding:** Its database is auto growing as being used, thus yielding its Knowledge resources.
- **Architecture:** Architecture supports various platforms like Intranet, web, Mobile, PC. It is built in such a way that every app built in it is horizontally deployable across all Tata Motors Plants and Shops.
- **Assistant:** It comes with virtual assistant. Its Beta Revision is under testing and development.



# Battery Checking System

**RIYA 0.3.24 – Battery Checking (PowerApps + RIYA Web )**

User Manual

## About Battery Checking System

It is Application built on Microsoft PowerApps Platform where TML Network is not available. And RIYA Web Framework Where TML Network is Available, which enables Organization users to use it on their respective devices only if their device is linked and connected or Organization setting or TML Network.

Its access can be controlled to specific or designated users. Also its Real Time data is available on SharePoint. Which can also be accessed in Excel files and also Analysed using AI into Web Dashboard.

## How it Works-Power Apps?

Users log in with their Organization Account, which must be pre-set on their device. At the beginning user have to select Stage Where he/she is checking. When checking a vehicle, users must scan the VIN, battery number, and enter the battery voltage and current (if readings are available). For checks conducted in the VQA (before fitment), users need to scan the battery number and enter the voltage reading. Currently, batteries are checked on a sample basis in the VQA; however, we recommend conducting 100% battery checks at this stage. Data is automatically sent to the Cloud Database (SharePoint), where it is analyzed and linked to the RIYA System at intervals of every 10 minutes.

## How it Works-RIYA Web?

Stage Specific Application is configured on respective Devices. In case Device changes we recommend get it configured for stage. At every Stage User Have to scan VIN and Battery Number and enter Voltage and tap on Save Button. On tapping on Save Button it will send data to RIYA Server.

## How it Works-Automation and Background Activity?

- 1) Part Genealogy data is automatically gathered from IPMS every 10 Mins.
- 2) BDF, ADF and Level 2 test includes Battery Voltage and SOC checking which is also automatically gathered from ED server every 10 Mins.



# Battery Checking System

**RIYA 0.3.24 – Battery Checking (PowerApps + RIYA Web )**

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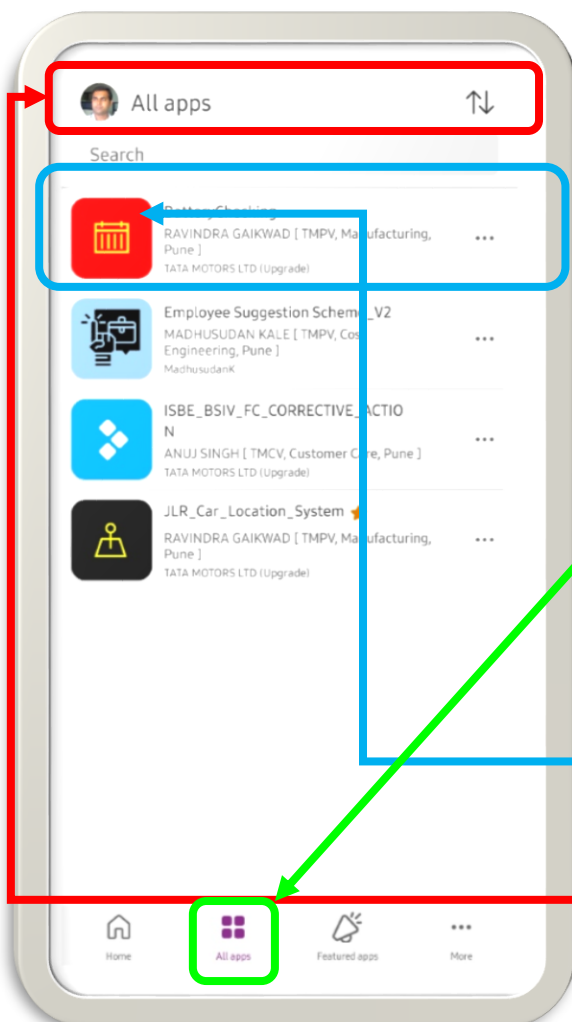
- 3) Battery Manufacturing Date is automatically derived from Battery Number which helps calculating Battery Age at various stage. And highlight if it exceeds ERC recommended Age.
- 4) RIYA AI automatically Derive SOC from Voltage and Vice a Versa.
- 5) Automatically detects if Battery Is changed on Vehicle and provide report.

### Step 1

Download Power Apps from respective Play Store.  
Make sure it is published by Microsoft Corporation.  
And has logo as shown here.

Install App on your device.

Log into it using Company Account.



### Step 2

Download Power Apps from respective Play Store. Make sure it is published by Microsoft Corporation. And has logo as shown here.

Install App on your device.

Log into it using Company Account.

1) After Logging in, Tap on 'All Apps' button in Bottom.

2) You will find BatteryChecking App on screen.

3) If you have many Apps you can search for 'Battery.....app in Search Bar

4) Tap on BatteryChecking to open App. It will take it to Location Selection Screen



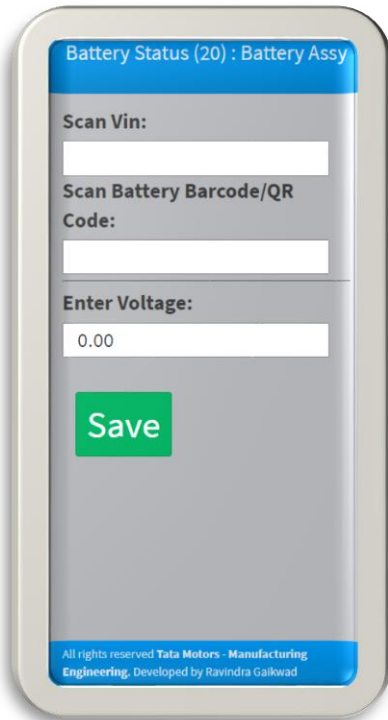
### Step 3

Select Location Where you are Checking Battery so that it will save all further data for selected location.

### Step 3

Tap on “Scan Barcode” Button it will open BarCode Scanner and Scan Bar Codes. It will automatically identify if it is Battery Number or VIN Number and place in respective box. Enter Voltage in Voltage box (Off White Backgroun) Ant Tap on Save. Repeat same process for every Vehicle/Battery.





### Step 1 – RIYA Web App

App is configured on Laser Barcode reader enabled devices. Open App from Shortcut provided on Home Screen.

- 1) Tap in Scan VIN: box and Scan VIN Number.
- 2) Tap in Battery Box and Scan Battery Number.
- 3) If any of the value is invalid or if you scan wrong barcode it will prompt to scan again.
- 4) After scanning enter voltage in voltage box. And tap on save.
- 5) Repeat process for every car.



# Battery Checking System

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## Battery Dashboard

It is highly responsive summarized report in dashboard format. You can select Shop. From & To Dates And/Or Shift. You can click on OK NOK and Total Numbers to see detailed List. By Clicking on Skipped List you can see list of Vehicles Which are Through ADF/BDF but not scanned at Assembly.

By clicking on List you can see consolidated List. Also find list of vehicles where battery is changed.

Select Shop:  
New TCF

From Date:  
16-10-2024

To Date:  
16-10-2024

Select Shift:  
All

Battery Checking Dashboard

Search Vin History Battery Data Only

Dropping 36

Skipped @ Assy -1

List

Battery Changes 0

SR	Scanning Point	Lower Limit	OK Cars	NOK Cars	Total
2	Battery Assy	12.70	37	0	37
3	BDF	12.70	40	0	40
4	ADF	12.40	38	0	38
5	Level 2	12.40	35	3	38
7	PDI	12.40	1	0	1
8	Dispatch Yard	12.40	18	0	18

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# Battery Checking System

RIYA 0.3.24 – Battery Checking (PowerApps + RIYA Web )

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## Detailed List

Column to Filter:

From Date:

To Date:

Vehicle Model:

Action:

LastScan

16-10-2024

16-10-2024

NEW TCF

View

Download Excel

106 Rows of Data Available, 18 Rows Filtered

Click on following filters to remove Empty Cell Rows, Green:Selected, Gray:Non Selected

VQA

Battery Assy

ADF

Level 2

PDI

VINNO	Dropping Date	Latest ScanDate	SHOPNAME	BatteryNo	Mfg Date	VQA (Sample)	Battery Assy (M) Stn M3	ADF (A) Stn M10	Level 2 (A)	PDI (M)	Disp (M)	Age @ Assy	Age @ Disp	Status
MAT631752RWK37465	15-Oct-2024 17:56:38	16-Oct-2024 09:32:13	NEW TCF	005412541099060BE623620924A18759	01-Sep-2024	12.91	12.80	12.94				45		OK
MAT631745RWK37453	15-Oct-2024 17:19:53	16-Oct-2024 09:14:53	NEW TCF	005412541099060BE623620924A30746	01-Sep-2024	12.91	12.80	12.94				45		OK
MAT631744RWK37457	15-Oct-2024 16:49:11	16-Oct-2024 10:06:26	NEW TCF	005412541099060BE623620924A18259	01-Sep-2024	12.90	12.80	12.93	12.92			45		OK
MAT631765RWK37450	15-Oct-2024 12:58:59	16-Oct-2024 07:42:56	NEW TCF	005412541099060BE623620924A30139	01-Sep-2024	12.90	12.80	12.98	12.42			44		OK
MAT631775RWK37387	15-Oct-2024 12:21:11	16-Oct-2024 07:55:10	NEW TCF	005412541099060BE623620924A30144	01-Sep-2024	12.89	12.80	12.89				44		OK
MAT631775RWK37216	15-Oct-2024 06:58:15	16-Oct-2024 08:04:57	NEW TCF	005412541099060BE623620924A30122	01-Sep-2024	12.89	12.80	12.93	12.42			44		OK
MAT631780RWK37297	14-Oct-2024 23:00:49	16-Oct-2024 07:52:23	NEW TCF	005412541099060BE623620924A30193	01-Sep-2024	12.87	12.80	12.90	12.46			44		OK
MAT631702RWK37338	14-Oct-2024 22:26:38	16-Oct-2024 09:30:33	NEW TCF	005412541099060BE623620924A30130	01-Sep-2024	12.89	12.80	12.94	12.80			44		OK

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## List of Skipped Cars. (Done at ADF but not scanned at Battery Assy)

Select Shop:

New TCF

From Date:

16-10-2024

To Date:

16-10-2024

Select Shift:

All

Detailed List of Skipped Cars

Cars Done ADF but not at Battery Assy: 38 Dropping-Assy= -1

Search in Table

Model	VIN no	Battery No	Battery Mfg Date	Dropping Date	ADF Date
NEW TCF	MAT631744RWK37395			15-Oct-2024 15:35:47	16-Oct-2024 06:36:15
NEW TCF	MAT631800RWK37410	005412541099060BE623620924A30156	01-Sep-2024	15-Oct-2024 15:41:44	16-Oct-2024 06:45:28
NEW TCF	MAT631752RWK37471	005412541099060BE623620924A30063	01-Sep-2024	15-Oct-2024 15:45:24	16-Oct-2024 06:46:43
NEW TCF	MAT631762RWK37472			15-Oct-2024 15:55:04	16-Oct-2024 06:55:50
NEW TCF	MAT631749RWK37497			15-Oct-2024 15:58:44	16-Oct-2024 07:04:03
NEW TCF	MAT631806RWK37418			15-Oct-2024 16:02:00	16-Oct-2024 07:06:47
NEW TCF	MAT631744RWK37396			15-Oct-2024 16:09:35	16-Oct-2024 07:16:31
NEW TCF	MAT631801RWK37406			15-Oct-2024 16:12:46	16-Oct-2024 07:23:04
NEW TCF	MAT631806RWK37420	005412541099060BE623620924A30164	01-Sep-2024	15-Oct-2024 16:21:13	16-Oct-2024 07:26:16
NEW TCF	MAT631803RWK37439			15-Oct-2024 16:25:10	16-Oct-2024 07:29:29
NEW TCF	MAT631765RWK37482	005412541099060BE623620924A30078	01-Sep-2024	15-Oct-2024 16:29:21	16-Oct-2024 07:33:41
NEW TCF	MAT631741RWK37378	005412541099060BE623620924A30089	01-Sep-2024	15-Oct-2024 16:35:04	16-Oct-2024 07:39:13
NEW TCF	MAT631756RWK37436	005412541099060BE623620924A30083	01-Sep-2024	15-Oct-2024 16:39:28	16-Oct-2024 07:41:37
NEW TCF	MAT631744RWK37457	005412541099060BE623620924A18259	01-Sep-2024	15-Oct-2024 16:49:11	16-Oct-2024 07:44:42

Close

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# Battery Checking System

RIYA 0.3.24 – Battery Checking (PowerApps + RIYA Web )

User Manual

## Battery Changes Detailed List

Select Shop:

From Date:

To Date:

Select Shift:

New TCF

08-10-2024

16-10-2024

All

Detailed List of Battery Changes

Last Change Detection Stage and Date is Shown

Search in Table

VIN No	Latest Battery	Old Battery	Older Battery	Change Detection Location & Date	Battery Mfg Date & Age @ Change	First Check Location & Date
MAT631719RWJ35402	005412541099060BE623620924C18615	005412541099060BE623620924B09567		PDI 09-Oct-2024 16:33	08-Sep-2024 31	ADF 24-Sep-2024 15:43
MAT631729RWH30150	005412541099060BE623620824B50186	005412541099060BE623620824B50324		PDI 11-Oct-2024 01:05	08-Aug-2024 64	ADF 16-Aug-2024 18:28
MAT631765RWK36304	005412541099060BE623620924D25045	005412541099060BE623620824D25045		Dispatch Yard 11-Oct-2024 05:49	22-Aug-2024 50	VQA (Samples) 02-Oct-2024 21:56
MAT631750RWJ35762	005412541099060BE623620924B05221	005412541099060BE623620924B05152		Dispatch Yard 15-Oct-2024 00:12	08-Sep-2024 37	Battery Assy 27-Sep-2024 13:43
MAT631776RWJ35187	005412541099060BE623620924C18754	005412541099060BE623620924C16061		PDI 09-Oct-2024 01:12	15-Sep-2024 24	Battery Assy 20-Sep-2024 18:10
MAT631751RWJ35021	005412541099060BE623620924B13315	005412541099060BE623620924C15971		Dispatch Yard 10-Oct-2024 00:34	15-Sep-2024 25	Battery Assy 19-Sep-2024 22:12
MAT631702RWJ35759	005412541099060BE623620924C18826	005412541099060BE623620824C18826		Dispatch Yard 10-Oct-2024 15:59	15-Aug-2024 56	Battery Assy 01-Oct-2024 14:07
MAT631745RWJ33659	005412541099060BE623620924B15401	005412541099060BE623620924B05401		Dispatch Yard 11-Oct-2024 13:58	08-Sep-2024 33	ADF 12-Sep-2024 16:16

Close

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## NOK List

Select Shop:

From Date:

To Date:

Select Shift:

New TCF

08-10-2024

16-10-2024

All

Detailed List of NOK Vehicles

\*At Level 2 and ADF Vehicles are Repeat tested

Search in Table

Scanning Point	Shop	VIN no	Battery No	Battery Mfg Date	Scanning Date	Voltage	LowerLimit	Age At Scanning
Battery Assy	NEW TCF	MAT631802RWK36888	005412541099060BE623620924A43934	01-Sep-2024	09-Oct-2024 23:09:54	11.90	12.70	38
Battery Assy	NEW TCF	MAT631751RWK36980	005412541099060BE623620924A43951	01-Sep-2024	10-Oct-2024 07:21:08	11.31	12.70	39
Battery Assy	NEW TCF	MAT631764RWK37231	005412541099060BE623620824B42902	08-Aug-2024	14-Oct-2024 12:45:07	12.00	12.70	67
Battery Assy	NEW TCF	MAT631803RWK37271			14-Oct-2024 22:20:09	12.00	12.70	
Battery Assy	NEW TCF	MAT631775RWK37389	005412541099060BE623620924A24810	01-Sep-2024	15-Oct-2024 17:25:28	12.00	12.70	44

Close

4

ADF

12.40

819

1

820

5

Level 2

12.40

722

97

819

7

PDI

12.40

291

1

292

8

Dispatch Yard

12.40

387

1

388

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# Battery Checking System

RIYA 0.3.24 – Battery Checking (PowerApps + RIYA Web )

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# Thank You