FACTBIRD

USER GUIDE | Cloud Application

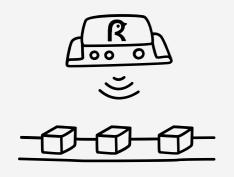






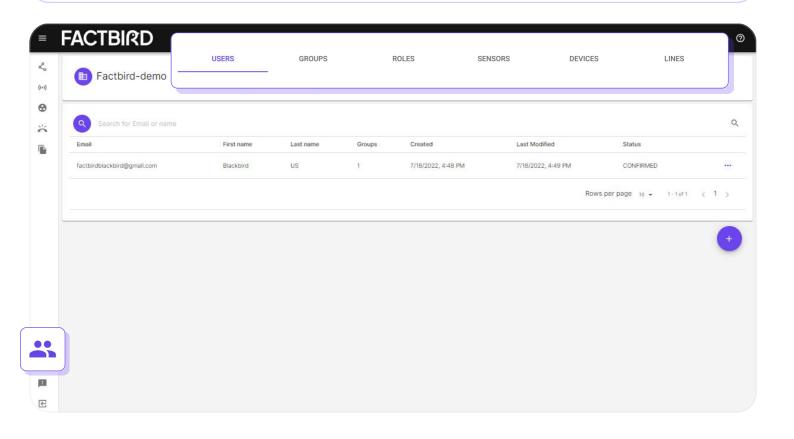
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Administration

Elements

- Users: Create user
- Groups: Manage user groups
- Roles: Manage user access and permissions
- Sensors: Inputs e.g. sensors, cameras, PLC cables
- Devices: IoT boxes claimed to your system
- Lines: A line consists of one or more sensors

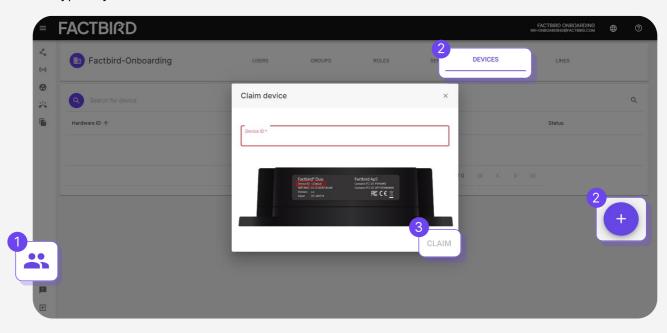


Claiming devices

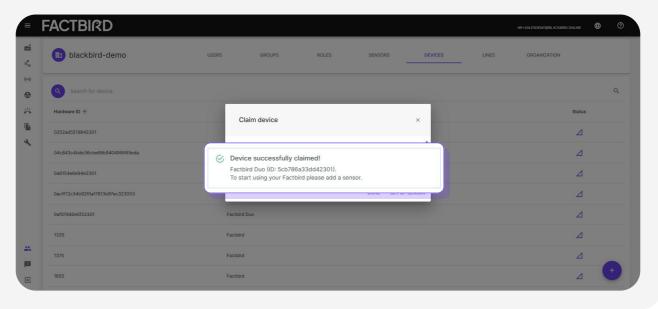
1

Claim your devices in Factbird

- 1. Go to "Administration" page.
- 2. Go to the "DEVICES" tab and click the + icon.
- 3. Type in your "Device ID" and click "CLAIM".



4. Device successfully claimed!



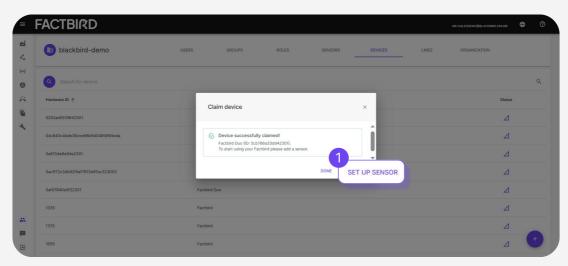
Adding sensors

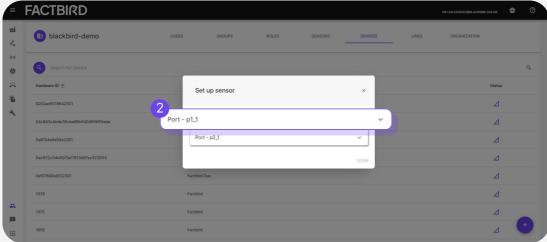
 $\mathbf{2}_{\mathsf{a}}$

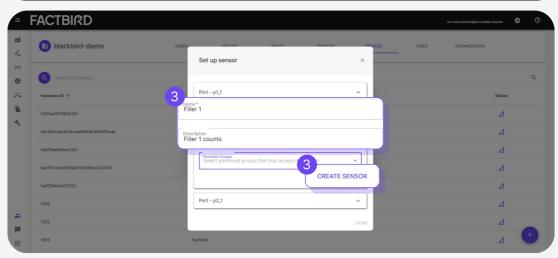
Add sensors

If you have just claimed a device, start from this pop up.

- 1. Click "SET UP SENSOR".
- 2. Click Port.
- 3. Type in "Name and Description" and click "CREATE SENSOR".







Adding sensors

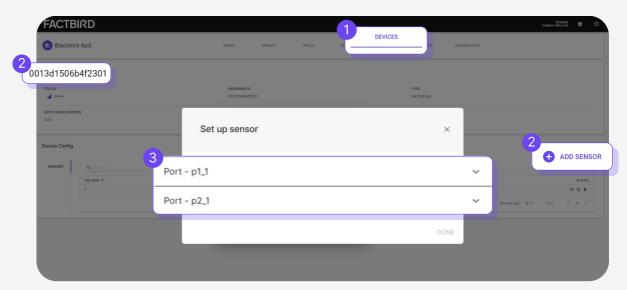
2b

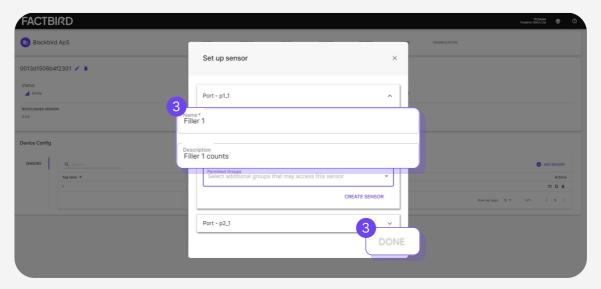
Add sensors

If you already have a device claimed:

- 1. Click "DEVICES" tab from Administration page.
- 2. Click on the device and then click on "ADD SENSOR".
- 3. Click Port-1 or Port-2, type in the name and the description, click "DONE".
- 4. It will be marked as "Created".

You can view the sensor on "SENSORS" tab.





Getting the Factbird device online with Wi-Fi

1

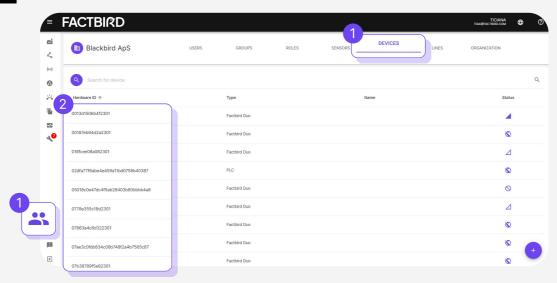
To set up Wi-Fi, make sure the Factbird device is first online via mobile network

• Ensure the Factbird device is connected to the mobile network by checking if the device's Status LED remains solid green. Only after ensuring that the device is online, you can move on to the next step and set up Wi-Fi.

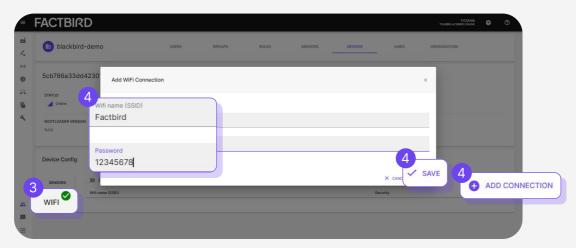
2

Wi-Fi setup

- 1. Navigate to "Administration", then select "DEVICES" tab.
- 2. Click on the device you wish to connect.



- 3. In "Device Config", go to the "WIFI" tab.
- 4. Click on "ADD CONNECTION", input the WiFi name and password, then click "SAVE" and enable WiFi.
- 5. Confirm that the Factbird device's LED changes from steady green to steady blue once it's successfully online via Wi-Fi.

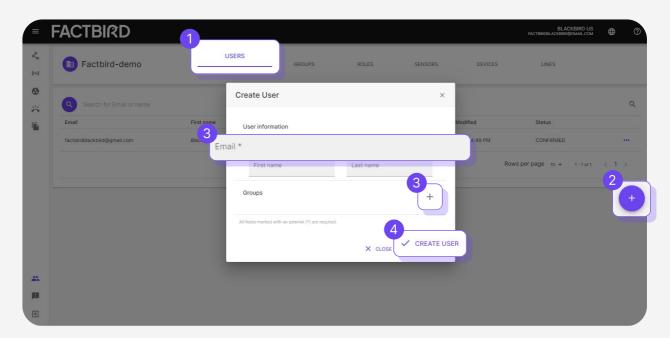


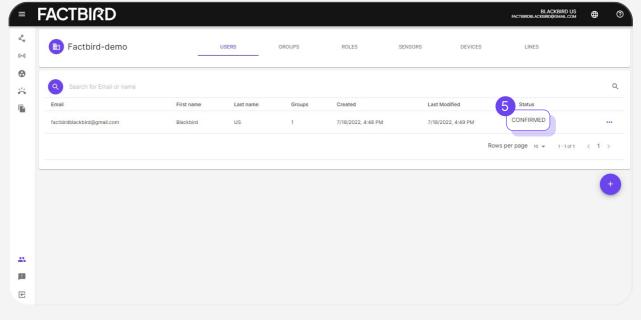
Creating users

1

Create new users

- 1. Go to the "USERS" tab on "Administration" Page.
- 2. Click the + icon.
- 3. Fill out Email and choose "Groups" by clicking +. e.g. Choose SUPER.
- 4. Clicking "CREATE USER" sends the welcome email to the user.
- 5. Once the user activates the user account from the welcome email, it shows "CONFIRMED" on the USER tab.





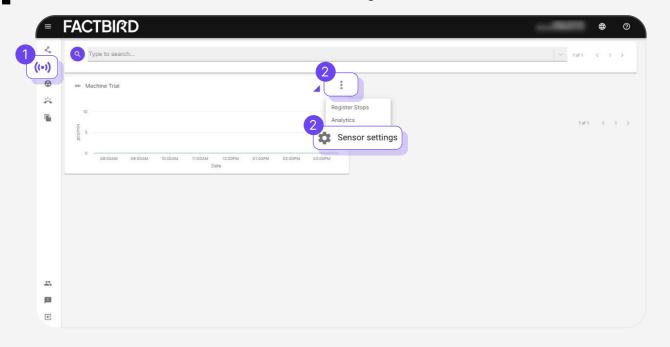
System Configuration - Sensor Settings

Sensor settings

1

Go to sensors settings

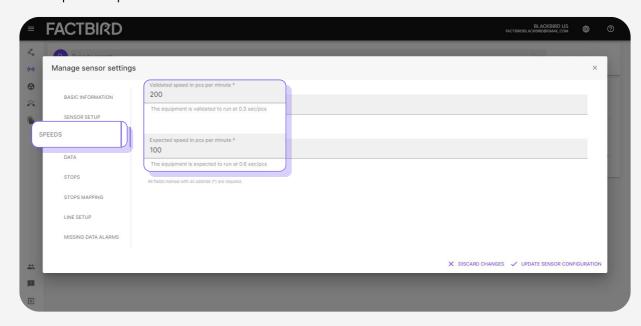
- 1. Click on "Sensors" from the menu on the left side of the view
- 2. Click on the three dots and select "Sensor settings"



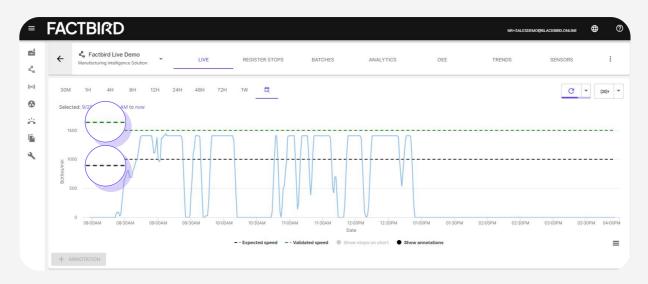
2

Set production speed

Now that you are in "Sensors settings", go to the "SPEEDS" tab and set your Validated speed and Expected speed.



System Configuration - Sensor Settings

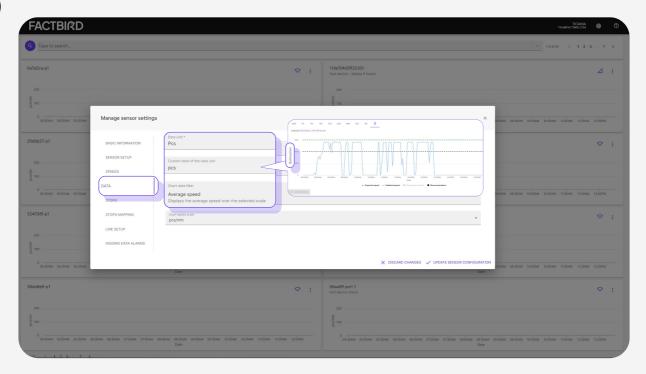


- Validated speed (green line):
 Max production speed = Highest speed (used for calculating speed loss and OEE)
- Expected Speed (black line):
 Expected production speed while running (used to calculate target)

3

Set up custom label for live graph and choose visualization options

Go to "DATA" tab to customize visualization.

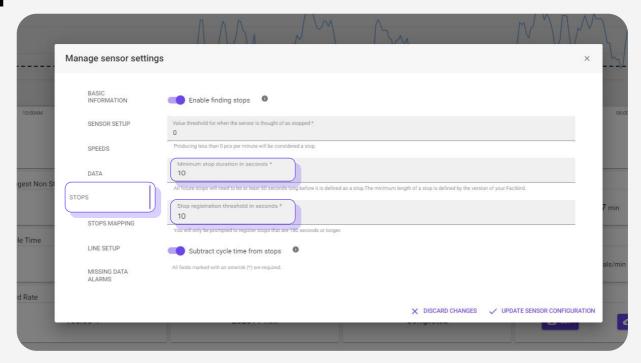


- Data unit: Counter is Pcs
- Custom label of the data unit: e.g. Pcs, bottle, pack, foot
- Chart data filter: How you want to visualize data on the graph. "Average speed" is recommended for counter sensors.

4

Set up stop cause registration setting

Go to "STOPS" tab, turn on "Enable finding stops" and type in key parameters.



Key parameters:

• Minimum stop duration in seconds:

The sensor will start logging a stop if a count is not detected for more than the value in "Minimum stop duration in seconds".

Stop registration threshold in seconds:

The user will be prompted to register stop causes if stops are more than the value in "Stop registration threshold in seconds". Any stop shorter than this threshold will be automatically registered as "Micro-stop"

· Example:

If a sensor does not detect a count for more than 60 seconds (60 in "Minimum stop duration in seconds"), the system will start logging a stop. If stop continues for more than 600 seconds (600 seconds in "Stop registration threshold in seconds"), the system will prompt the user to register a stop cause.

Subtract cycle time from stops toggle:

Cycle time subtraction works by subtracting the cycle time before determining whether there is a stop in Factbird. The cycle time is derived from the "**Validated speed**" of the sensor, batch, or product. Examples are:

- In the case of long cycle time production (e.g., 15 minutes for one product, 30 minutes for another), using this function with the batch function enables you to detect stops by product.
- In the case of a fast production line (short cycle time), using this function enables you to calculate downtime more precisely. For example, instead of logging a stop for 10 seconds, you subtract a cycle time of 6 seconds and log the stop for 4 seconds.

System Configuration - Sensor Settings



Confirm the sensor setup

Go to "SENSOR SETUP" tab, confirm the setup.

- "Data multiplier": The number in this field is used to multiply the sensor value.
- "The type of wiring for the attached sensor": Choose the type of the sensor connected.
- "Rollover value" "Rollover threshold": For Factbird DUO, please leave the default values for the Rollover value (65536) and Rollover threshold (300) unless adjustments are required for custom hardware or a specific use case. The Rollover value is defined by the maximum number that can be counted by the hardware. The Rollover threshold is defined by the maximum number that can be counted within one sample and used by the system to discern instances of hardware power cycling or rollovers.
 - For a specific case, e.g., using a PLC:
 Rollover value: In the case of a 16-bit counter, the maximum value it can count is 2^16 (two to the power of sixteen). The Rollover value should be set to 65536.
 Rollover threshold: If the line-validated speed is 100 pcs/min and the sample rate is every 5 seconds, the maximum number within one sample is 100 pcs / 60 seconds× 5 seconds=8.33 pcs. Normally, it is recommended to double

the value to get a good threshold. In this case, 16.

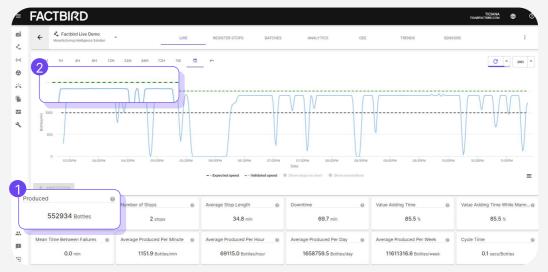


The "Counter can reset" checkbox should be always selected for Factbird DUO.



Validate the data

- 1. Confirm "Produced" amount in KPI. This shows the number of items produced.
- 2. Confirm output is lower than the green line "Validated speed".

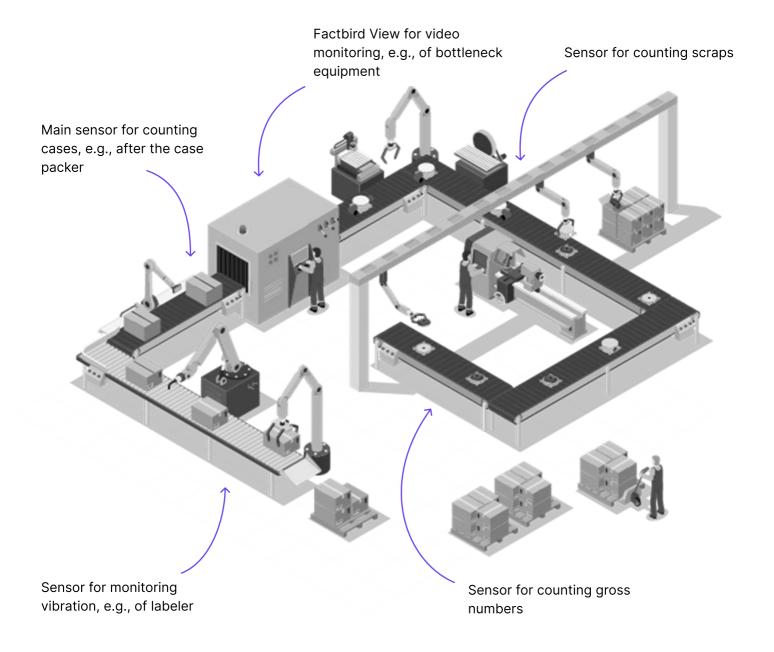


- Green line = Validated speed
- Black line = Expected speed

Understanding lines and sensors

What is considered a 'Line' in Factbird?

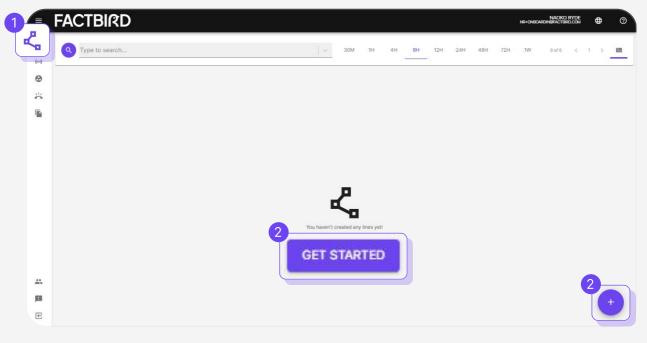
- A 'Line' in the Factbird system consists of one or more sensors.
- One line has one OEE and one batch, no matter of how many sensors it consists of.
- Every line has one main sensor for bottleneck and one other sensor to supplement the main sensor's data analysis.
- Line is normally a combination of equipment where the product flows without physically leaving the line.

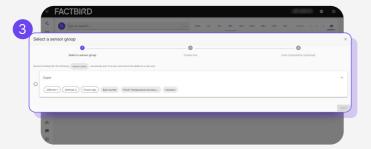


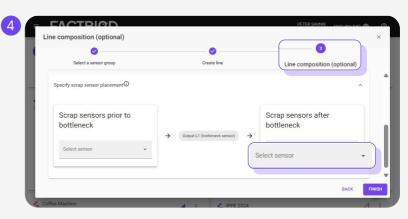
Creating lines

Create lines

- 1. Click on "Lines" from the menu on the left side of the view.
- 2. Click on "GET STARTED" or "+".
- 3. Follow the steps to create a line.
- 4. If you have multiple sensors, one of which is a scrap counter, you can select the sensor as a scrap sensor in the "Line Composition (optional)" step.





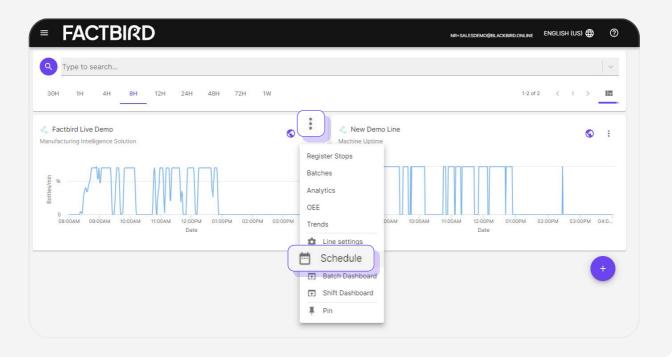


Setting up shift schedule

1

Set up shift schedules

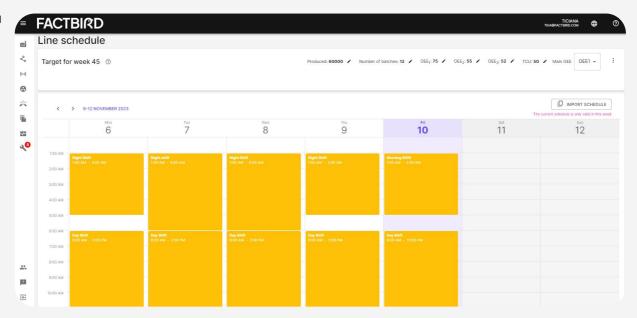
Click on the three dots of a line and select "Schedule".



2

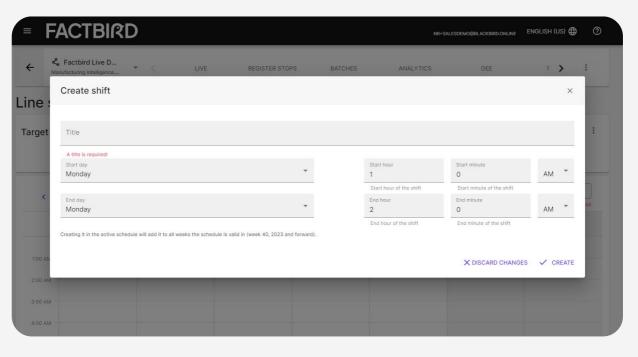
Create shifts

Click anywhere on the calendar to create a daily shift for that week; this will recur every week.



System Configuration - Set up Shift Schedules and Shift Dashboard

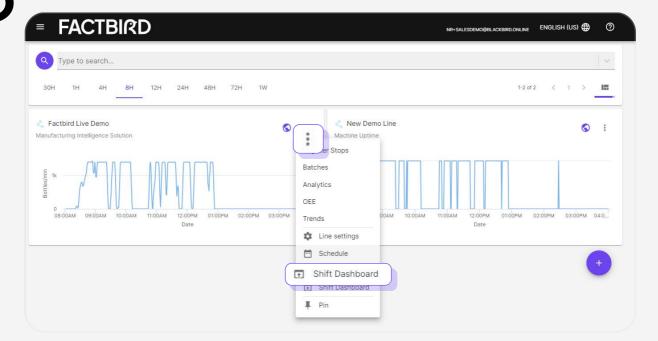
Fill in the information to create the shift and click on "CREATE".



Visualizing real time shift progress

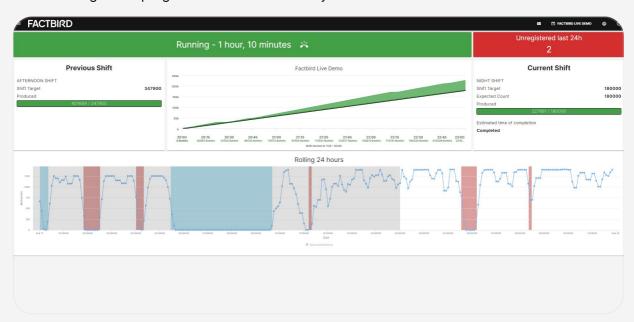
Visualize real time shift progress against shift target

Click on the three dots on the line and select "Shift Dashboard".

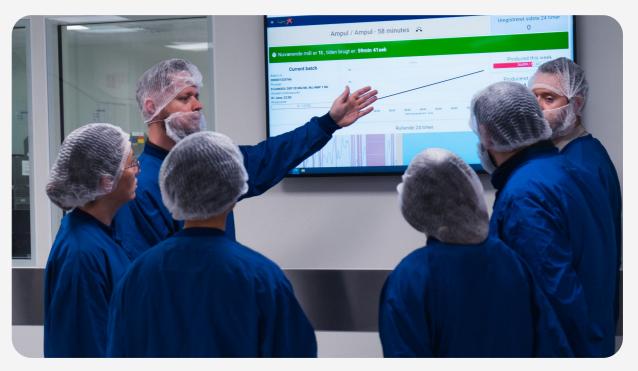


System Configuration - Set up Shift Schedules and Shift Dashboard

The shift target and progress will be automatically calculated and visualized.



Display Dashboard on a flat screen

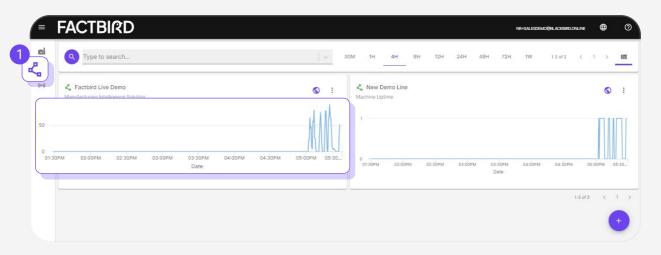


Monitoring live data

1

Live page

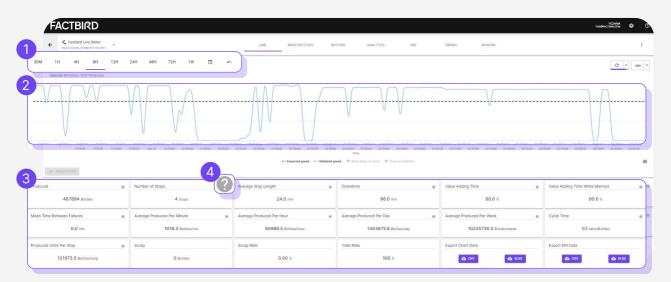
- 1. Click on "Lines" from the menu.
- 2. Choose the desired line.



2

Monitor live flow and KPIs

- 1. Choose a time range, such as "Last 24 hours", "1 week", or "Morning Shift" (click the calendar icon for more presets).
- 2. Zoom in on the live graph by dragging and dropping.
- 3. View various KPIs below the live graph. KPIs are dynamic and automatically calculated based on the selected time range.
- 4. Hover over the "?" mark on each KPI for more information.



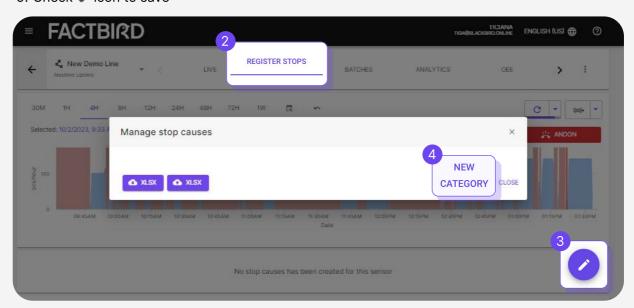
• Real time production output: X axis - time, Y axis - volume

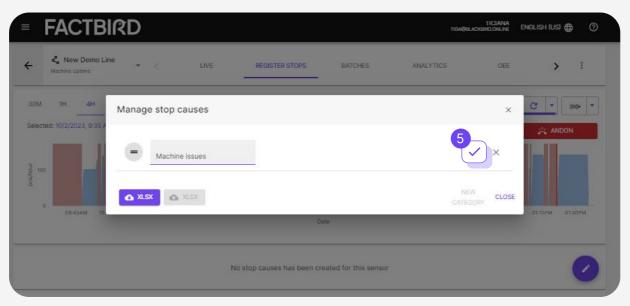
Creating stop causes

1

Create stop categories

- 1. Select the line you want to configure.
- 2. Go to "REGISTER STOPS" page.
- 3. Click the purple pen icon.
- 4. Click "NEW CATEGORY" and create a category. e.g. Machine issues
- 5. Check ✓ icon to save

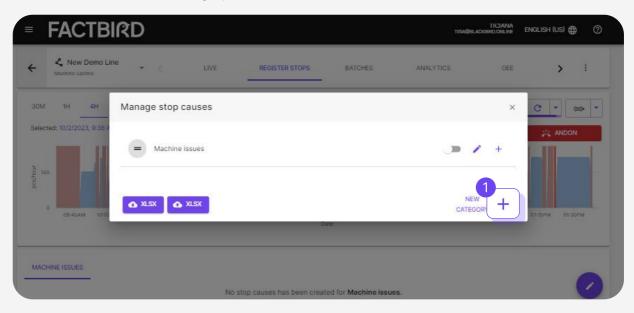




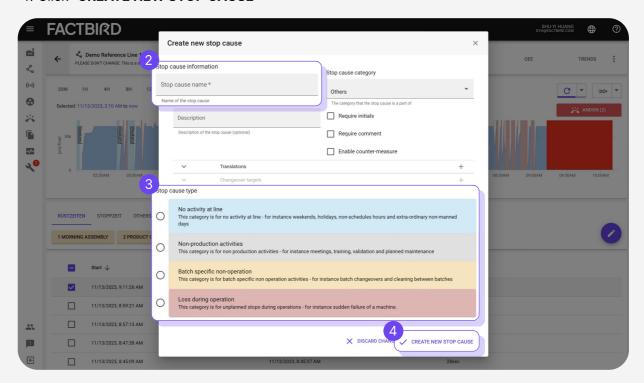
2

Create downtime reasons

1. Click the + icon in the category to create a downtime reason.



- 2. Type in the stop cause name
- 3. Select the correct type from "Stop cause type" e.g. Loss during operation
- 4. Click "CREATE NEW STOP CAUSE"



Mass importing is available for users who already have a list of downtime categories/causes.

Registering causes on detected stops

1

Select unregistered downtime (indicated by a red bar with no text)

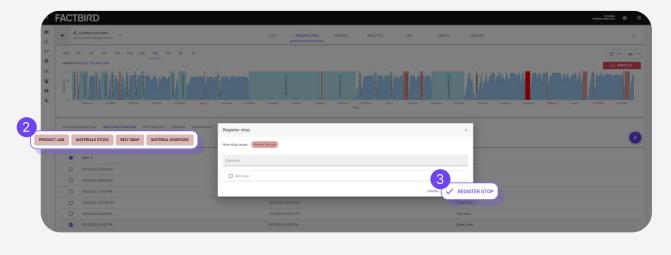
1. Select downtime by clicking the red bar.



2

Select a downtime reason and complete registration

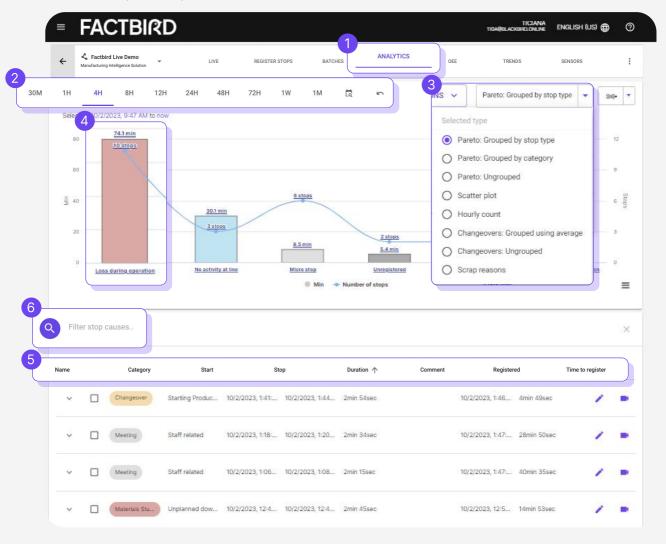
- 1. Navigate the categories just below the graph, then choose the correct downtime reason
- 2. Click "REGISTER STOP"



Downtime analytics

Downtime analytics

- 1. Navigate to your desired line then click the "ANALYTICS" tab.
- 2. Select a time range e.g. last 24 hours, morning shift etc..
- 3. Select a chart type.
- 4. Click on a bar to see the breakdown.
- 5. Click a column to sort the list of stops. e.g. Duration to see the longest stops.
- 6. Filter stops as required.



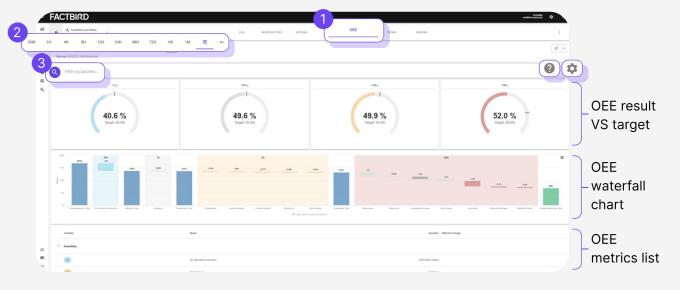
Hourly count chart: Shows analytics and issues for each hour Scatter plot: Shows how frequently issues are progressing Scrap reasons: Shows a distribution chart of scrap reasons

OEE analytics

2

Overall Equipment Efficiency (OEE) analytics

- 1. Navigate to your desired line then click the "OEE" tab
- 2. Select a time range e.g. last 24 hours, morning shift etc..
- 3. Filtering by product in the search field provides SKU specific OEE.



- The gear icon (allows to type in OEE targets on OEE meters.
- The "?" (2) shows how various OEE metrics are calculated in the Factbird system.
- Scrap is calculated automatically as quality loss. Scrap sensor can be set up on "Line Settings".

For more information on calculating OEE, please visit our website.

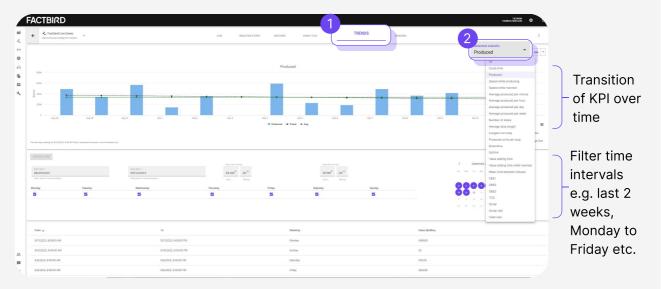
OEE complete guide is available here.

KPI trend analytics

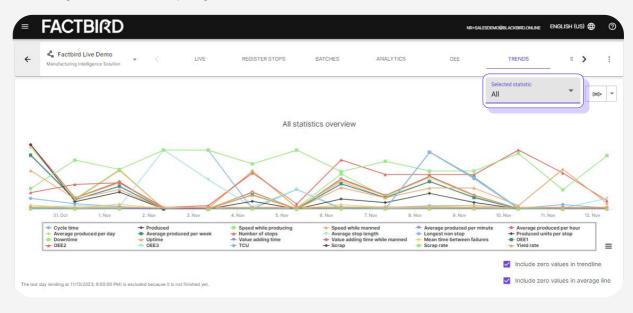
3

Trend of Key Performance Indicators (KPIs)

- 1. Navigate to your desired line then click the "TRENDS" tab or any KPI on "LIVE" page.
- 2. Choose a KPI you want to see over time by clicking on "selected statistic" e.g. OEE, produced, downtime.



Choosing "All" allows analysing correlation between KPIs.



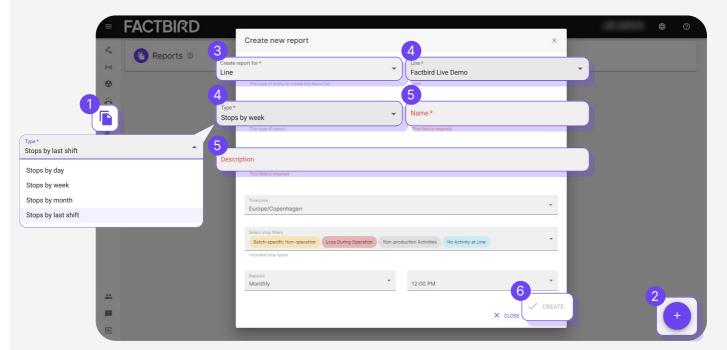
Scheduled reports

4

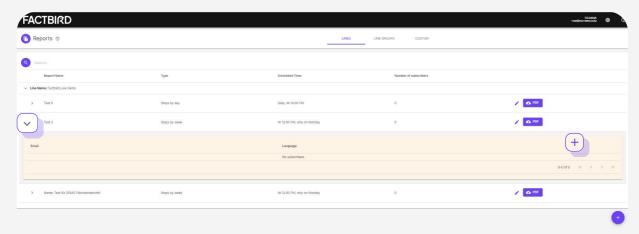
Scheduled reports

Built-in scheduled report capability schedules PDF performance report to selected emails at desired times.

- 1. Select "Scheduled reports" from the menu
- 2. Click "+" to add report
- 3. Select "Line" in the "Create report for" dropdown
- 4. Select desired line & report type. e.g. Selecting "**Stops by last shift**" generates a shift report sent out every time a shift ends.
- 5. Input report name and description
- 6. Click "CREATE"



7. After creating the report click the arrow corresponding to the report to add subscribers (email that will receive the report)



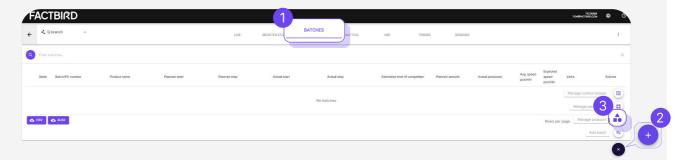
Creating products

What is a batch?

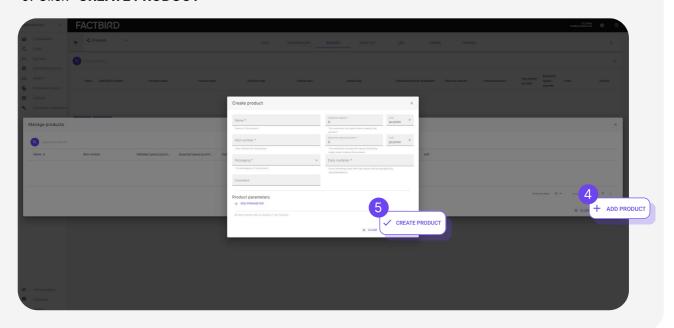
PO or a work order of a product with planned production amount.

Create products

- 1. Navigate to your desired line then click the "BATCHES" tab
- 2. Click "+" to:
- "Manage packagings": Unit of products such as pcs, bottles, can, boxes. Pcs is default.
- 3. Click "Manage products"



- 4. Click "ADD PRODUCT" and fill in the required fields
- 5. Click "CREATE PRODUCT"

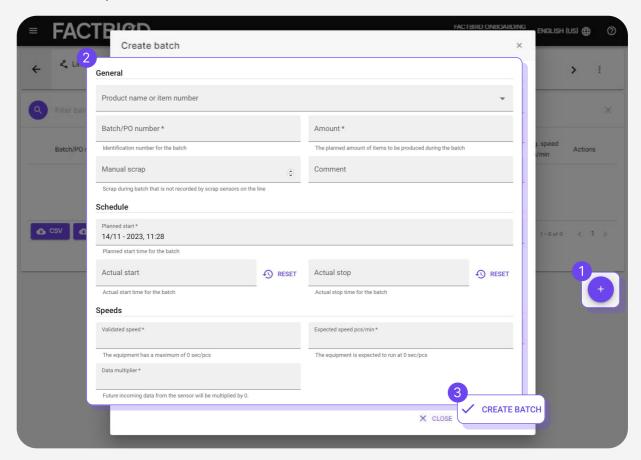


Creating batches

2

Create batches

- 1. Click the "+" icon and click on "Add batch"
- 2. Select the product from the dropdown menu and fill in the required fields
- 3. Once done, click on "CREATE BATCH"



Created batches can be viewed on the list of batches.

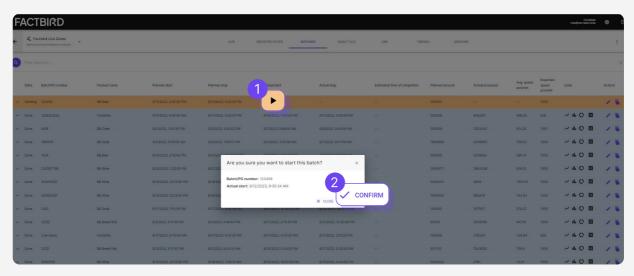
Starting and stopping batches

3

Run a batch

- 1. Click the play icon to start a batch
- 2. Click "CONFIRM" on the pop-up window.

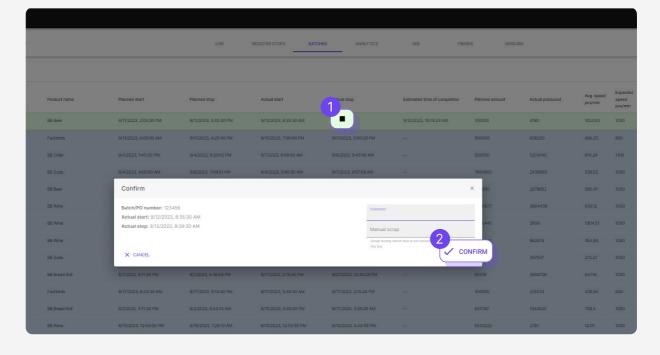
 The batch turns green = currently running batch



Use the search bar to find batches by keywords

Stop a batch

- 1. A currently running batch is shown in green. Click on the stop icon to stop the batch.
- 2. Click "**CONFIRM**" on the pop-up window. The batch turns grey = completed batch

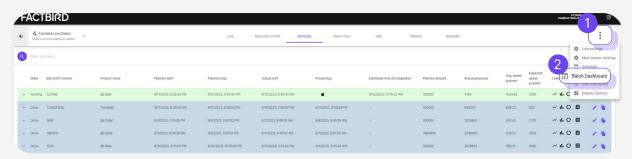


Visualizing real time batch progress

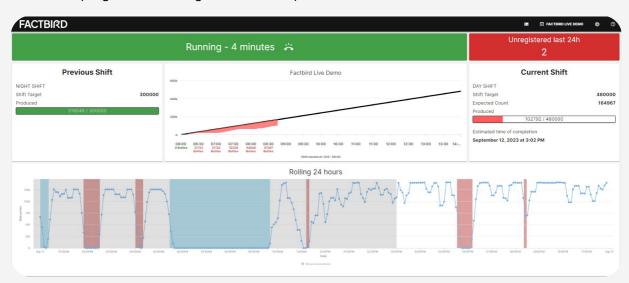
4

Visualize real time batch progress against batch target

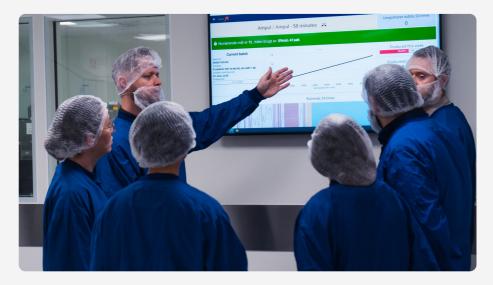
- 1. Click on the three dots on the main navigation menu.
- 2. Click on "Batch Dashboard"



When you have a running batch (in green), the "Batch Dashboard" updates to reflect the current status and progress according to the batch specifications.



Display Dashboard on a flat screen



Setting up productivity alarms

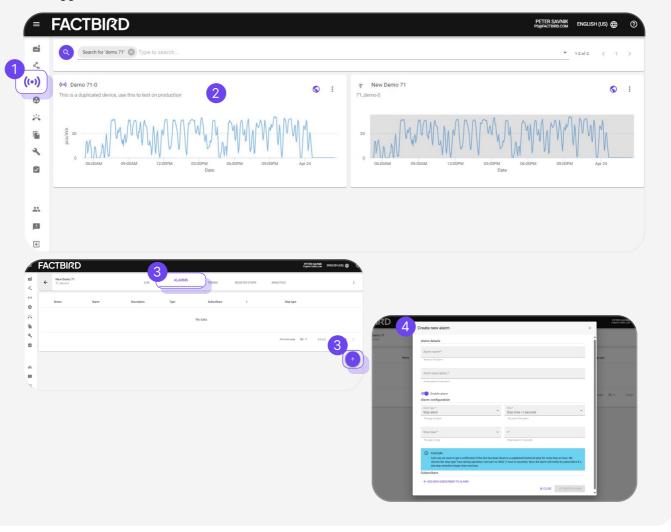
What is Factbird productivity alarms

Setting up speed alarms in Factbid automatically sends alarm notifications via email and SMS.

- Stop alarm: Stop alarms can be set up based on the type of downtime and its duration.
- Speed alarm: Speed alarms can be set up based on the actual line speed compared to the target speed.

Create an alarm

- 1. Click on "Sensors" from the menu on the left side of the view
- 2. Click on the sensor you want to set up alarms for.
- 3. Click on the "ALARMS" tab and then the "+" button to create an alarm.
- 4. Fill out the form, "ADD NEW SUBSCRIBER TO ALARM" and click "CREATE ALARM".
- 5. Created alarms are shown on the "**ALARMS**" tab, where you can edit them and see the list of triggered alarms.



Setting up Andon

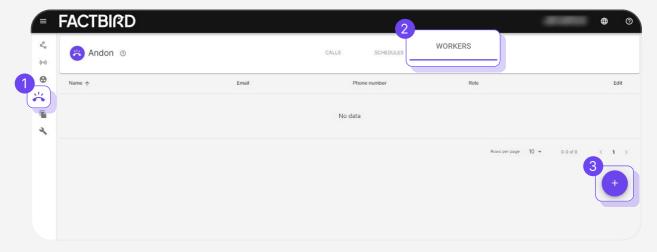
What is a Andon?

In manufacturing terms, Andon is a system which alerts support teams (maintenance, management) of a problem. Our Andon feature is standard for every user.

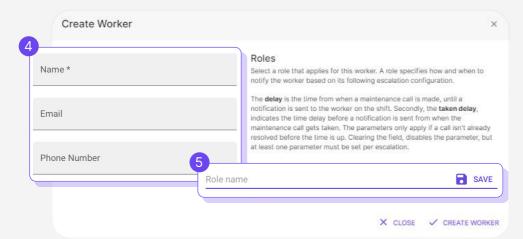
1

Create workers

- 1. On the menu click on "Andon"
- Schedule: Shift schedules for contacts who receive and resolves Andon calls. e.g. John is on mechanics shift every day.
- Workers: List of contacts who receive and resolve Andon calls.
- 2. Click on the "WORKERS" tab
- 3. Click on the "+" icon to add workers

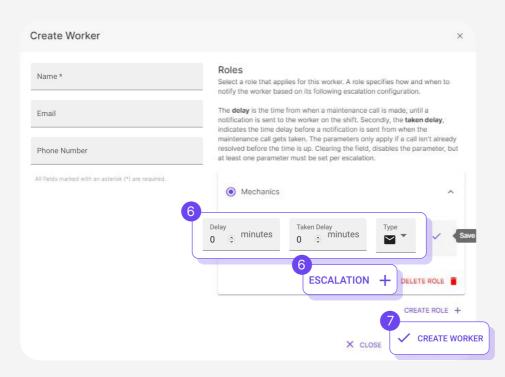


- 4. Type in name, email and phone number of a contact
- 5. Type in name for a "Roles" and click "SAVE". Click on the role.



How to use - Andon

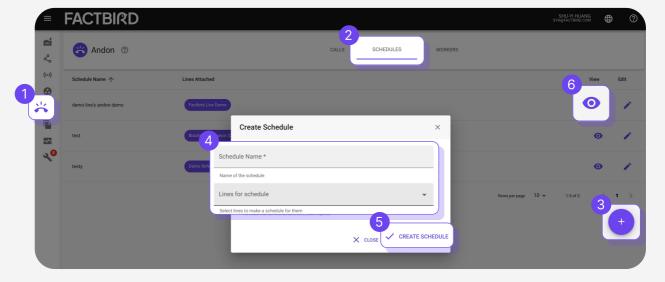
- 6. Click "ESCALATION + ", enter "Delay" and "Taken Delay" as required and "Save".
- 7. Click "CREATE WORKER"



2

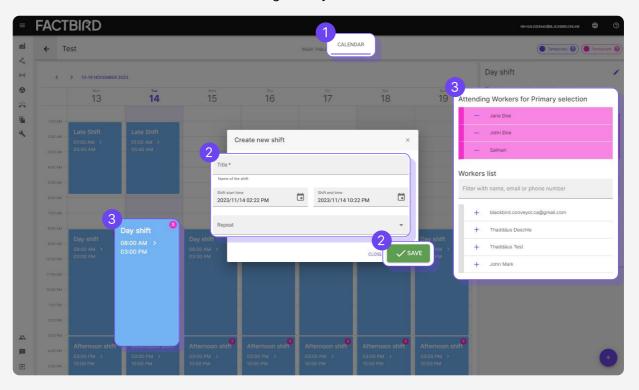
Create schedules

- 1. On the menu click on "Andon"
- 2. Click on the "SCHEDULES" tab
- 3. Click on the "+" icon to create a schedule
- 4. Type in name and choose lines for the schedule
- 5. Click "CREATE SCHEDULE"
- 6. Click on the view icon to go to "CALENDAR" and "WEEK TABLE"



How to use - Andon

- 1. Click on the "CALENDAR" tab
- 2. Click on "+" to create shifts. Type in "Title" and choose times and click "SAVE".
- 3. Click on the desired shift to assign workers. E.g. John is on day shift everyday. Andon call notifications will be sent to John during his day shift.

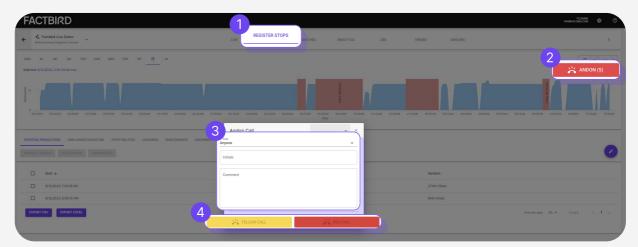


Triggering Andon calls

3

Call for help / Trigger Andon calls

- 1. Navigate to your desired line then click the "REGISTER STOPS" tab.
- 2. Click the "**ANDON**" button to trigger an Andon call. e.g. The machine jammed and I need help from mechanics to fix.
- 3. Select "Role": which team you need help from, type in initials and comment.
- 4. Click "YELLOW CALL" or "RED CALL". YELLOW means not urgent but as soon as possible, and RED means urgent.

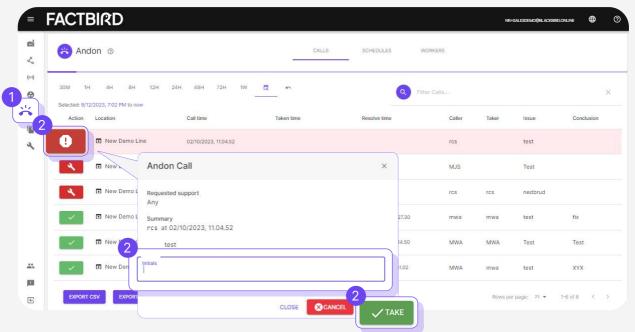


Taking and resolving Andon calls

4

Andon dashboard showing the list of Andon calls and the status

- 1. Click "Andon" in the menu to access the Andon dashboard.
- 2. Click an "Action" button from the list to take the call. Type in "Initials" and click "TAKE"



3. Click a call from the list to mark it as resolved, once resolving the issue. Type in "Solution" and "Initials" and click "RESOLVE"

