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    Search and pick items from inventory easily

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For each scenario:
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- Primary Persona
- Scenario Storyboard
- Solution Design Best Practices
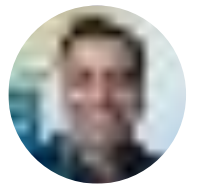- Solution Architecture

FLW Book of Dreams

Inventory App

Scenario Vision

Aadi - Store Associate   **Babak, Warehouse Picker**

Context	• Babak, a Store Associate works at a Contoso Store and directs customers to merchandize within the store, maintains the orderly appearance of sales floor, stocking shelves - when stocks run out he needs a simple way to reach the warehouse picker Babak to "look in the back". • Babak is a warehouse picker taking care of inventory – he services requests to pick items from the warehouse to the store, also takes care of inventory stocks in the warehouse and placing re-order requests to maintain healthy levels of inventory in the warehouse

Current State

⚠️ Aadi has no automated view of the inventory in his store and needs to either verify himself or rely on secondhand information

⚠️ Aadi needs to manually search for the warehouse picker or needs to have a IM conversation relying on shadow IT tools

⚠️ Babak has to reply on excel sheets or paper-based notice boards to locate SKUs in the warehouse – or worst look manually.

⚠️ Babak's needs to periodically keep checking inventory levels for various SKUs.

⚠️ Babak's needs to prepare a manual list of items to place orders for restocking– this process is error prone

⚠️ Babak needs to manage a list of quantity and sizes for every ordered product manually

⚠️ For incoming inventory Babak needs to make sure all items are placed in relevant bins – this is done with a manual list
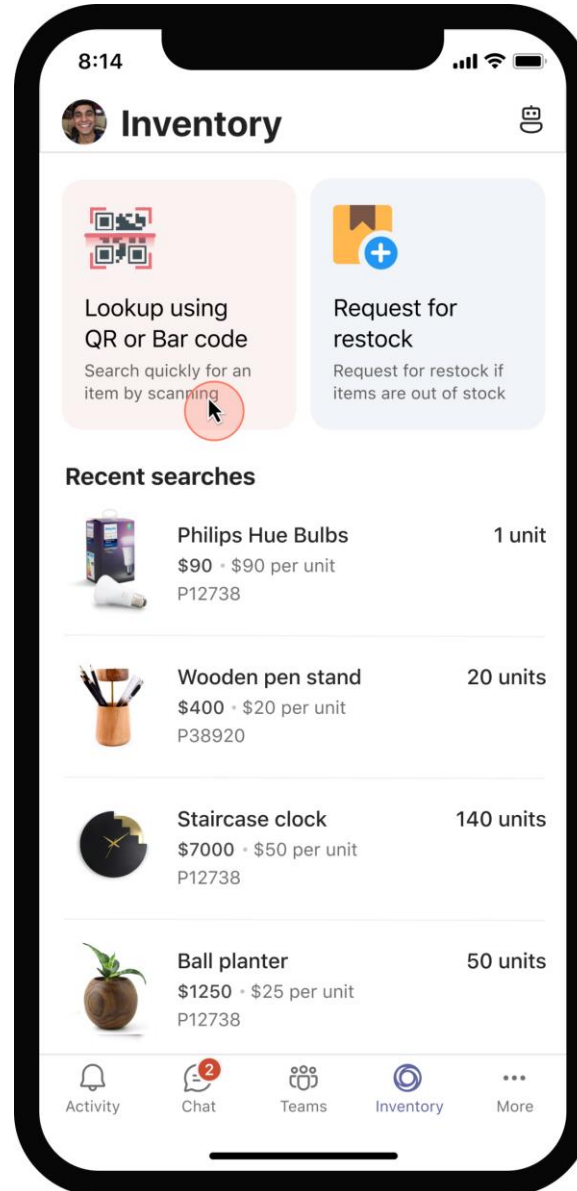
Future State

✓ Aadi uses the Inventory app to quickly look up the available stock in the shopfloor and warehouse behind the store.

✓ Aadi can quickly and effectively broadcast a voice message using Teams Walkie Talkie.

✓ Babak can use the inventory app to search for SKUs , find their exact location in seconds.

✓ The inventory app now flags warnings to Babak whenever a particular SKU stock falls below the threshold value

✓ The inventory app allows Aadi to place orders for restocking shelves, search for items using text search or have a bar code scanner

✓ The inventory app allows convenient management or various sizes and relevant quantities for the same SKU.

✓ Babak can now use the inventory app to pick up the incoming inventory and then mark those items as picked up. The app also guides Babak on where the items need to placed in the warehouse.

⚠️ – Points of Friction

Aadi Kapoor, Store Associate

Aadi Kapoor is a store associate at Contoso Retail. He directs customers to merchandize within the store, maintains the orderly appearance of sales floor, stocking shelves, and operates cash registers, financial transactions

One of the customers of Contoso retail approaches Aadi regarding availability of a smart bulbs in the store. The customer wants to make a bulk purchase of 8 bulbs whereas the shelves have have just 5 units.

The customer approaches Aadi with one of the bulbs in hand enquiring about availability of more such units in order to make a bulk purchase. Aadi uses the Inventory app to quickly look up the available stock in the shopfloor and warehouse behind the store.

Align code within the frame to scan
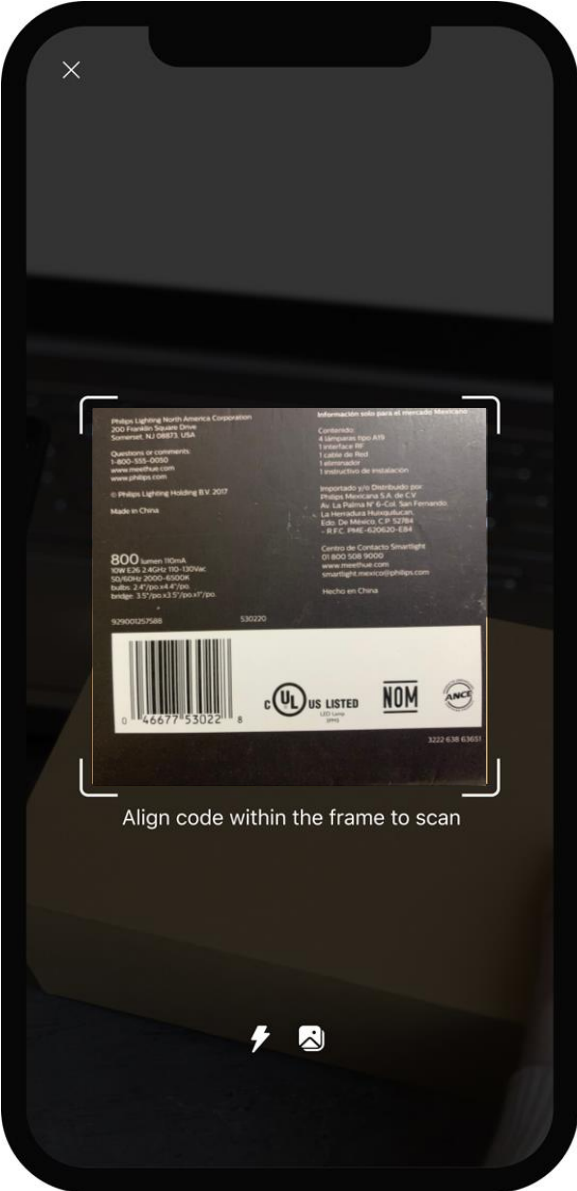
As Aadi opens the QR / barcode scanner directly from the app, the device camera opens and is used to scan the barcode of the item that the customer has brought forward.
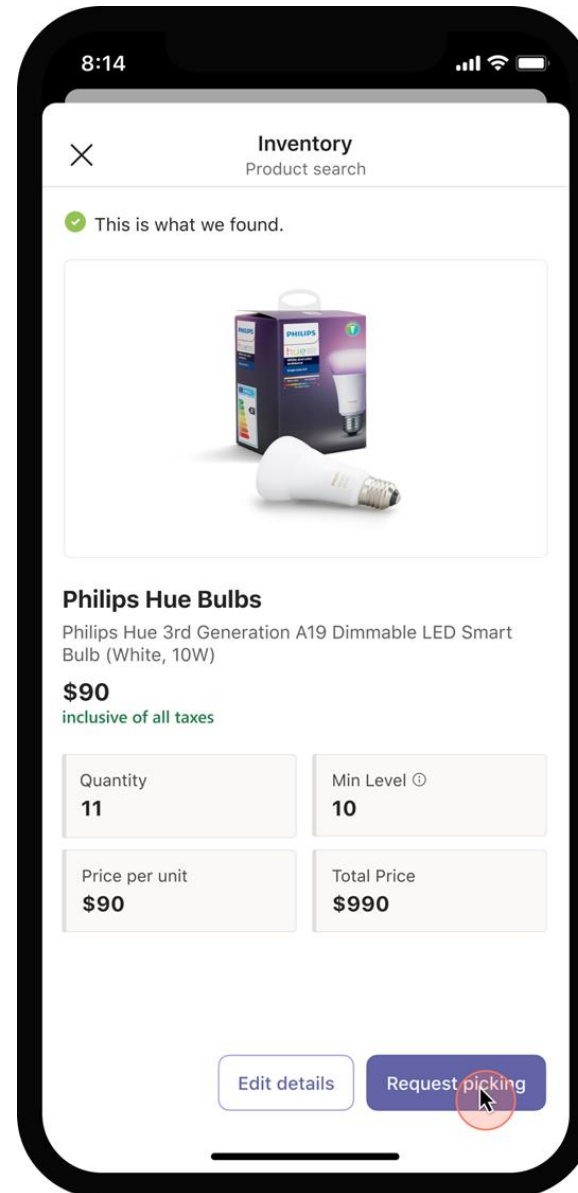
Once scanned, the app shows the details of the scanned product including the name, description and price. It also fetches the available real time stock at the store where Aadi works. There are a total of 11 units available at the store as confirmed by the app.
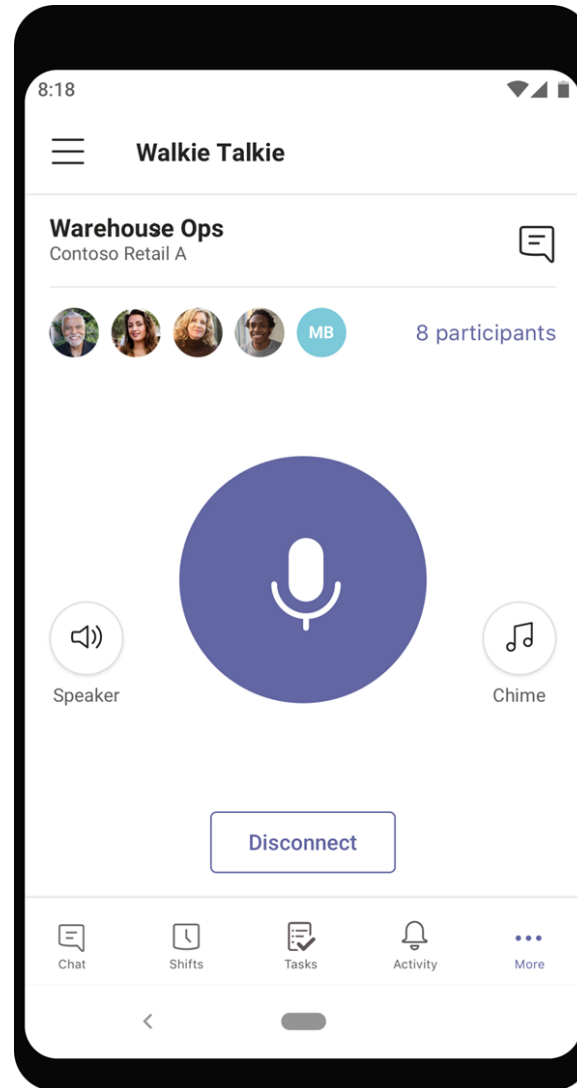
The rest of the stock must be in the warehouse. So Aadi uses the walkie talkie to quickly announce the customer request for smart bulbs. All warehouse pickers hear this broadcast from Aadi and anyone who is available may reply back confirming that they will fetch the items and bring it to shop floor.
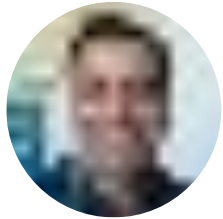
Babak Shammas, Warehouse Picker

Babak is a warehouse picker who works at Contoso warehouse. He pulls select items from storage to be brought for store shelve replenishment. His duties include reading digital / printed request, pulling the items, placing them in the right box / bin for replenishment of stock. He is also responsible for handling incoming inventory

Babak is on shift in the warehouse as he hears the broadcast from Aadi. Since he is available, he offers to find the product and bring it to the shop floor to service the customer
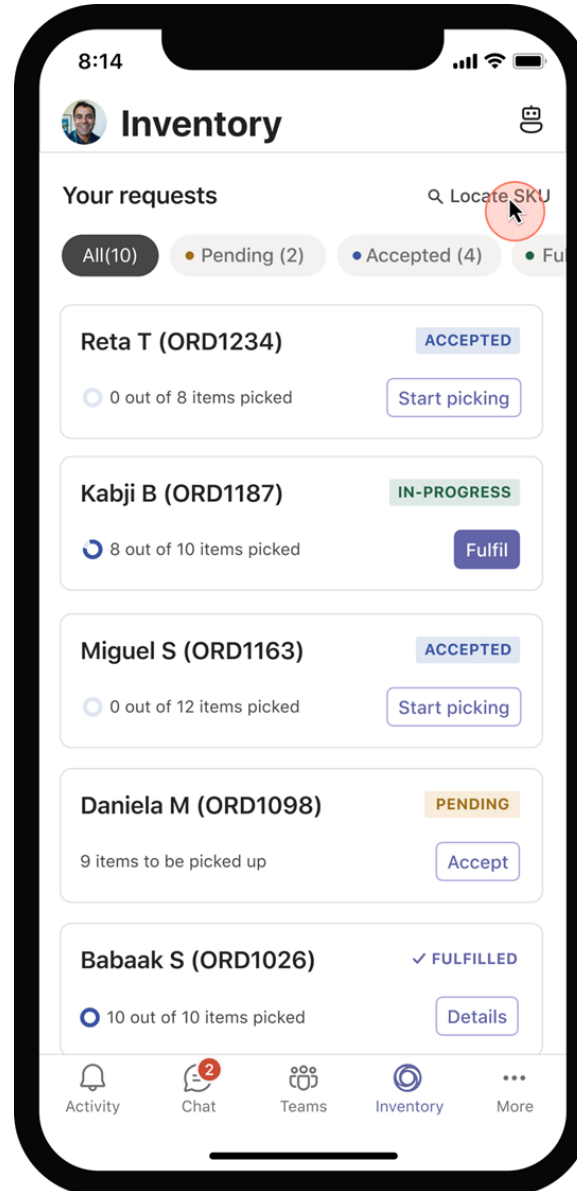
The inventory app provides a list of orders waiting to be picked by Babak. Using the 'Locate SKU' button, Babak is able to bring up a view to search and locate an item in the warehouse.
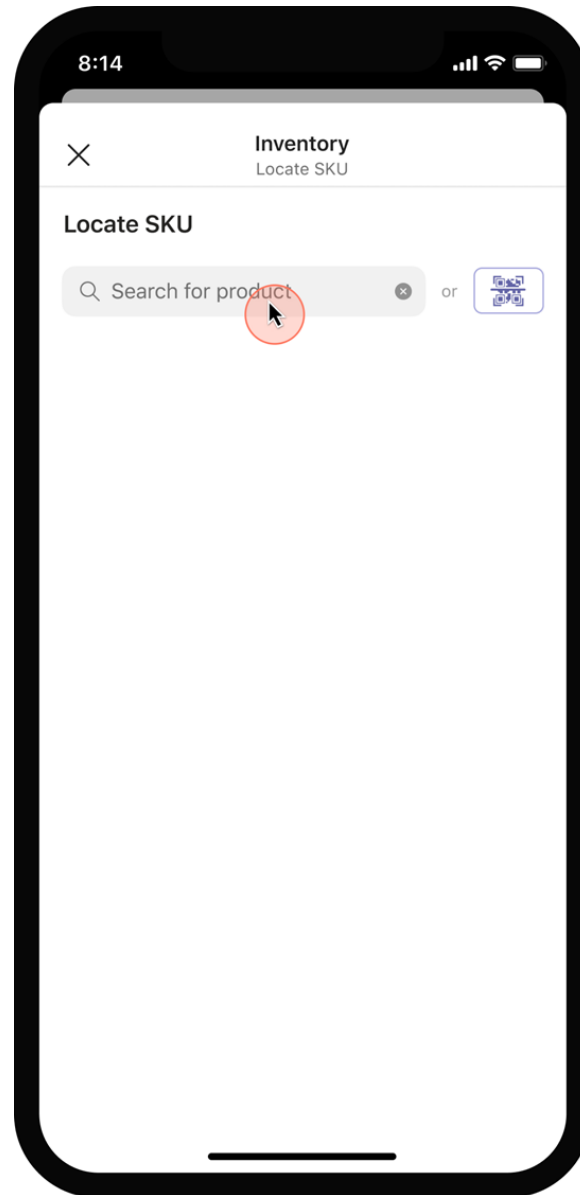
The Locate SKU pop provides a way for Babak to search an item by its name or using a Bar code scanner. In this case, Babak doesn't have the product in hand so chooses to search the SKU by typing in its name
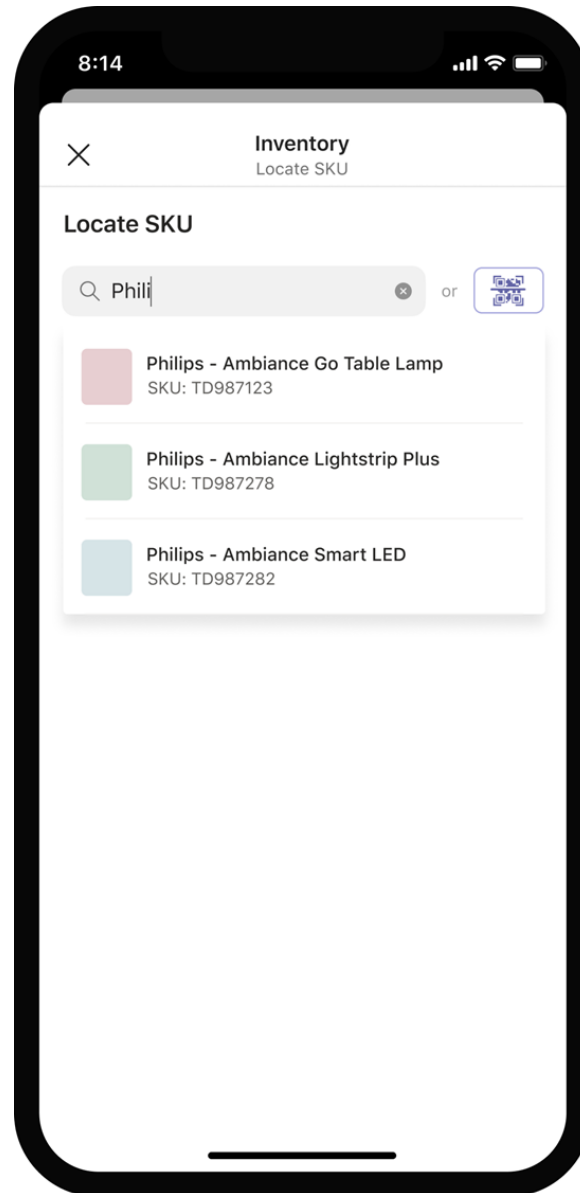
As he types, the app searches the inventory database and brings up products matching the search term.
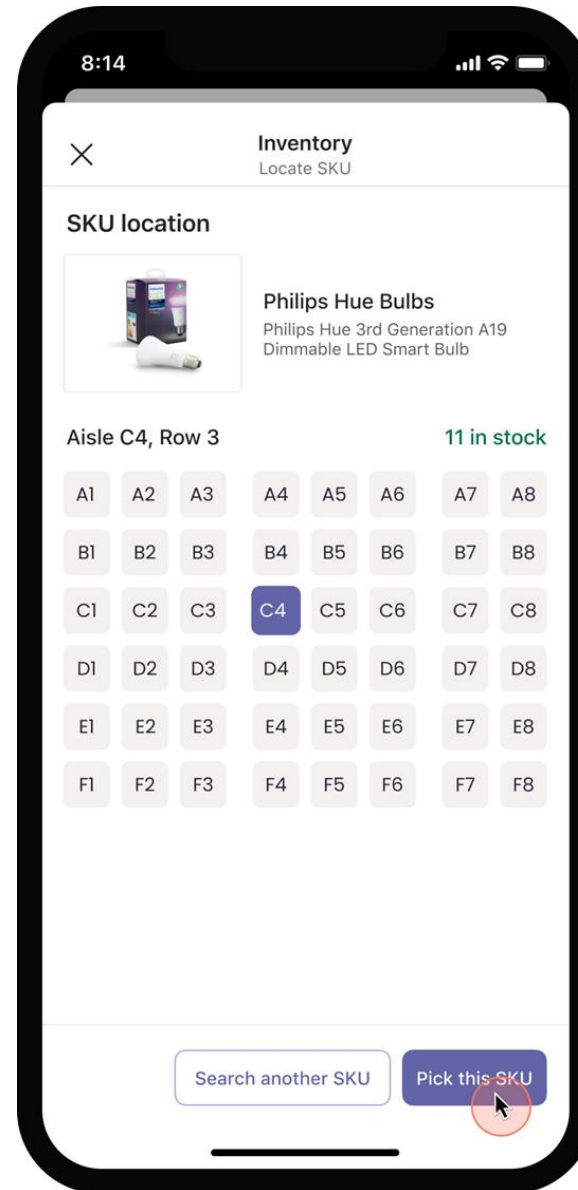
Once Babak selects the right product, the app shows a layout map of the warehouse, highlighting the aisle and row where the product is stocked.
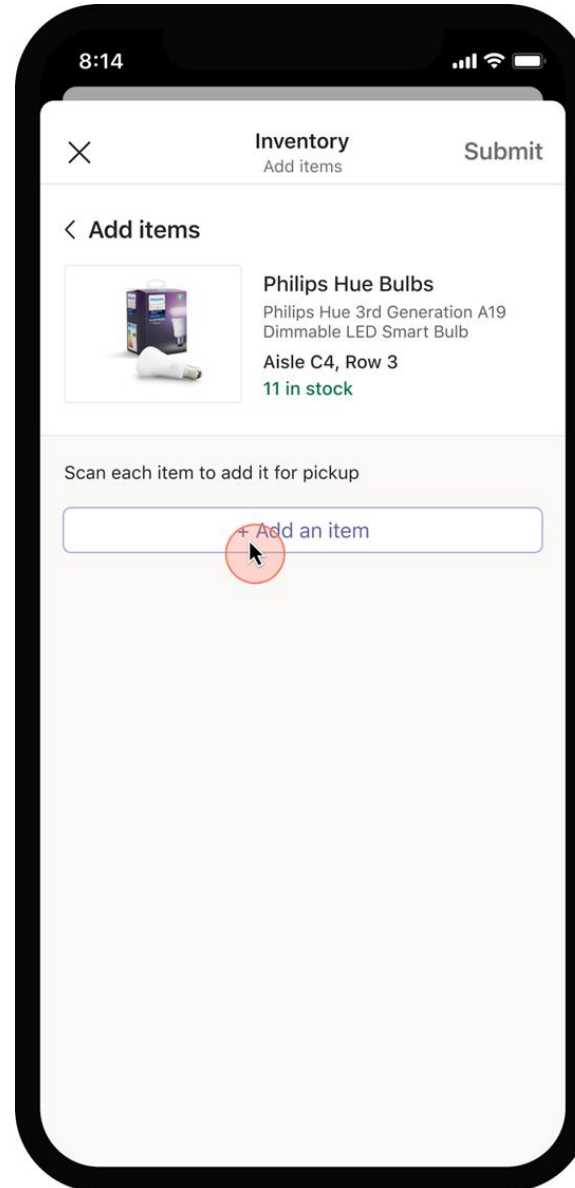
Upon reaching the exact aisle/column – where the item is stored, Babak picks up the items to scan them to add these items for pickup
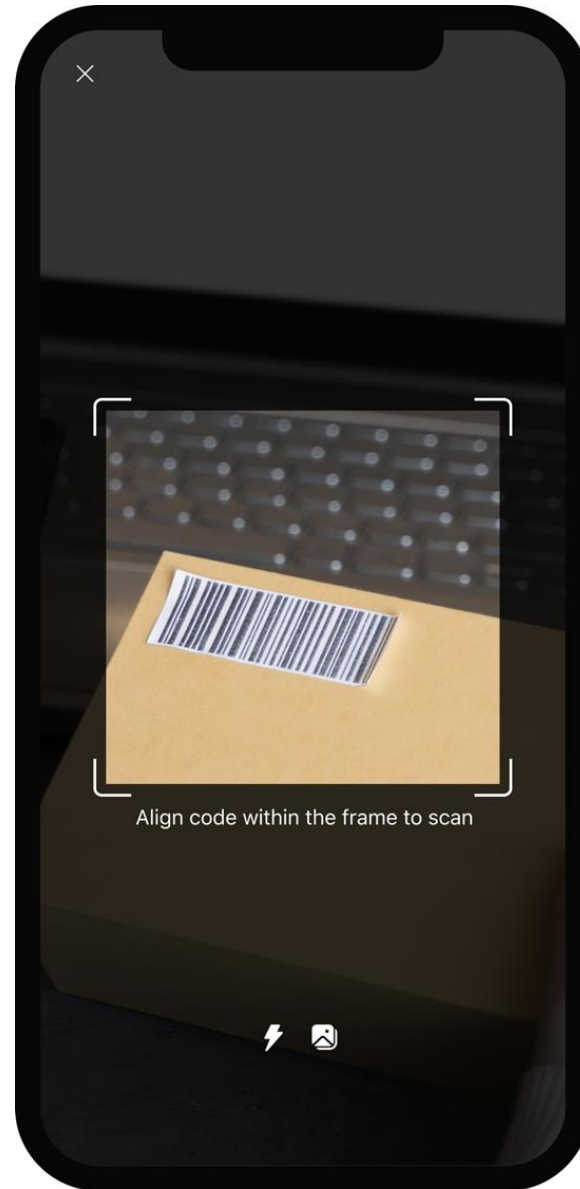
Babak picks up a single product and scans the barcode on the packaging for the system to show up the details of the item.
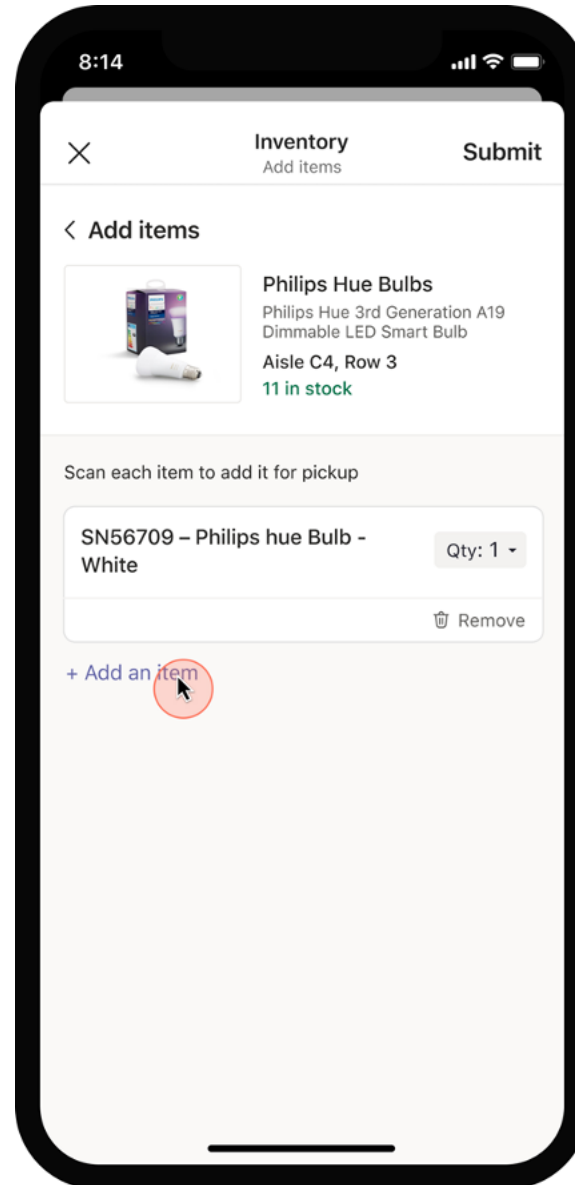
The app recognizes the barcode and shows Babak he has picked up the bulb. For each item to be added to the bin, Babak scans the items physically
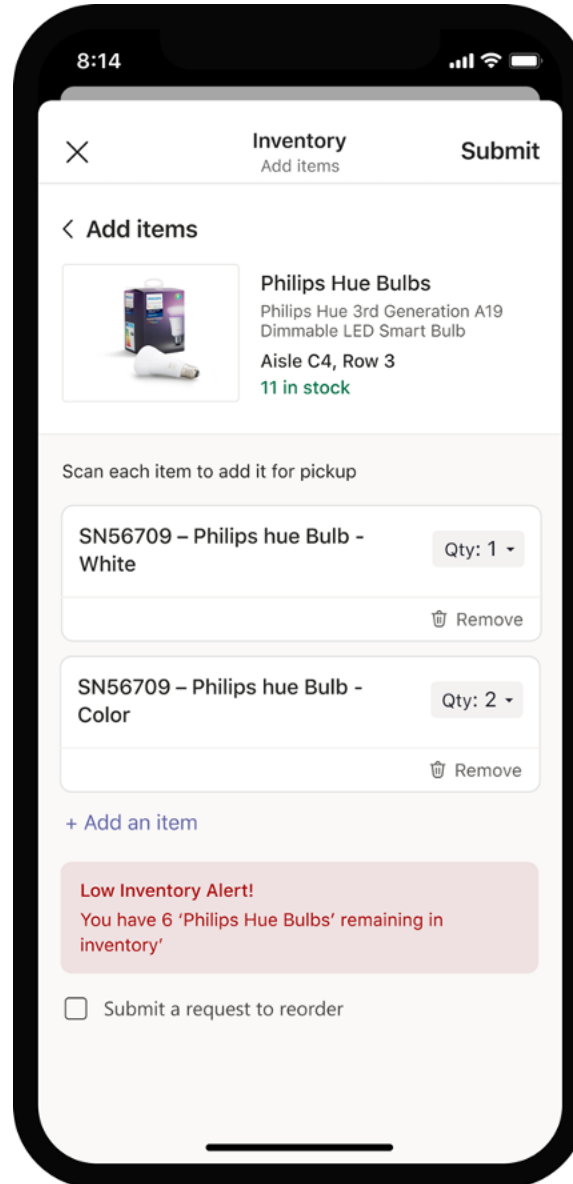
Babak scans and adds the Phillips Hue Bulb (coloured) to the list of items for pickup – marks the quantity as two – to complete the overall order. The system recognizes that the quantity of this product – has gone below the minimum stock inventory level – and presents a warning to Babak
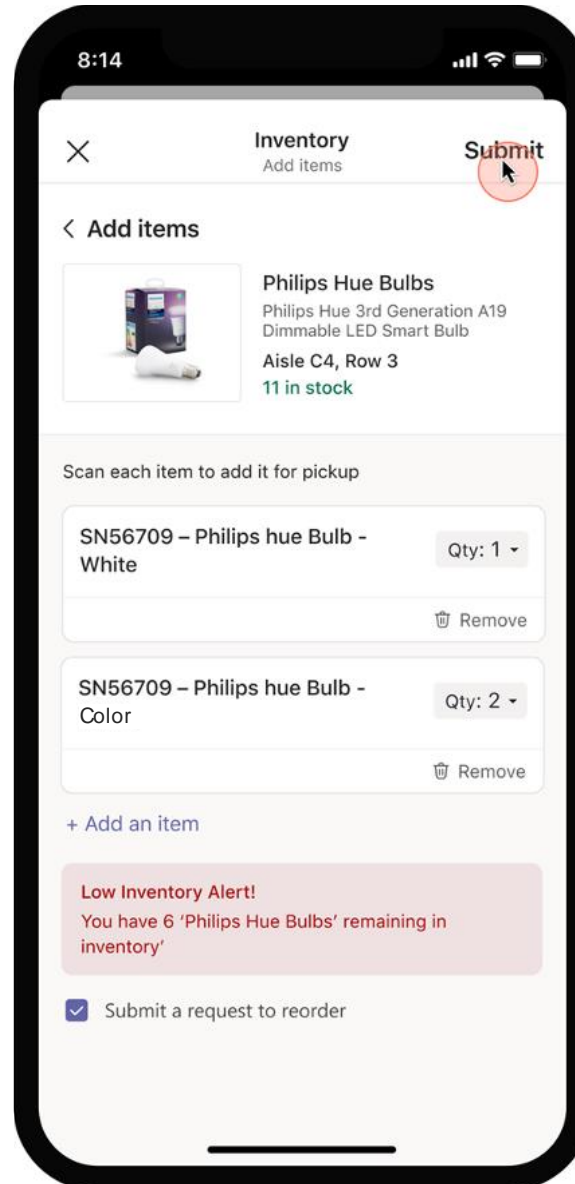
Babak checks the box for "Submit a request to re-order" and clicks on Submit to mark the order for the 3 light bulbs to be picked for Aadi in the store.

During his routine audit of store shelves every morning, Aadi finds that some shelves are empty and fewer than required items and need to be picked from the warehouse.
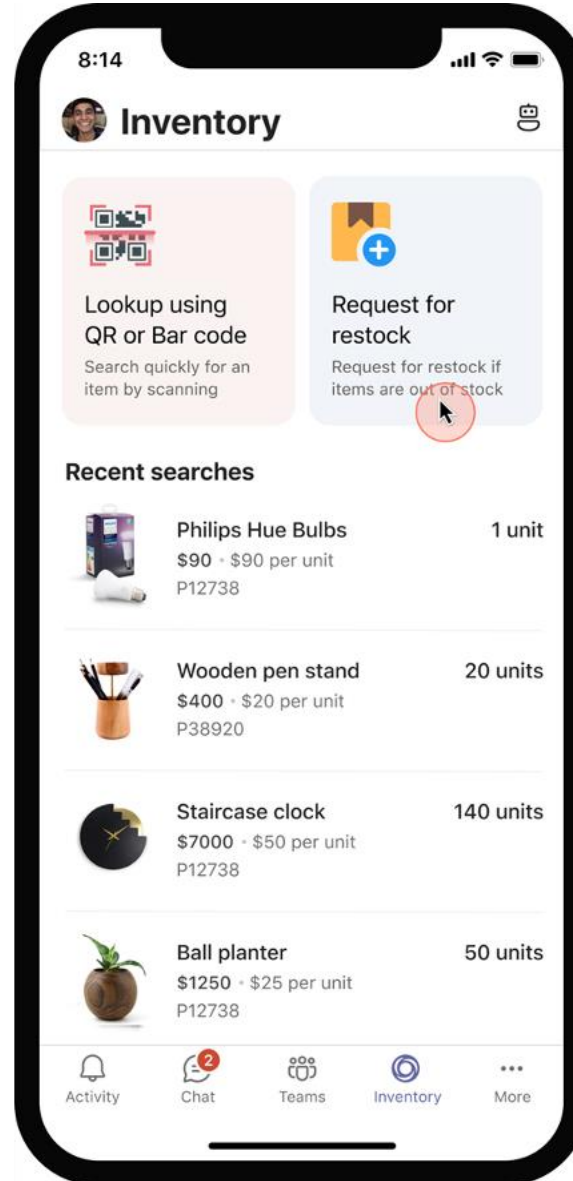
As a part of daily operations – Aadi also takes care of inventory levels in the shelf for various SKUs. Noticing particular products are low on the shelf, Aadi uses the "Request for Restock" option to submit requests for restocking these products.
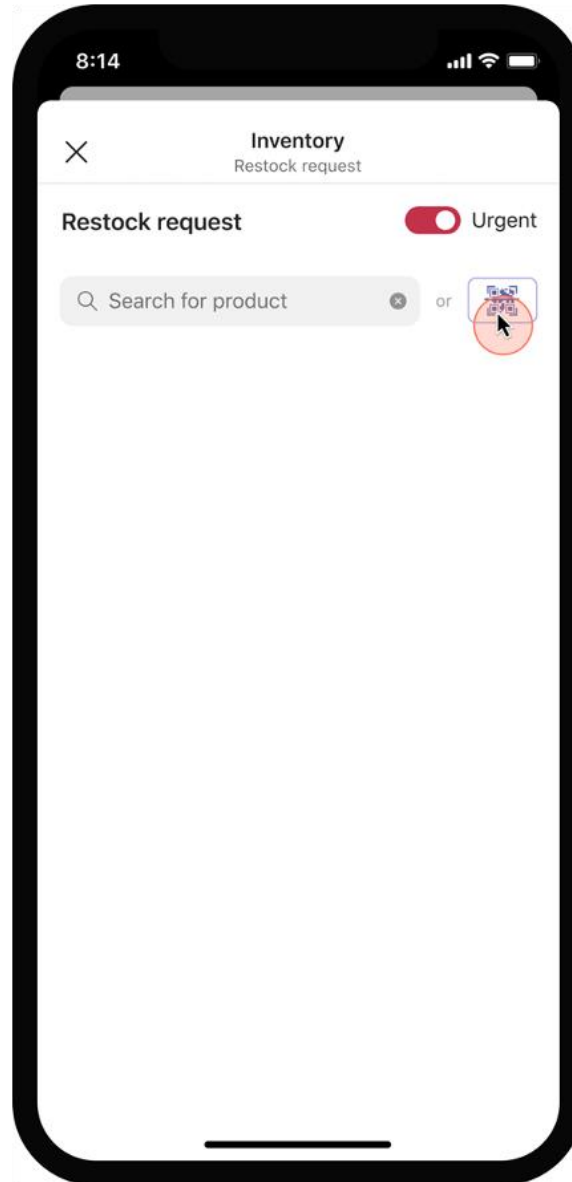
Aadi is presented with options to either do a text based search for which the order needs to be placed, OR an option to scan the QR code on the item. To save time Aadi chooses the scan bar code option.
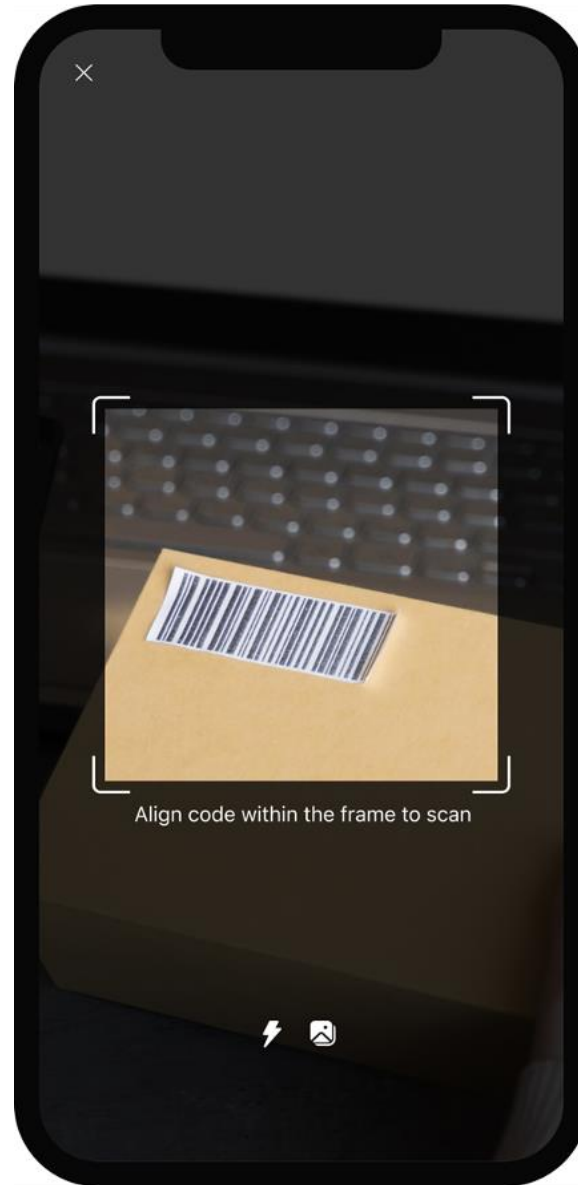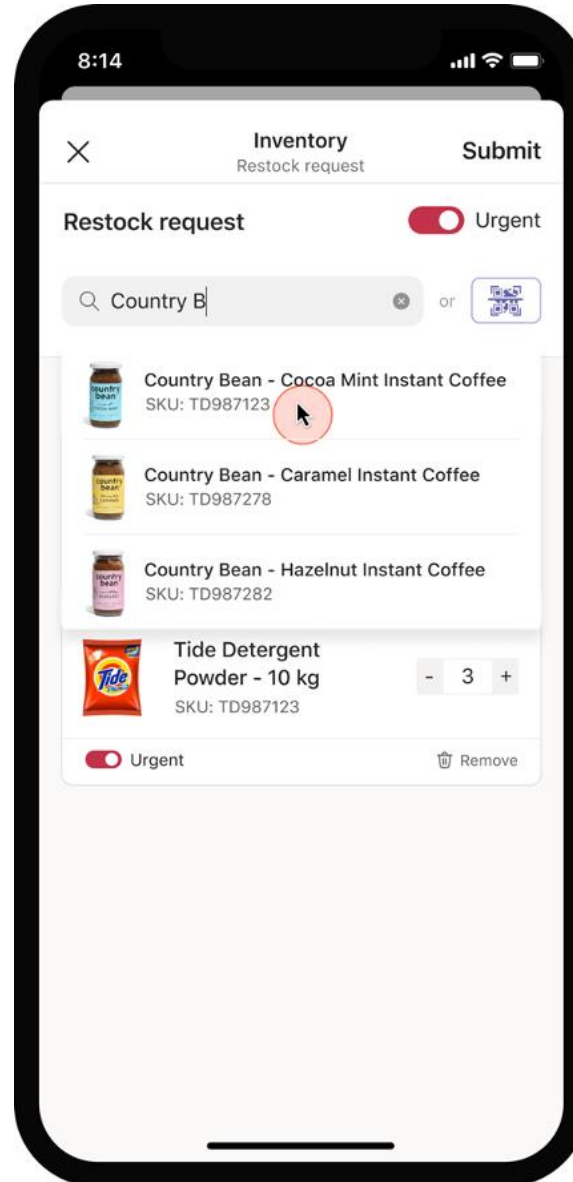
The app launches the phone camera for code scanning – and Aadi is able to scan the bar codes on the item
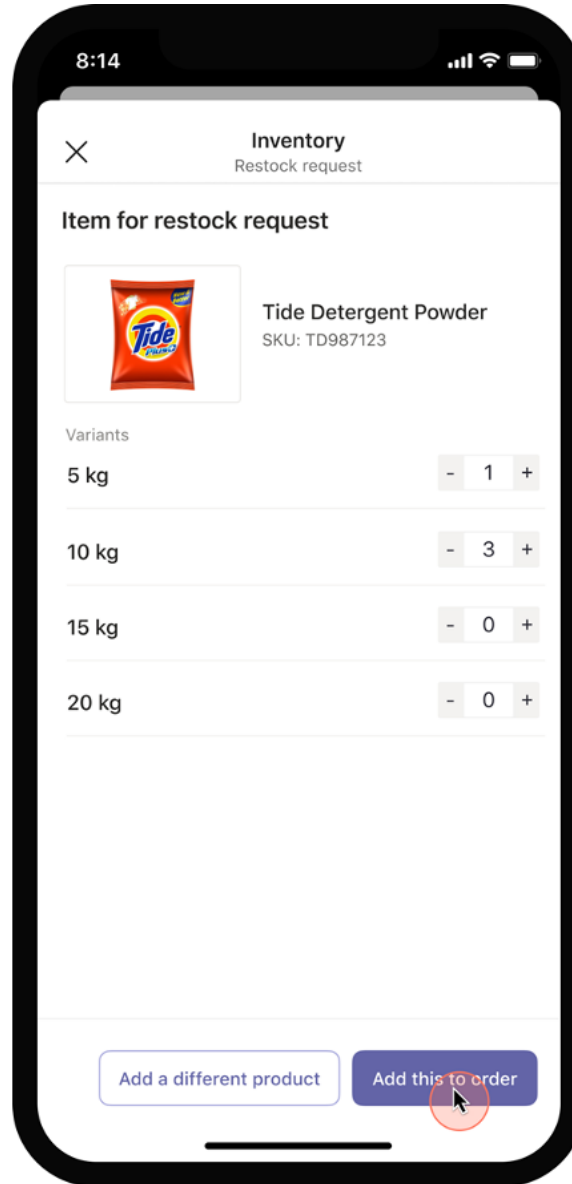
The app recognizes the product and presents options to Aadi to reorder in various quantities and sizes. Aadi can select relevant options and click on "Add this to order" to complete.
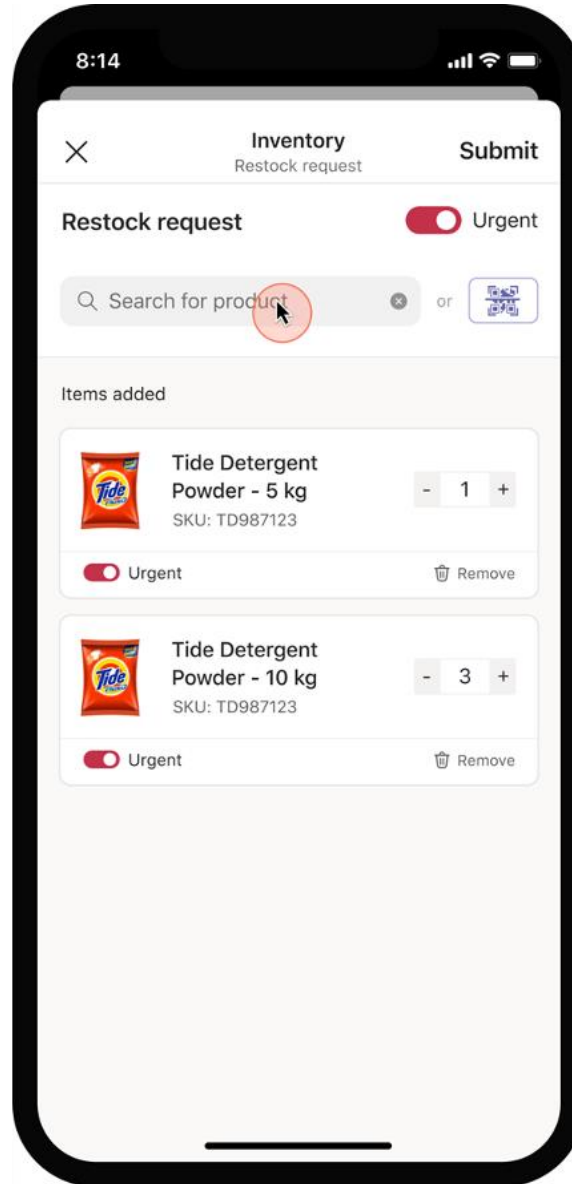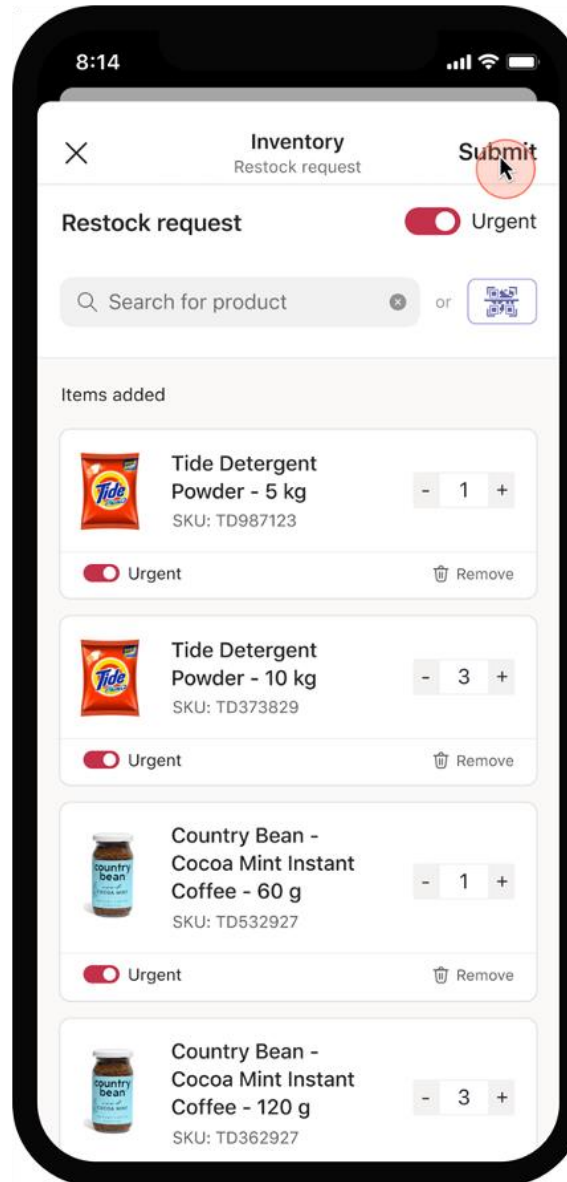
Aadi can now add different products to the "Restock request" in the same way.
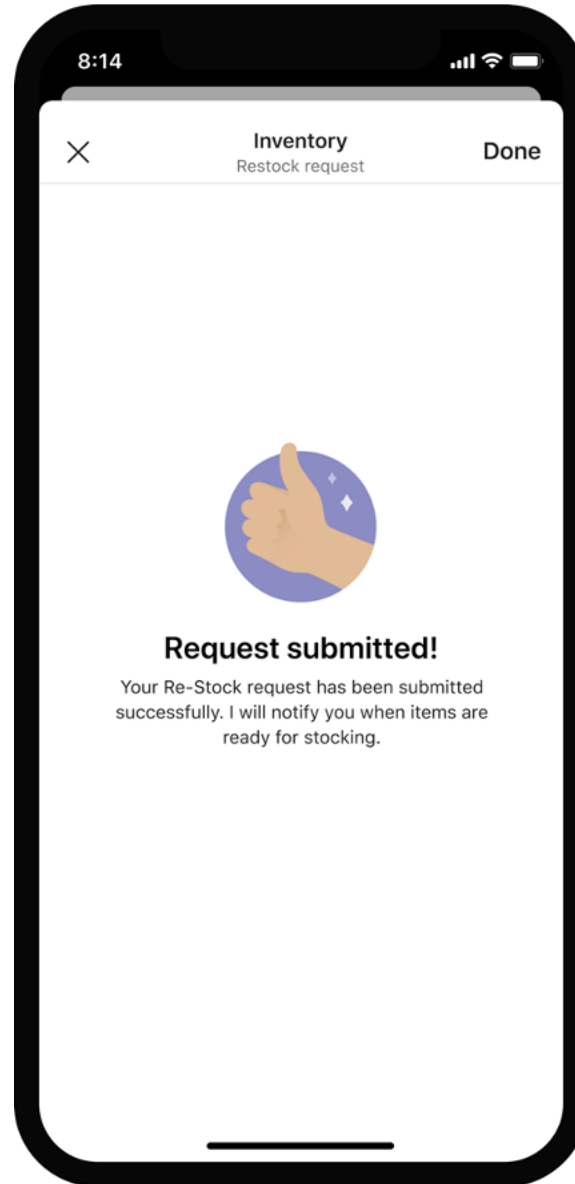
Aadi realizes he needs to add a few other items – and decides to search for the items using the text search option. As results pop up Aadi is able to find the product he's looking to add to the restock request.
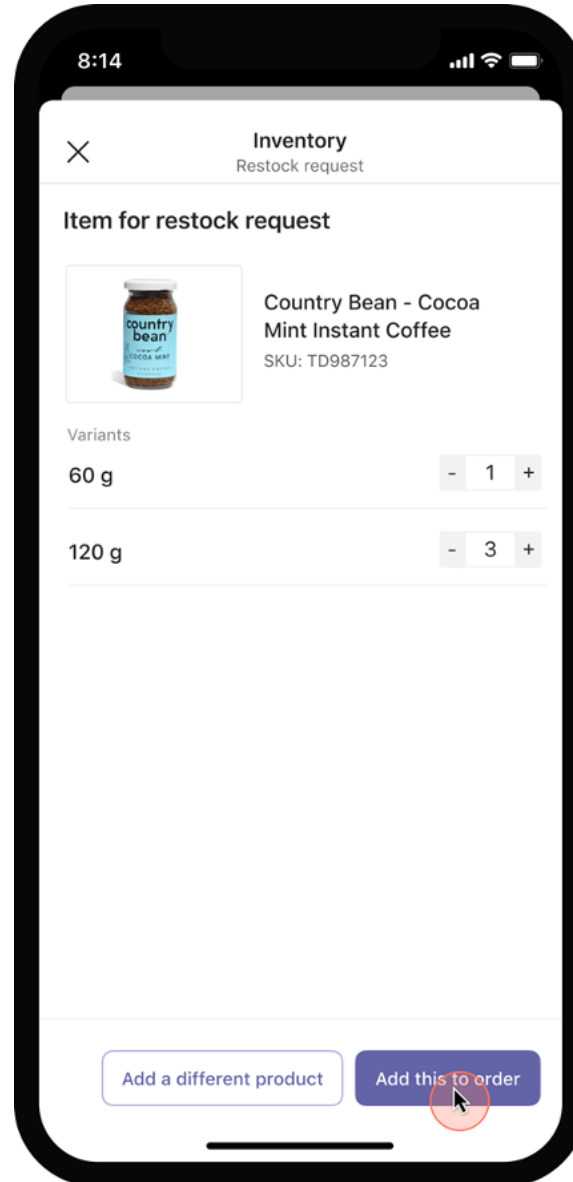
Aadi selects the relevant quantity and sizes and clicks on "Add to this order"

With entries for all products added to the Restock request – Aadi submits the request.

Aadi is presented an acknowledgement for his restocking request. He will be notifies once the items have arrived and are ready to be stocked.

Requests placed to restock the shelves gets communicated to all warehouse pickers. Any warehouse picker can start addressing the request.
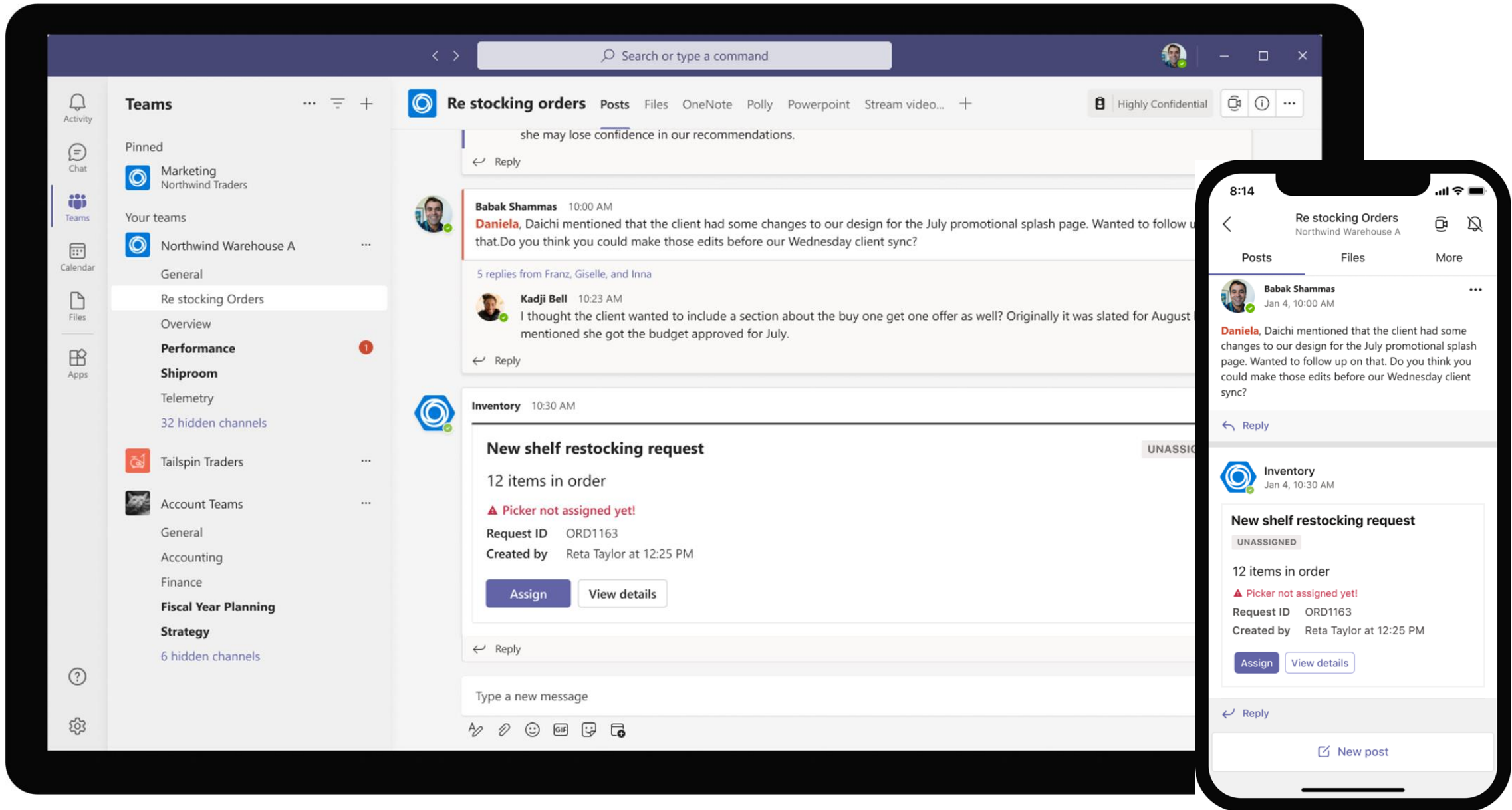
The restock requests placed by Aadi has been worked upon and now the items are available for to be picked up and placed on the stocking shelves. The Inventory app – posts a channel notification for the incoming inventory as a "Shelf Restocking request". This is can be picked up by warehouse workers like Babak or be assigned to others by the manager.
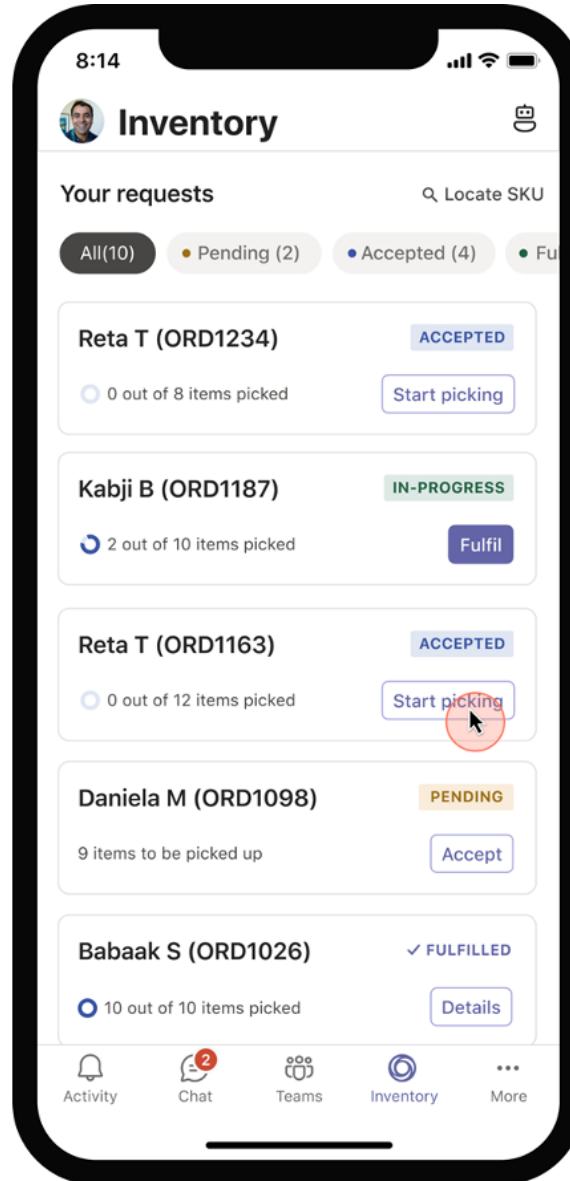
Babak is able to view the shelf restocking request and begins to service the request by clicking "Start Pickup"
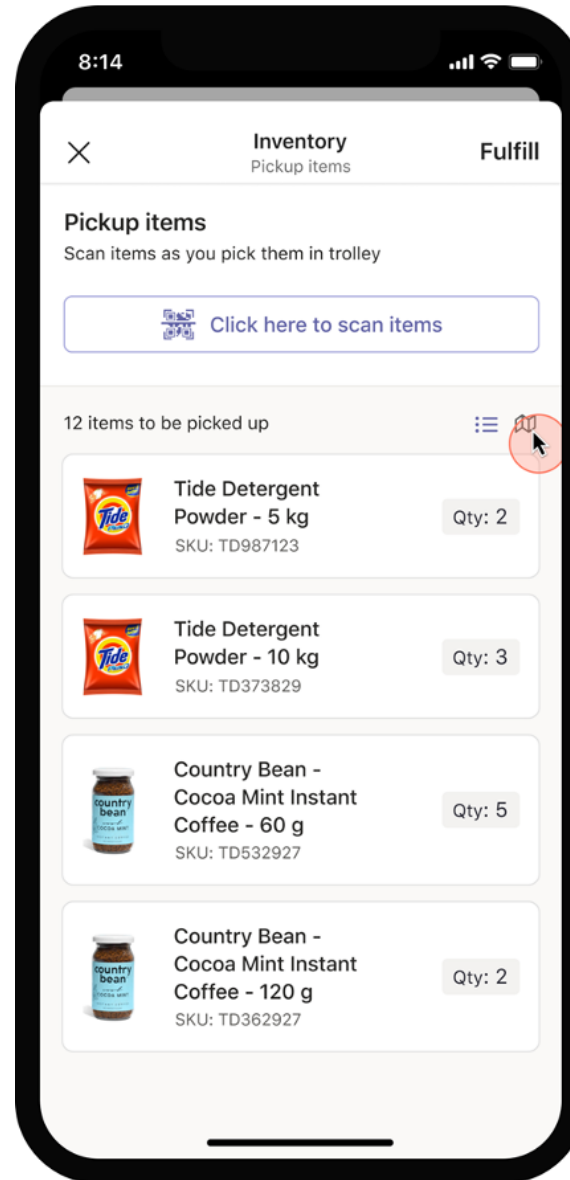
The app shows the details of the items (quantity and sizes) – and directs Babak to pick up the items and scan them through the phone as he puts them on the trolley – this helps verify that the actual quantity and sizes as mentioned in the request have actually been delivered.
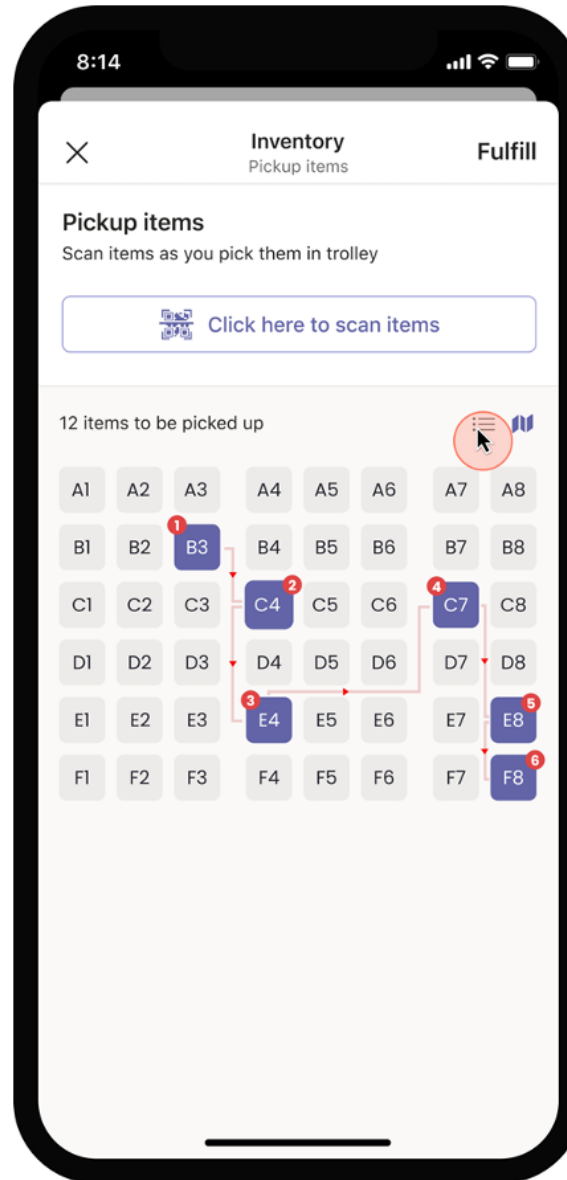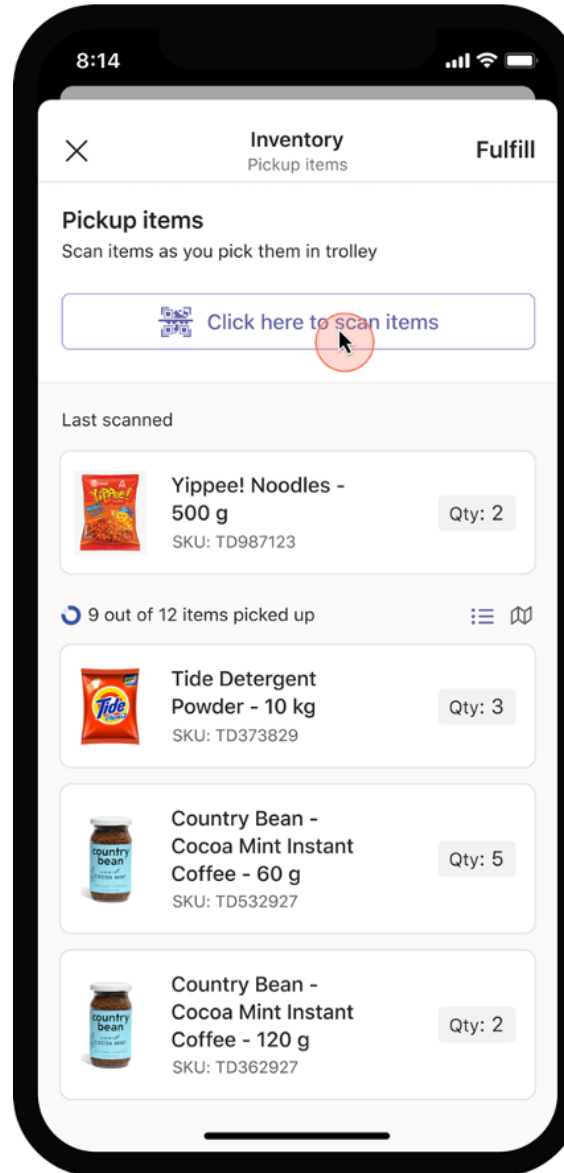
The inventory app also shows Babak where these incoming inventory items need to be stocked – highlighting the exact aisle/columns – that the each item needs to be placed in.
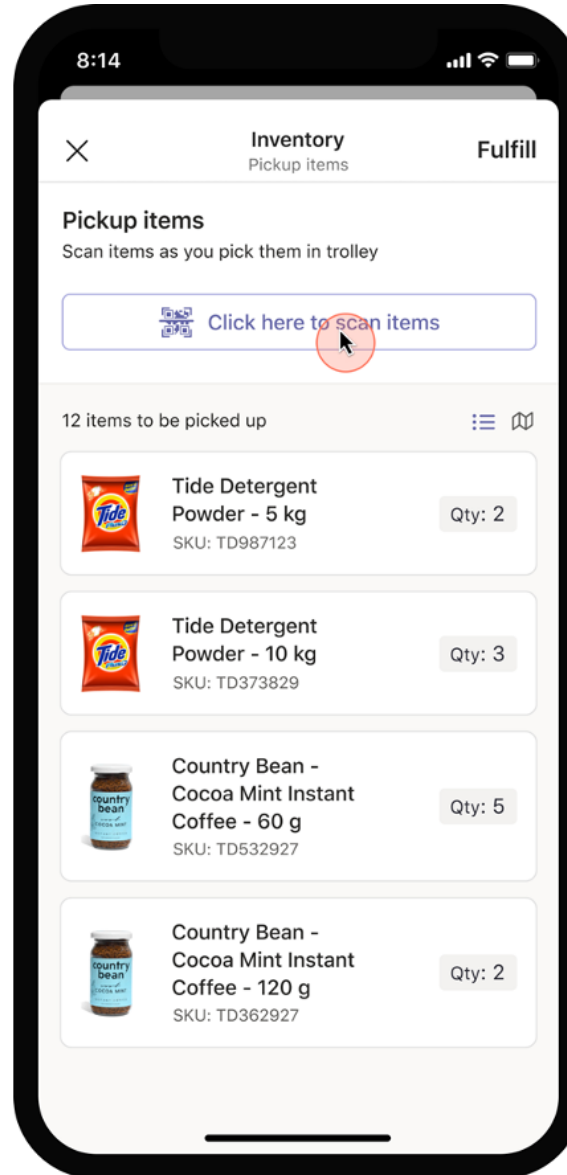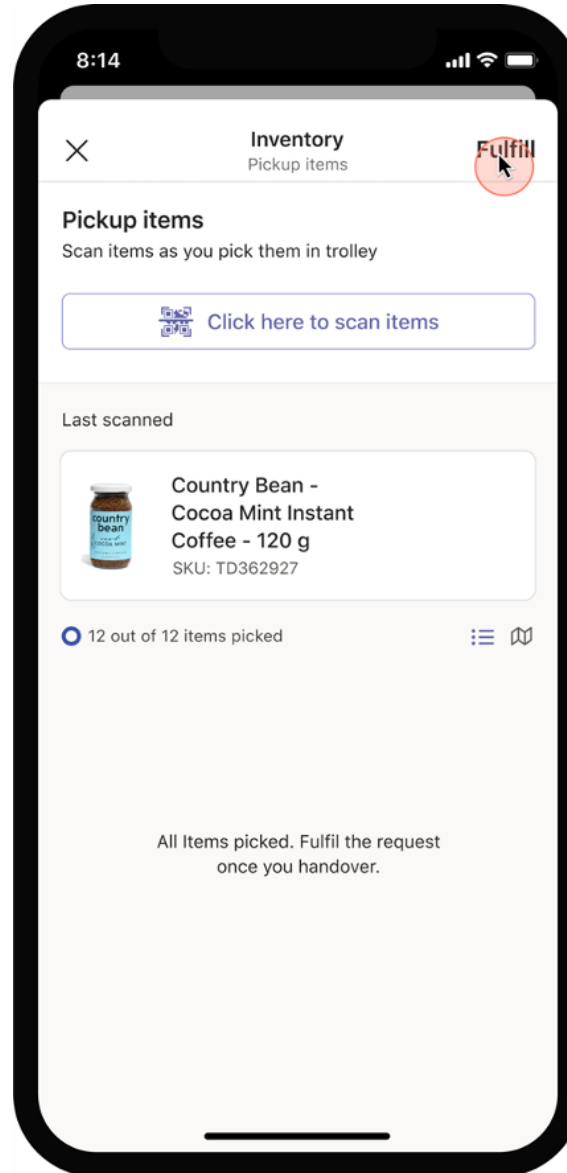
Babak clicks on the scan items option to begin scanning the bar codes on every item
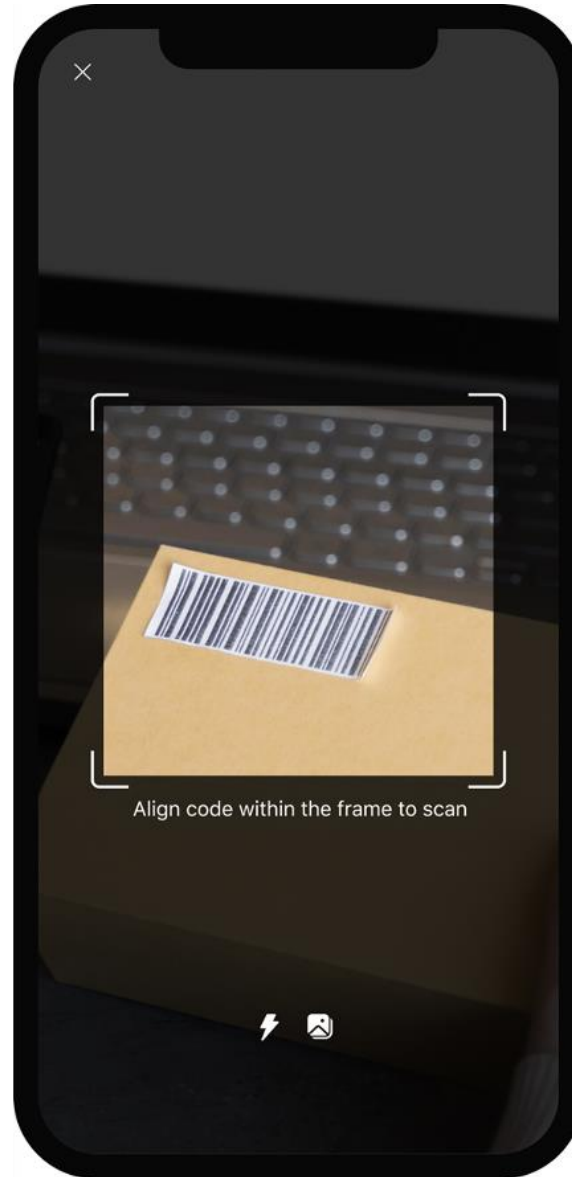
Babak uses the bar code scanner through the camera – and scans each item being picked up

The app shows reports of how many items have been scanned at any time – and the ones yet to be scanned.
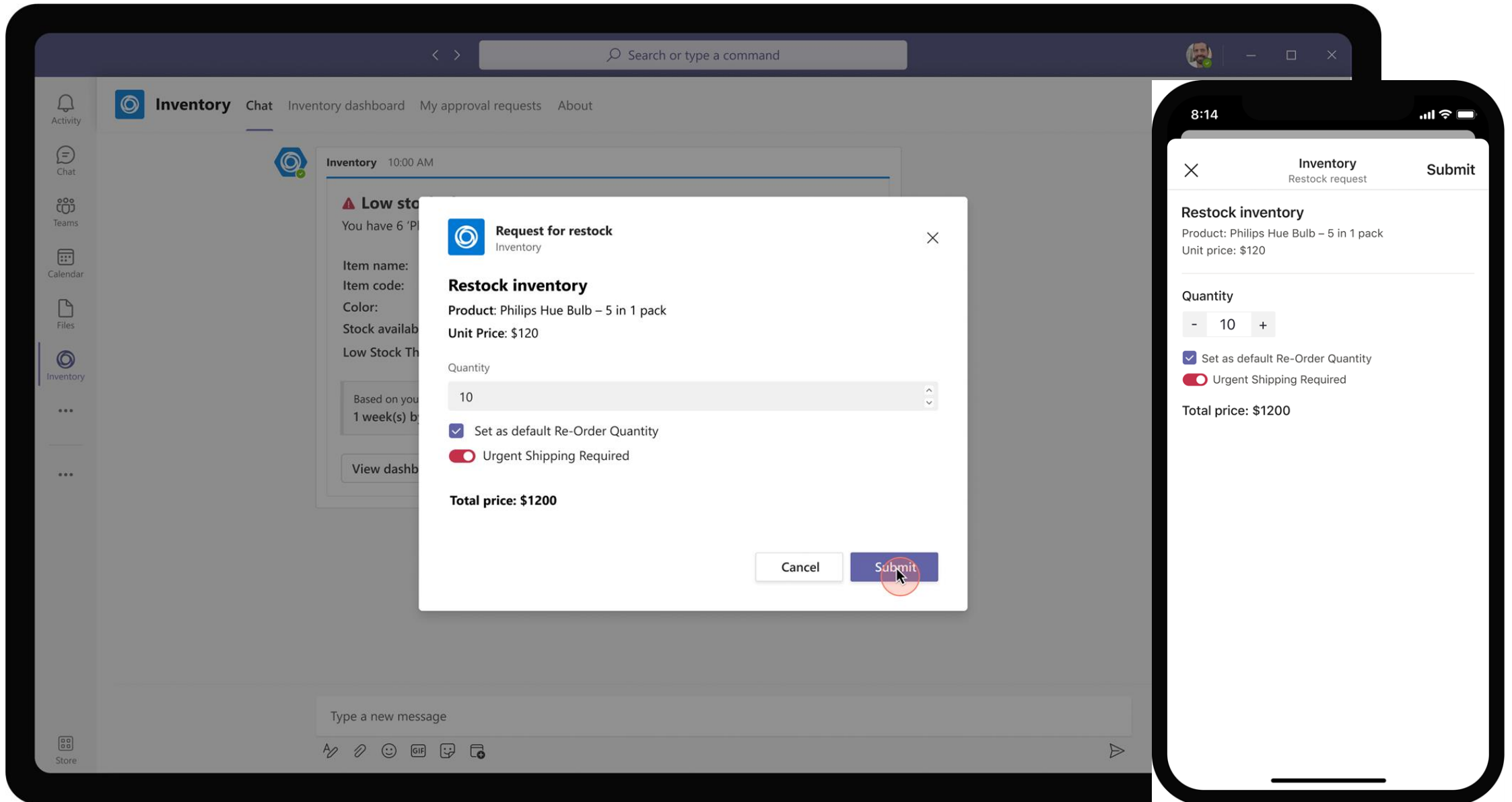
Upon scanning all the items – Babak can click on the "fufill"option to mark the shelf restock request as complete !

App also proactively reminds the store manager about low inventory levels in the warehouse requiring replenishing the inventory
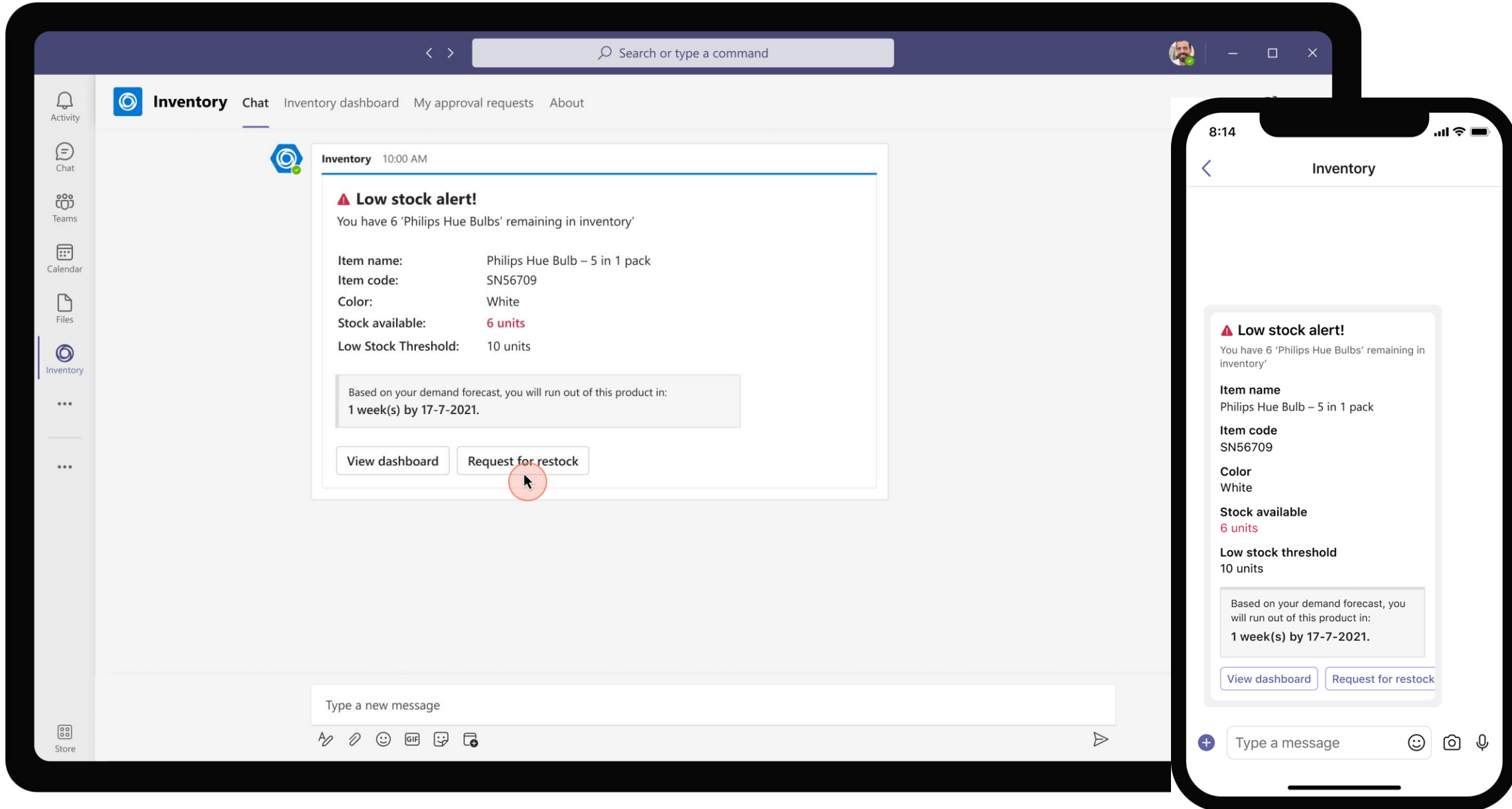
The inventory app sends proactive notifications when any of the items run low on inventory – the designated Store managers or store employees get alerted in the personal scope app with options to "View Dashboard" to view all low inventory alerts in a single convenient view. OR, "Request for restock" – to place the restock request for this item.

Inventory Chat Inventory dashboard My approval requests About

Inventory 10:00 AM

⚠️ Low sto
You have 6 'Pl

Item name:
Item code:
Color:
Stock availab
Low Stock Th

Based on you
1 week(s) by

View dashb

Request for restock
Inventory

Restock inventory
Product: Philips Hue Bulb – 5 in 1 pack
Unit Price: $120

Quantity

10

☑ Set as default Re-Order Quantity
🔴 Urgent Shipping Required

Total price: $1200

Cancel   Submit

Type a new message

8:14

✕   **Inventory**   Submit
     Restock request

Restock inventory
Product: Philips Hue Bulb – 5 in 1 pack
Unit price: $120

Quantity

− 10 +

☑ Set as default Re-Order Quantity
🔴 Urgent Shipping Required

Total price: $1200

The "Restock Inventory" option allows the Store manager or warehouse employee to submit request for restocking the short on inventory product **–** the quantity being ordered is defaulted to the threshold value set in the system. This can be changed as required. The system also allows recurring auto ordering .
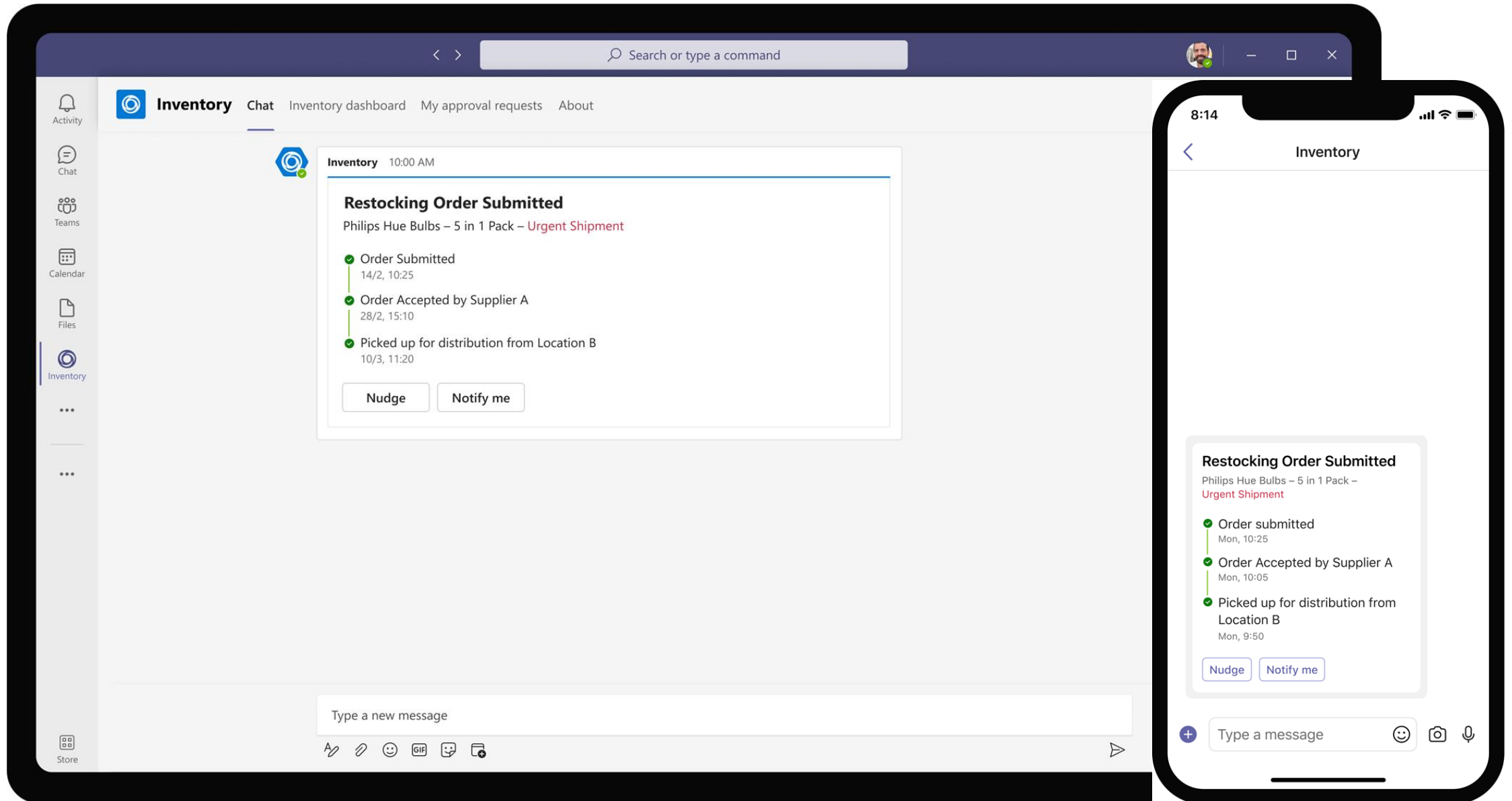
Once the restocking order is placed – the adaptive card shows a constantly updated view of the order status. Options like 'Nudge' can be used to alert suppliers , while "Notify Me" can be used to get status alerts.

Solution Highlights – Best Practices

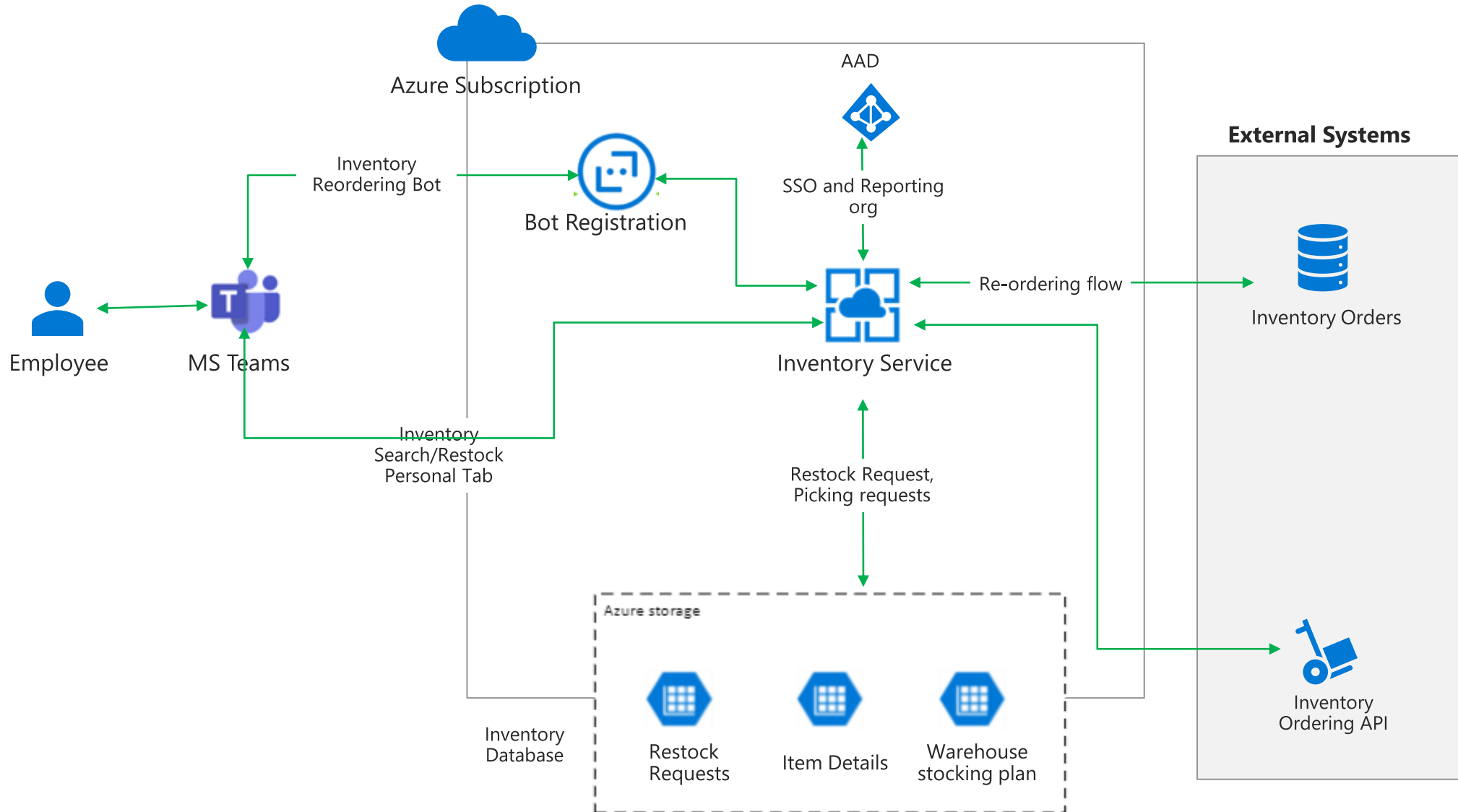### Key Solution Design Considerations

Platform Extension Points

- **Personal Scoped App** The app operates mainly via Personal scoped tab and a channel scope bot

  - Personal Tab – Personal tab is preferred for most request handling, requesting restock since FLWs need a quick and easy way to trigger the process and a conversational bot would be cumbersome.

  - Channel scope bot is used for posting restock request cards. This will help all warehouse pickers to see the request and allows anyone available to act on the request.

- **Task Modules** are used extensively to add items, find items in the warehouse as the views require graphical and easy to navigate canvas interface. In addition, capabilities such as camera, microphone, scanner can be invoked from Task modules or Tabs surface

- **Device Capabilities** – The app makes use of QR / Barcode scanner in the Teams JS SDK to open the mobile camera and use that as scanner

User Experience

- The app uses tabs and task modules to present information in a visual manner to enable information access as point and click method as opposed to conversational bot based approach. This is preferred for FLWs who are on the move with small screen devices.

- Where possible, the app works with native Teams capabilities such as Walkie Talkie to enable the scenario. In this case Walkie talkie is a simple, out of box feature to interact with warehouse pickers.

- **Proactive Messages** are sent at scheduled time every week to remind users to fill in their time sheets.

FLW – Inventory App

Solution Architecture

Azure Subscription

AAD

Inventory Reordering Bot

Bot Registration

SSO and Reporting org

Employee

MS Teams

Inventory Service

Re-ordering flow

External Systems

Inventory Orders

Inventory Search/Restock Personal Tab

Restock Request, Picking requests

Inventory Database

Azure storage

Restock Requests

Item Details

Warehouse stocking plan

Inventory Ordering API

Safety Manager App

Scenario Vision

Context	• Jeff Widner is a site manager at Contoso Manufacturing. He is in charge of day to day operations on the site and has additional responsibilities of inculcating safety best practices and maintaining workplace safety. • Contoso manufacturing expects its workers to follow all safety practices during their shift and drives the culture of safety through trainings and education

Current State

⚠️ Jeff clocks in his shift by making a manual entry in a paper which is collated at the end of day for audit purposes

⚠️ The paper entry has different checklists for different type of workers. Each worker fills the right sheet and acknowledges that they have followed safety procedures

⚠️ There is no way to enforce if the staff have indeed followed the safety procedures

⚠️ When a safety incident occurs, Jeff or any other staff takes a photo using their personal mobile devices and send it among other members in consumer chat application

⚠️ Managing of on shift employees, employees part of the site are done manually in consumer chat application

⚠️ Investigation and closing of incidents happen in ad hoc manner of calling remote teams and mentioning the model numbers, getting the SOPs sent as documents across in chat or troubleshooting steps provided over call

⚠️ Marking area unsafe is also sent as a manual message in the consumer chat application with no way of tracking on shift employees and ack

⚠️ – Points of Friction

Future State

✓ Jeff clocks in his shift using his mobile app and is immediately notified of any tasks, items on his shift work.

✓ While clocking in his shift, Jeff gets to choose the role he would play and app suggests safety measures for different roles / types of workers on the site. E.g. Maintenance worker will have a different safety apparel compared to Safety manager

✓ The staff are required to take a selfie following check-in which is stored in daily record for audit purposes

✓ When there are safety incidents on site, the staff can report in few clicks using their mobile app.

✓ App allows taking photo of incident, creating an incident ticket to allow structured tracking to closure

✓ QR / Barcode scanner is also used to quickly bring up training manuals, SOPs for troubleshooting heavy equipment

✓ For high-risk incidents, safety broadcast is sent to all employees currently on shift.

Jeff Widner, Site Manager

Jeff Widner is a site manager at Contoso Manufacturing. He supervises functioning of entire site to ensure all process run smoothly, co-ordinates with team members to compile malfunctioning equipment and manages safety procedures to be followed in installing, handling of equipment

Jeff enters the manufacturing site to start his day adhering to all the safety procedures
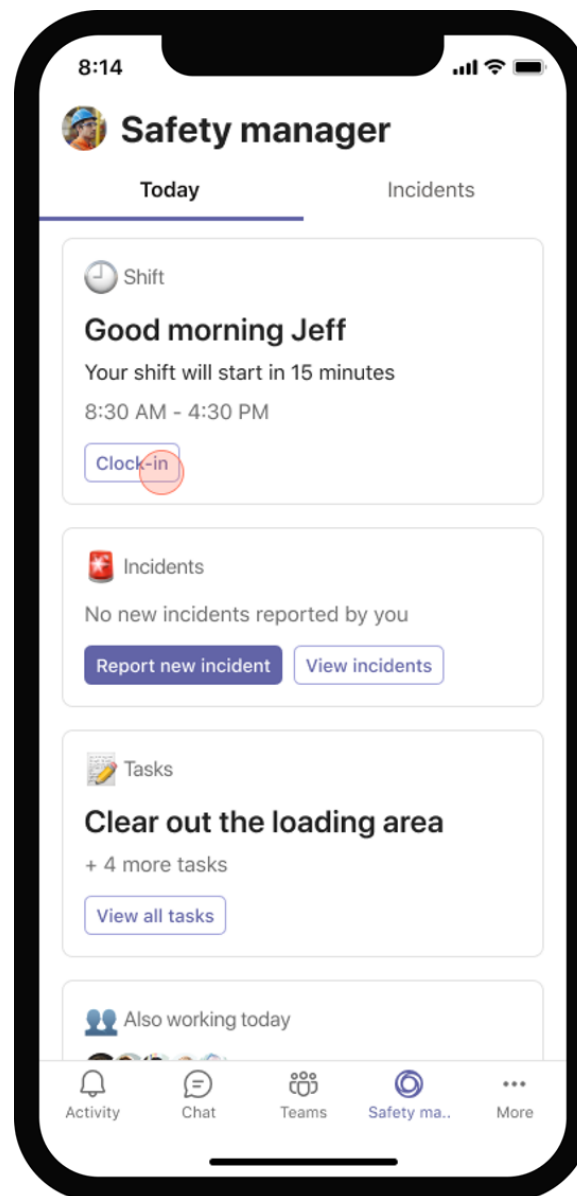
Jeff opens the 'Safety Manager' app to be greeted with message to clock-in for the shift. In addition to the shift information, Jeff is able to see at a quick glance any ongoing incidents, tasks assigned to him and other members on the shift.

As the task module opens up, the device camera is opened allowing the employee to take a selfie with all the safety gear on.
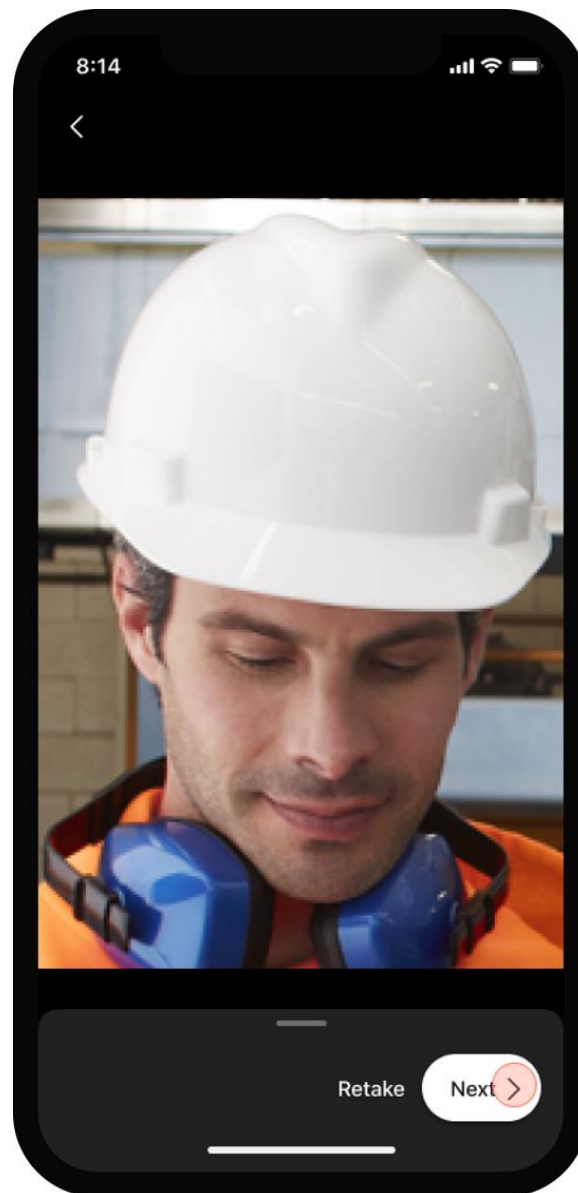
The app also allows Jeff to retake the photos if there are any disturbances or blurry images in the first try.
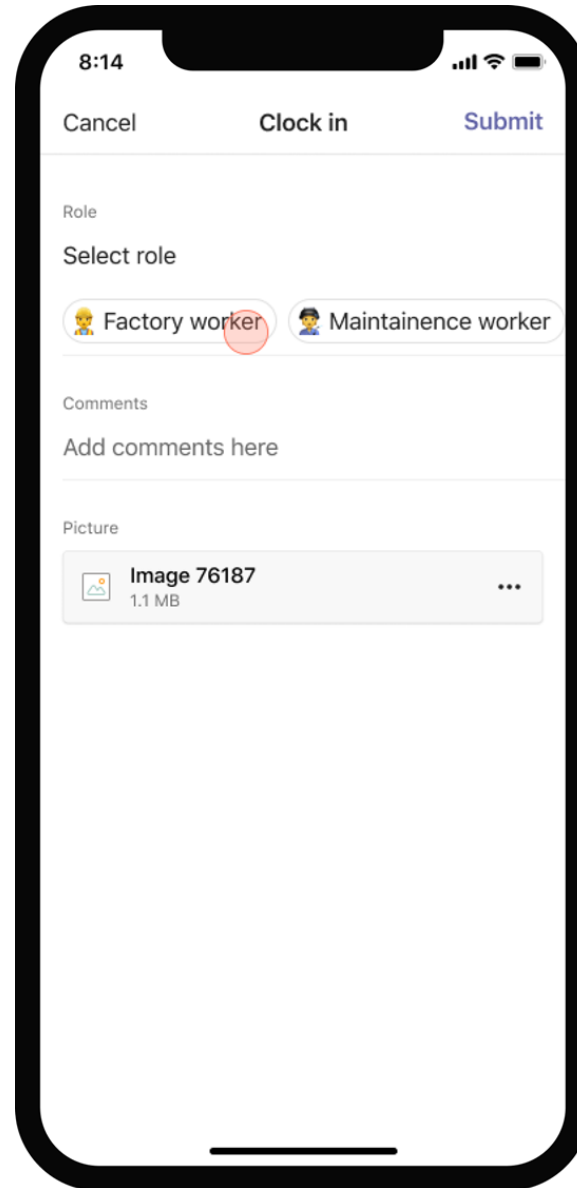
The photo is attached to the clock-in form. Jeff selects his role for the shift. Staff members may rotate their roles in different shifts and the app provides flexibility to record the role
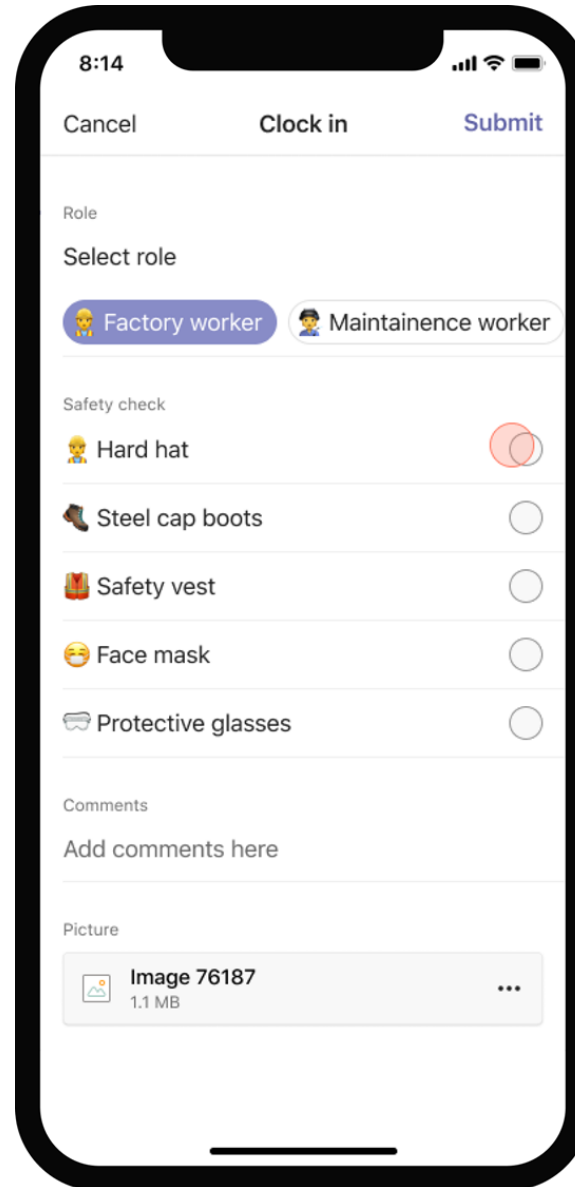
For the selected role, the app displays the safety measures that Jeff has to adhere to. Jeff goes through the checklist to acknowledge and declare that he has followed safety rules and protocols at the start of every shift.

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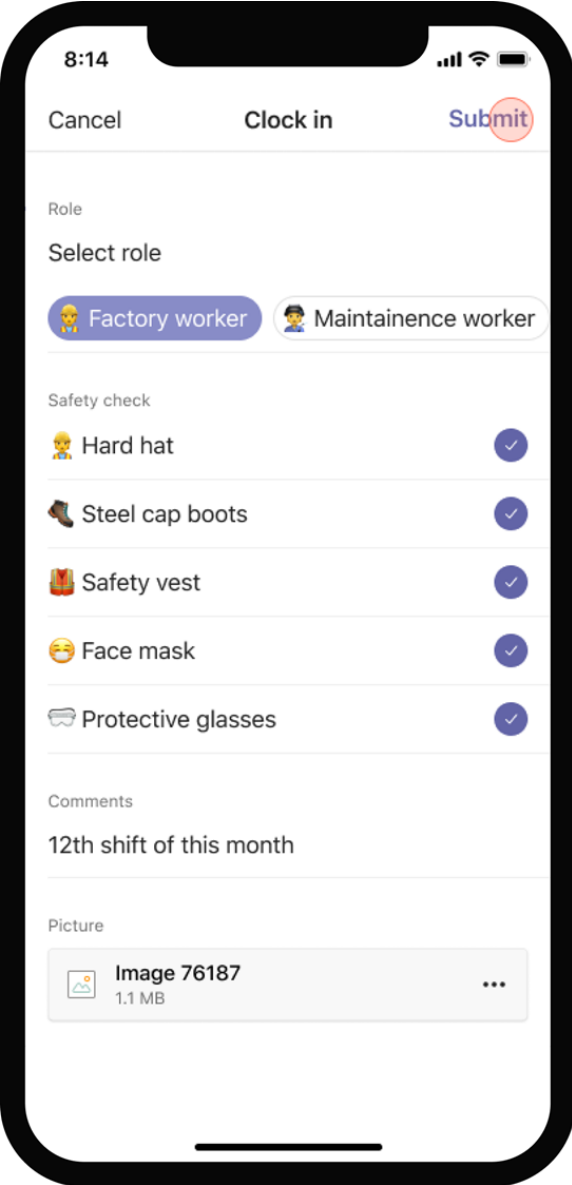
Any optional comments can be entered specific to the shift clock-in. This could include comments around shift timing, safety gear for record keeping and reporting purposes.

As Jeff proceeds with his daily activities, he notices a safety incident that can pose a potential danger to other workers on the site.
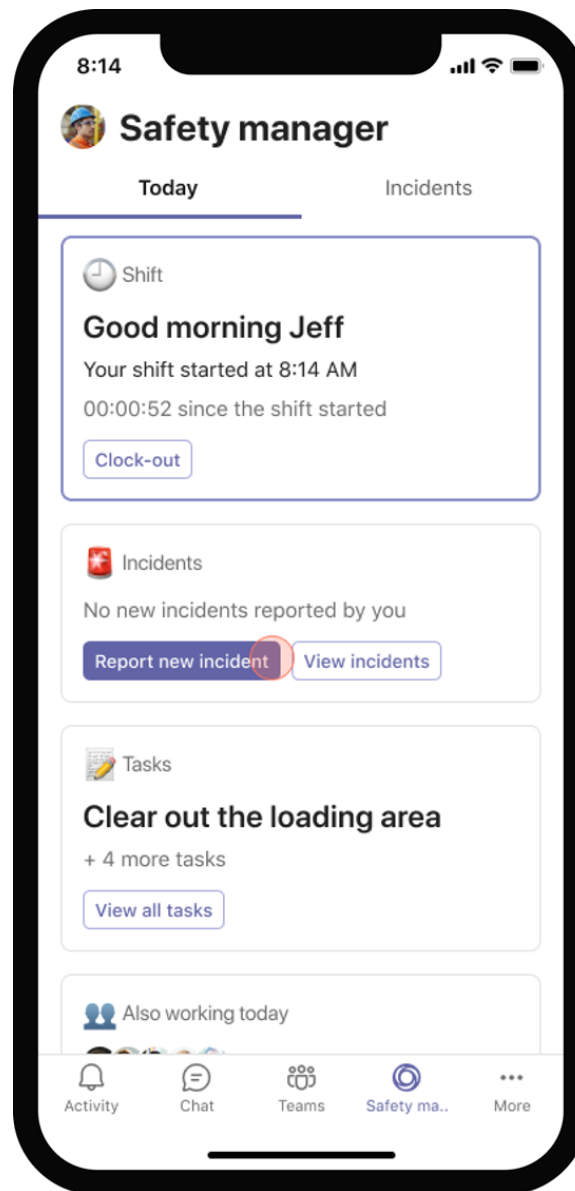
Jeff opens the 'Safety Manager' app to report the incident so that other factory workers would become aware of the incident and to enable quick resolution process
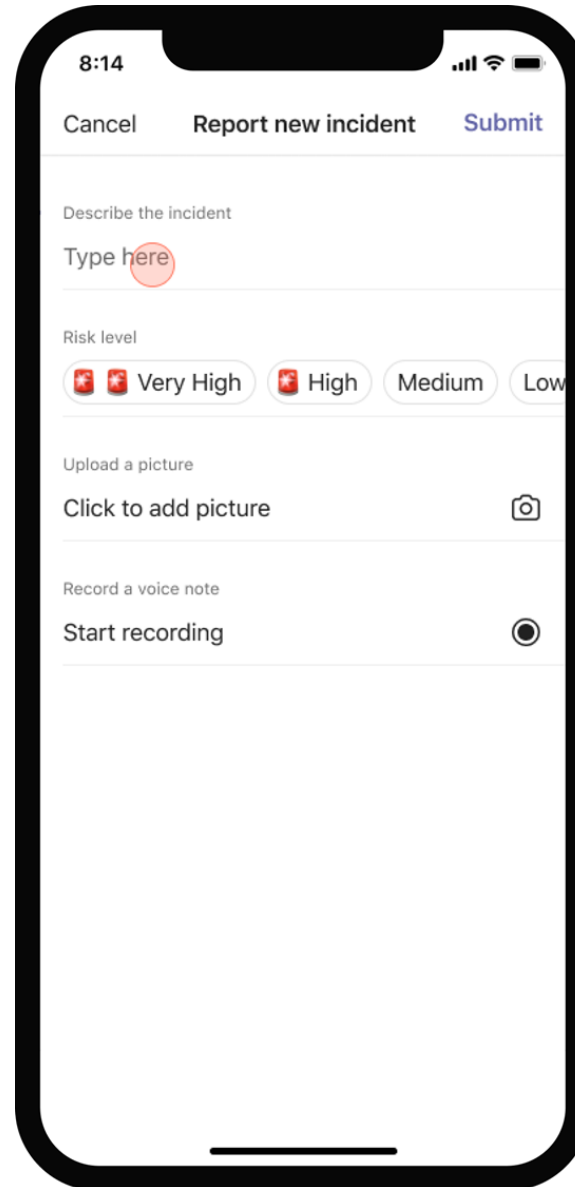
On clicking Report incident, a task module opens up requesting basic information about the incident, the risk level to escalate and raise awareness and pictures to help the maintenance crew addressing the incident.
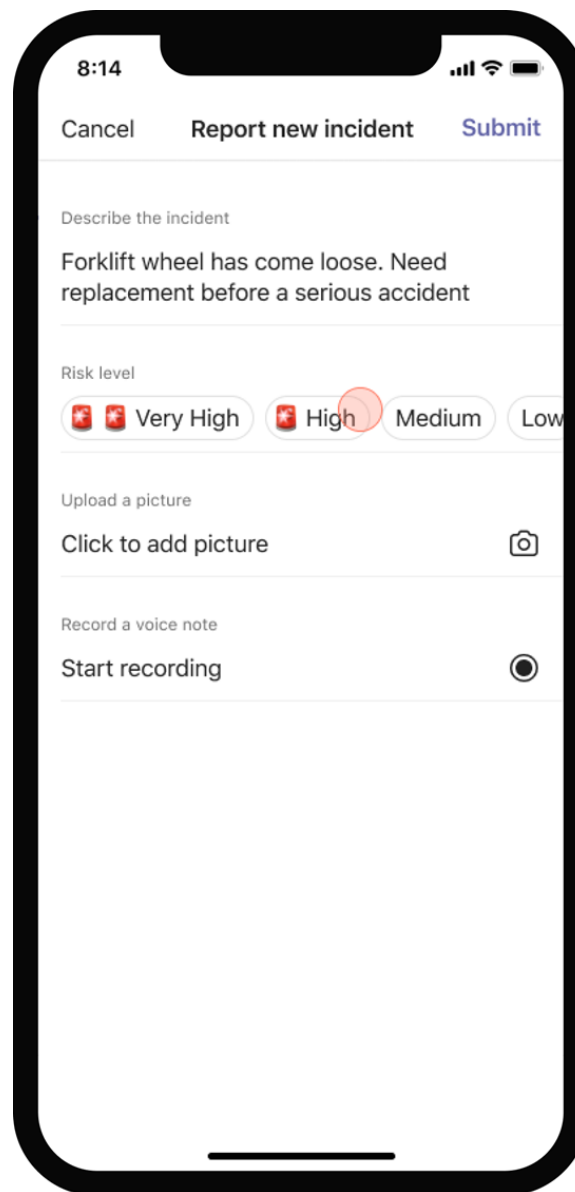
Jeff explains about the forklift wheel which has come loose which might cause accident harming the operator and other members of the site. Since forklift is used often and based on severity of harm level, Jeff marks this as High risk incident.
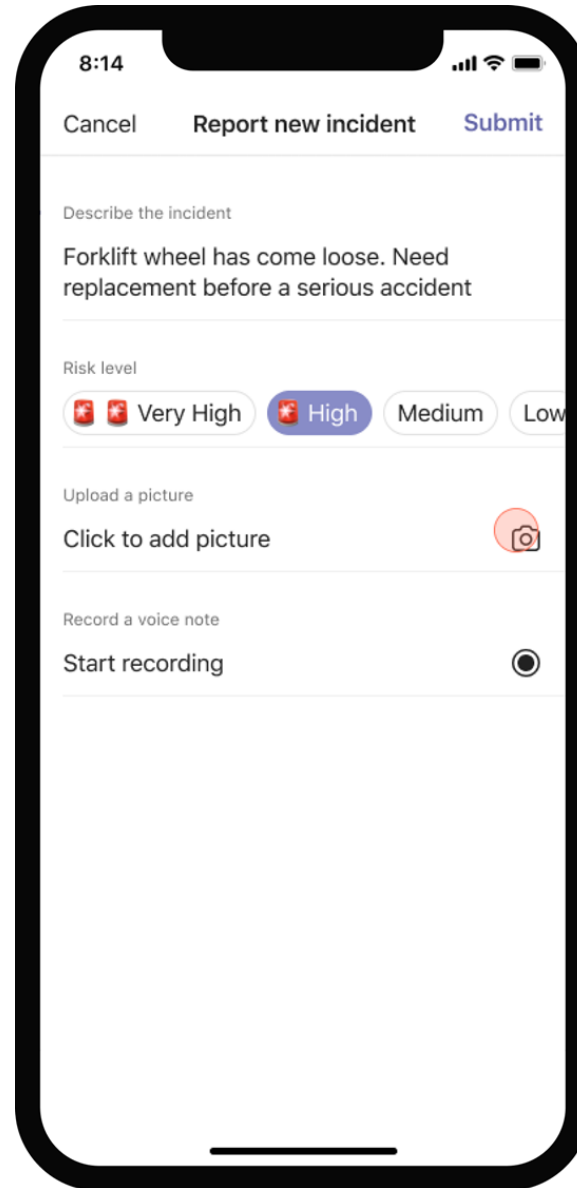
Jeff also decides to take a photograph of the forklift to be attached to the incident.
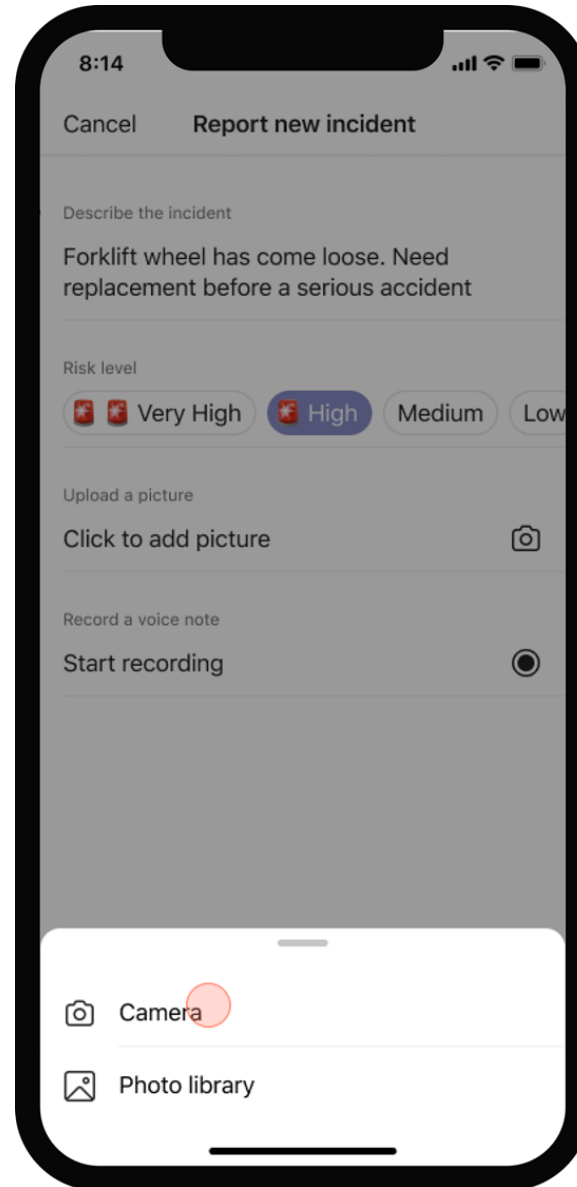
Clicking on the camera icon provides Jeff with options to take a picture using camera or to pick one of the existing photos available in the phone gallery
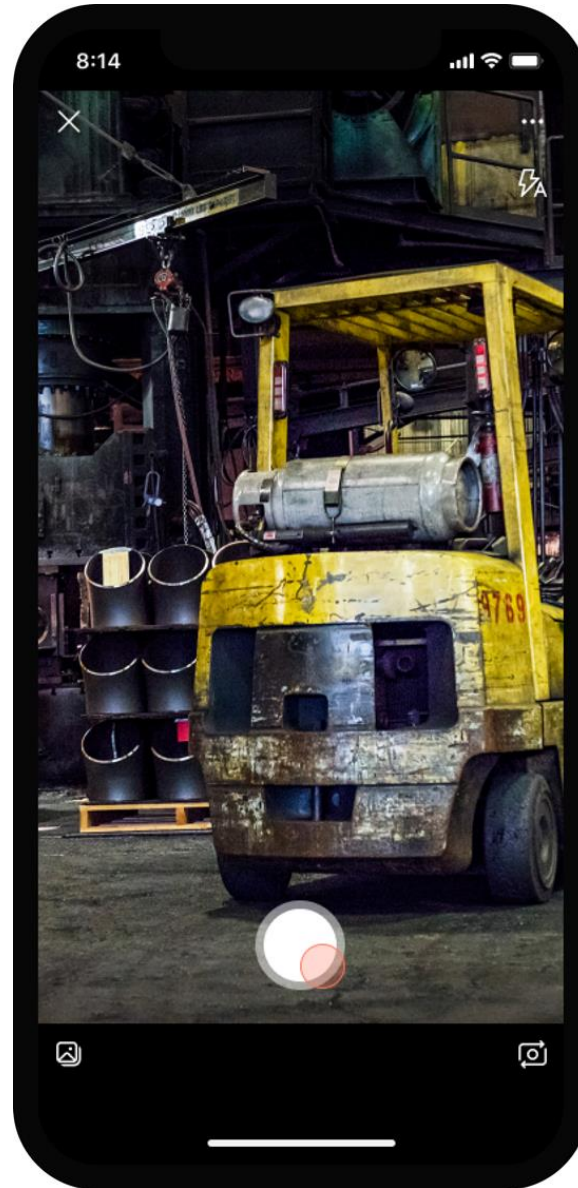
Jeff chooses camera to take a photograph of the forklift
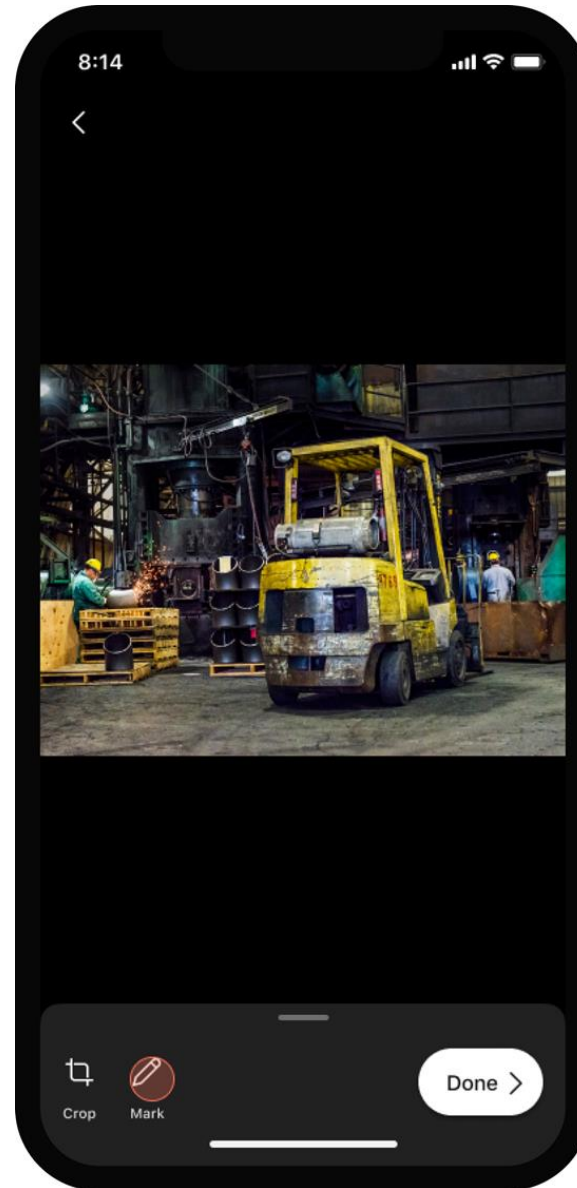
After taking the photo, the app allows editing of the photo, annotating to add additional information, highlight key areas of the photo
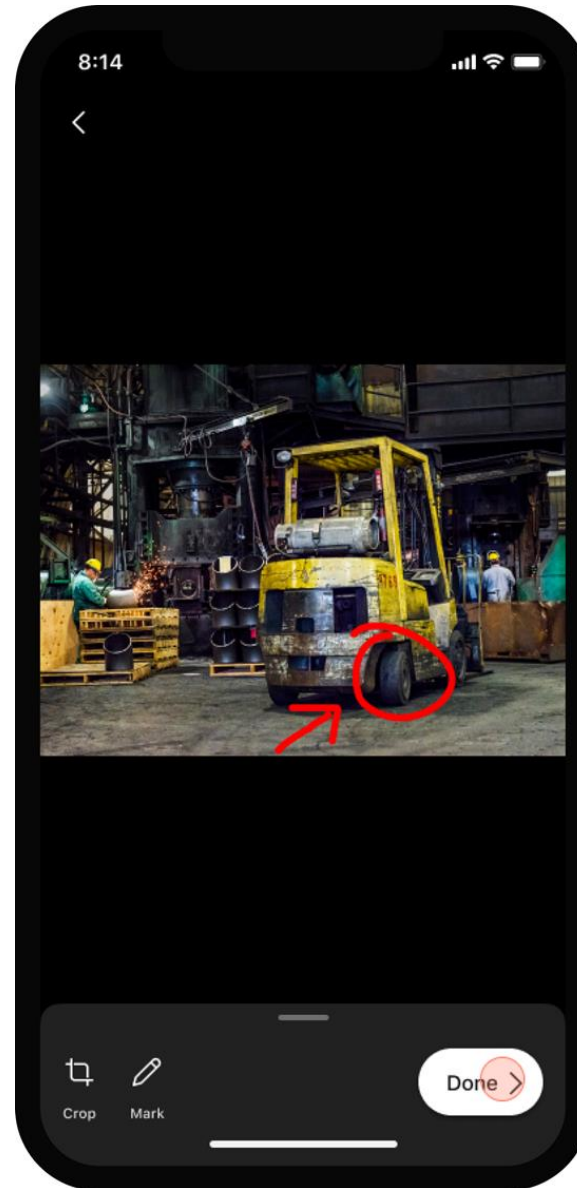
Jeff highlights the wheel which has come loose and requires immediate attention. He uses the ink in photo editing to draw a circle to highlight specific areas of the photo.
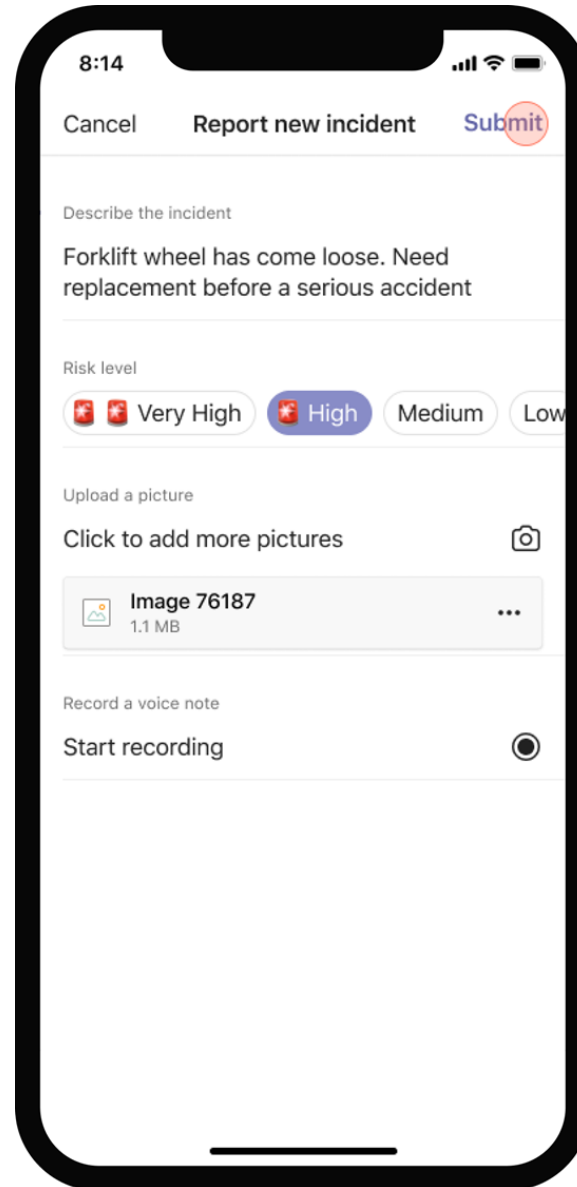
The photograph is added to the incident and Jeff has option to add an optional voice note as well. Clicking on the record icon would use the phone's microphone to record messages and add it as a voice note.
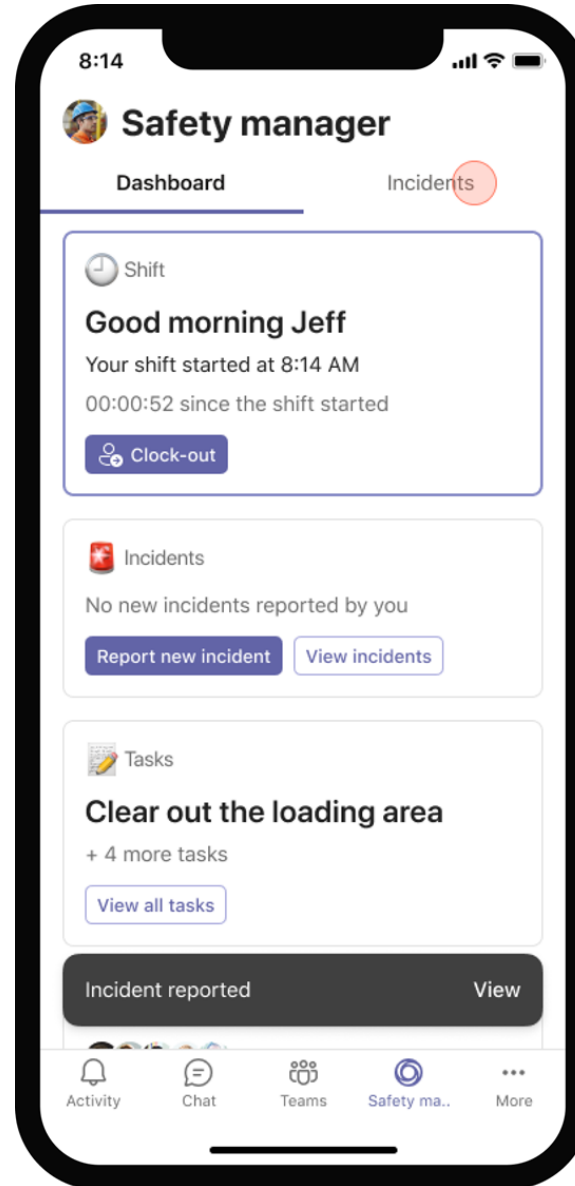
The incident gets added to running list of incidents in the factory floor and is visible for awareness for all staff members in the floor. All active incidents can be viewed by clicking on the 'Incident's tab.
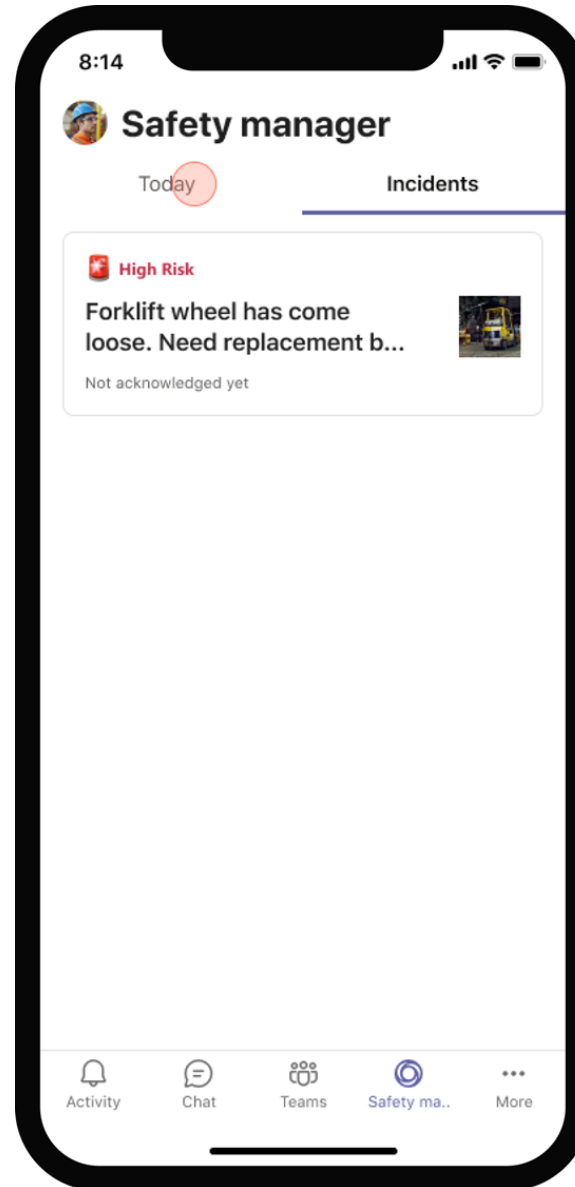
The recently reported incident by Jeff appears as a High risk incident available for all factory staff to view. This would serve both as an awareness and for actioning on the incident.

In addition to the view on the dashboard, any incident created gets posted as a card inside an Incident Reports channel for the particular factory team. The posted card shows the incident details, location from which it was reported and automatically at mentions the on call maintenance lead.

Johnny Reyes, Maintenance worker

Johnny is part of the maintenance crew in Contoso Manufacturing. He is part of group of experts who conduct scheduled maintenance for heavy equipment and machinery. He also attends to equipment breakdowns, repairs as they get reported.

Johnny receives a notification on his mobile as the Safety Manager bot @ mentions Johnny understanding that he is part of on call maintenance and is available on shift.
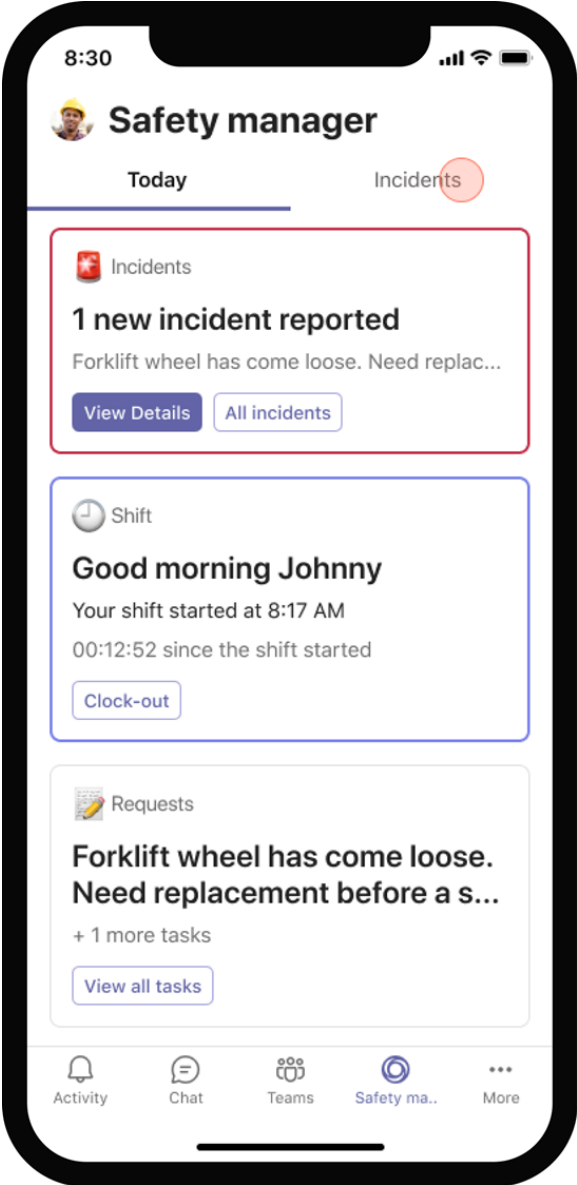
As Johnny opens the app he is able to see the incident reported in his dashboard. He can directly view the incident from the dashboard or view it from the channel where it was posted.
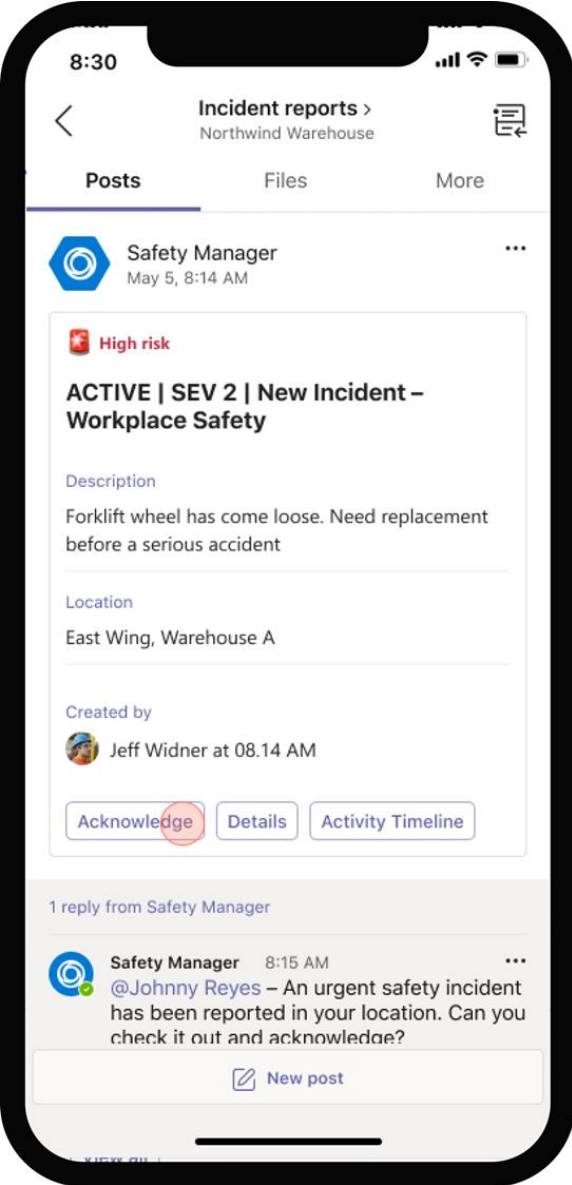
Johnny acknowledges the incident directly from the adaptive card. He is able to view the incident summary in the adaptive card and promptly acknowledges assigning the incident to himself.
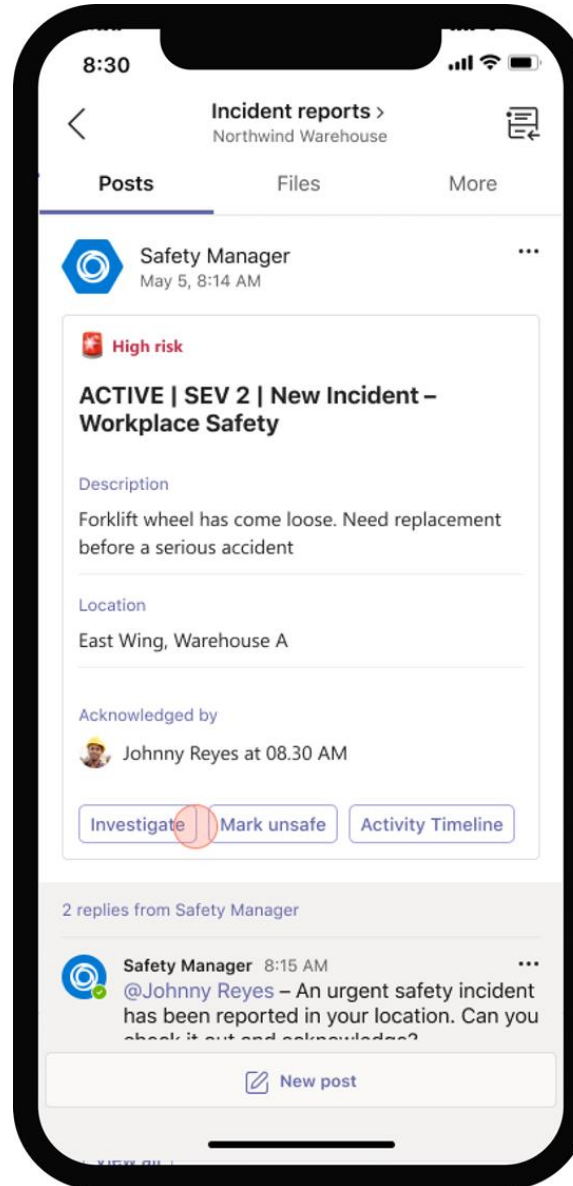
The adaptive card refreshes to show that Johnny has acknowledged the incident. It has option to investigate the incident to act on it. Johnny goes to the incident location and clicks on Investigate.
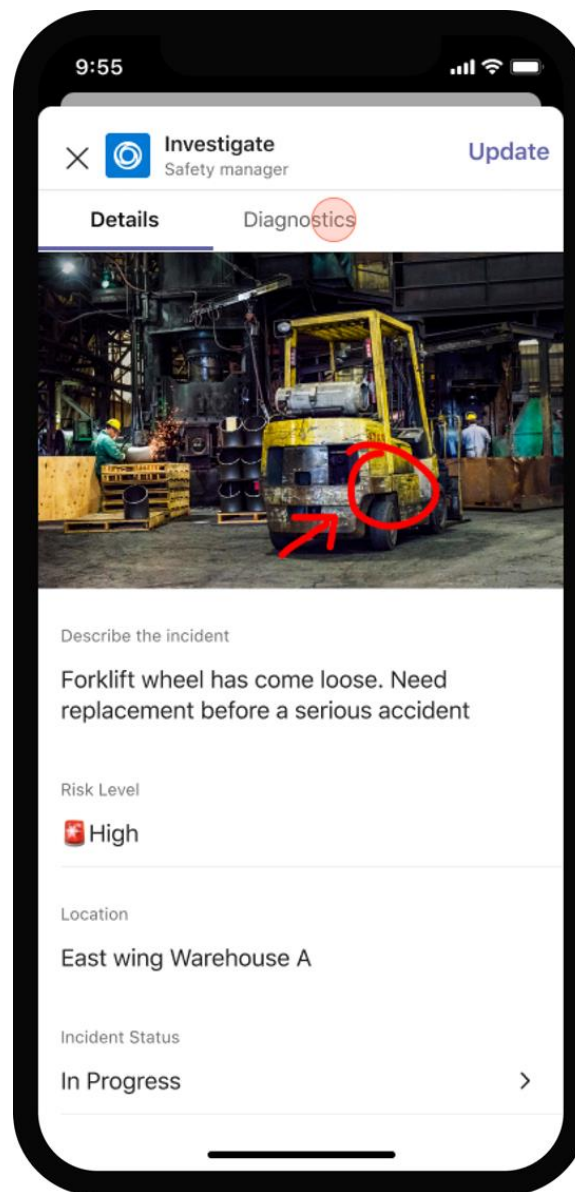
The incident details are provided to aid Johnny with investigation. In addition, there is an editable status field which Johnny can use to change status as he works on the incident.
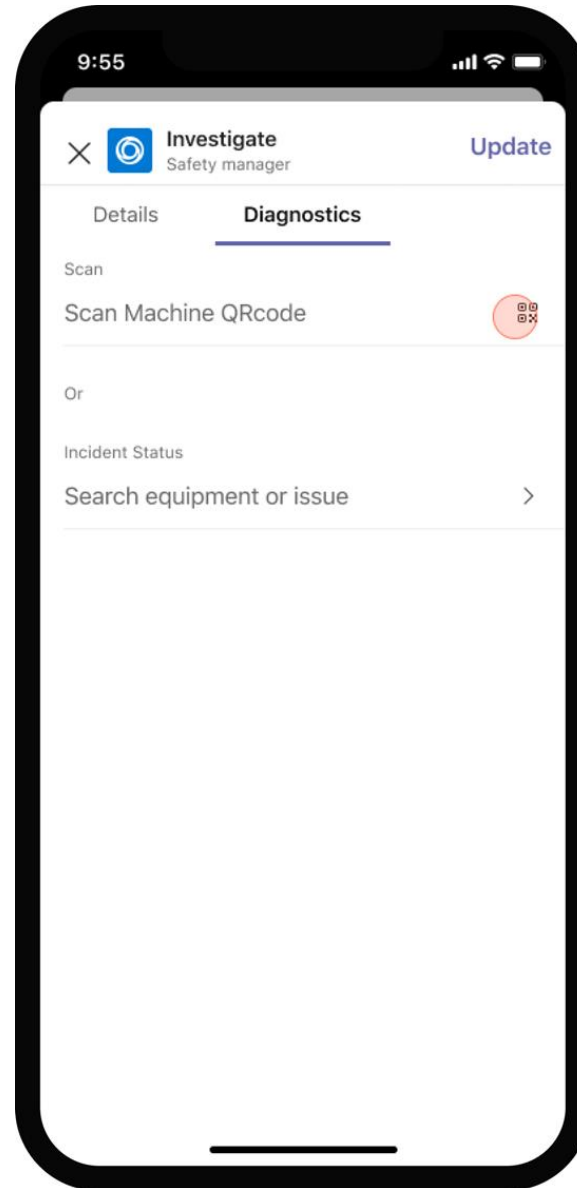
As he chooses Diagnostics, the app provides option to search the machine's model directly by typing or searching using the QR code on the machine. Johnny chooses to scan the QR code to get the machine details.

Align code within the frame to scan
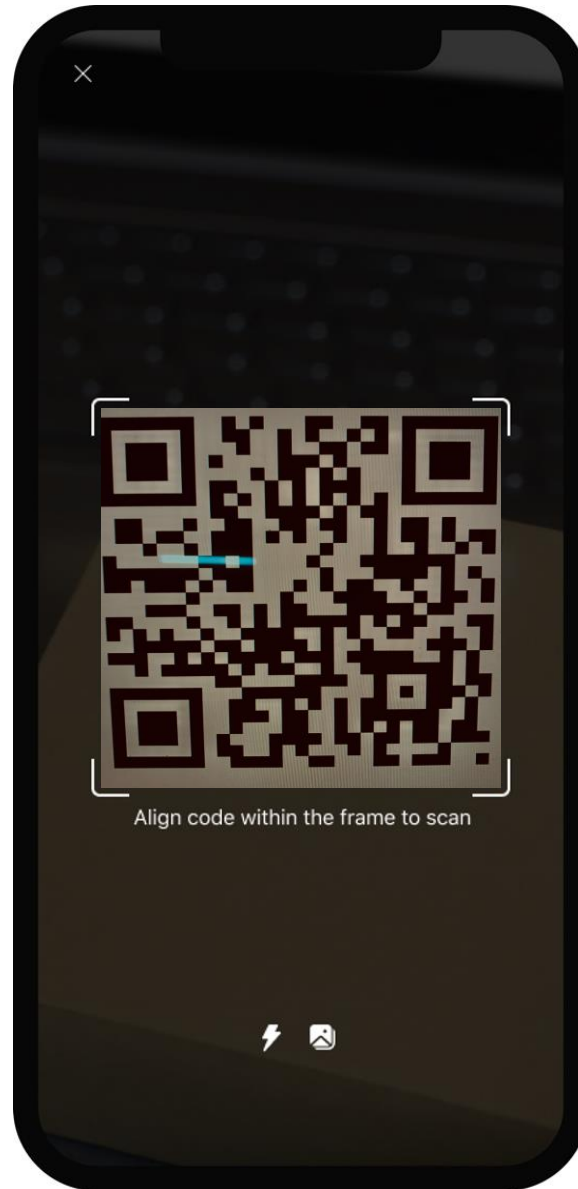
Jeff scans the QR code on the machine using the phone's camera
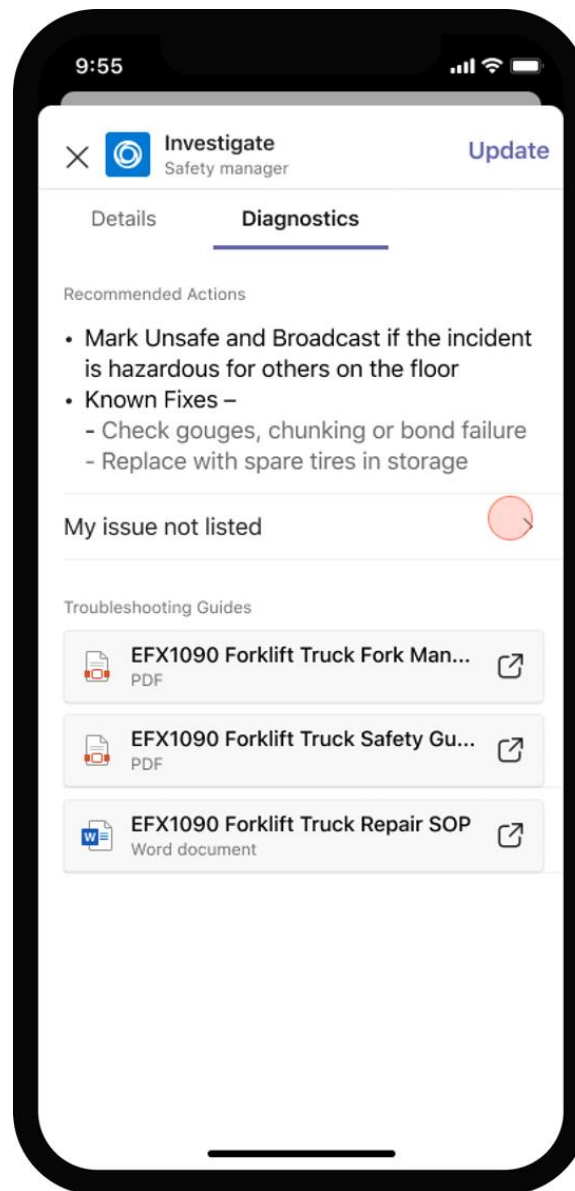
The app identifies the machine and brings up common issues with the model, recommended actions to triage and identify root case of issue and SOPs, manuals for the machinery.
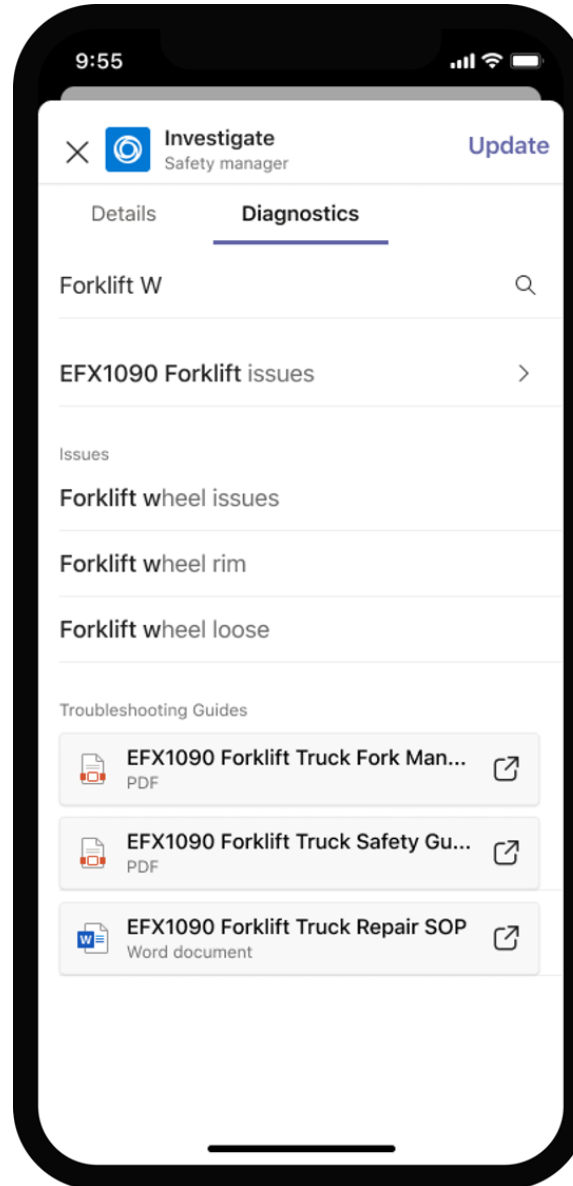
The app also allows to search for specific issues associated with the model as found in the knowledge repository. If similar issues have been reported on the model, Johnny would be able to view the mitigating steps taken for the relevant issues.
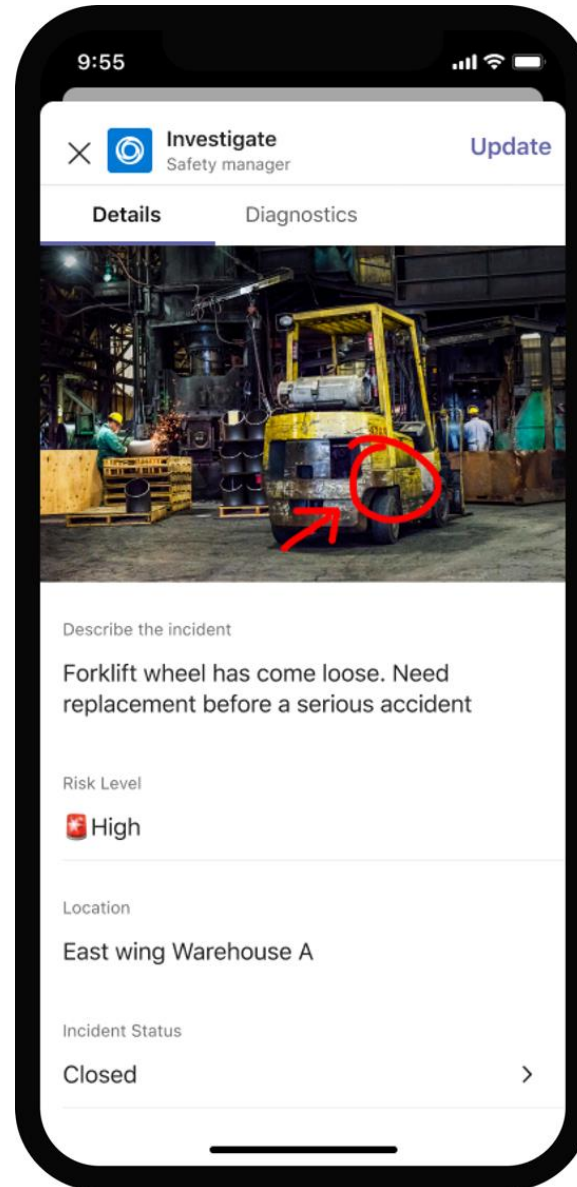
After Johnny physically fixes the machinery, he can mark the incident status as closed. This status is reflected for all members in the factory floor.
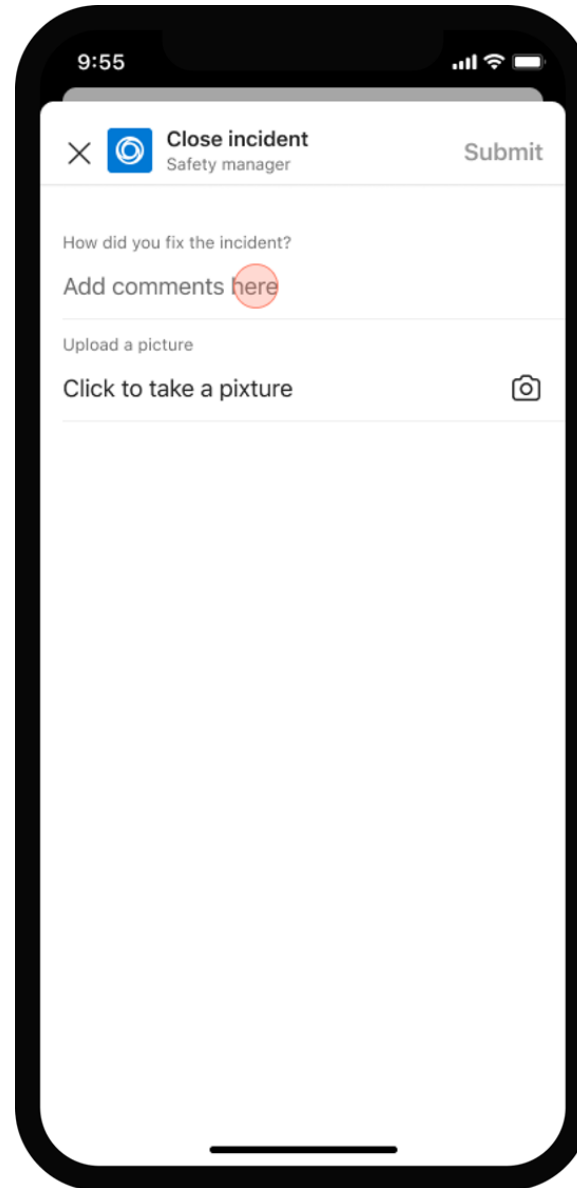
As Jeff closes the incident, the app asks for recording the mitigating steps taken. This ensures documenting the fix for future triage and audit purposes. In addition, Jeff can optionally take a photo of the fixed machinery indicating completion.

High risk incidents that might be harmful for everyone nearby need to be broadcasted to all members currently on shift in the factory floor
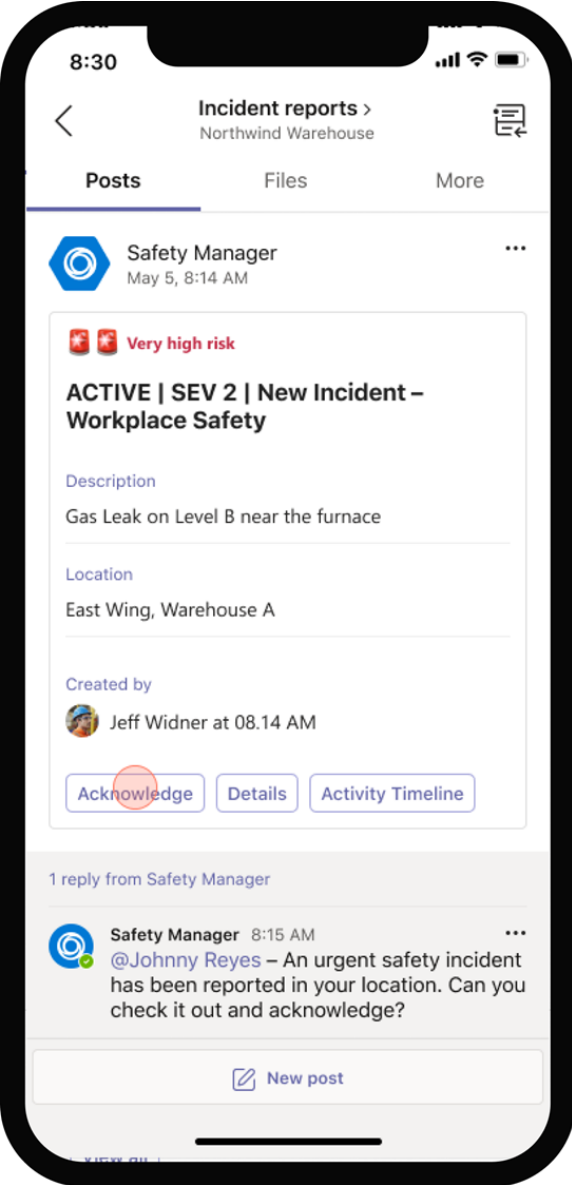
Certain Incidents are deemed to be extremely high risk and requires perimeter clearance to avoid any harm to other staff. A gas leak has been reported which requires all staff to be cleared out immediately.
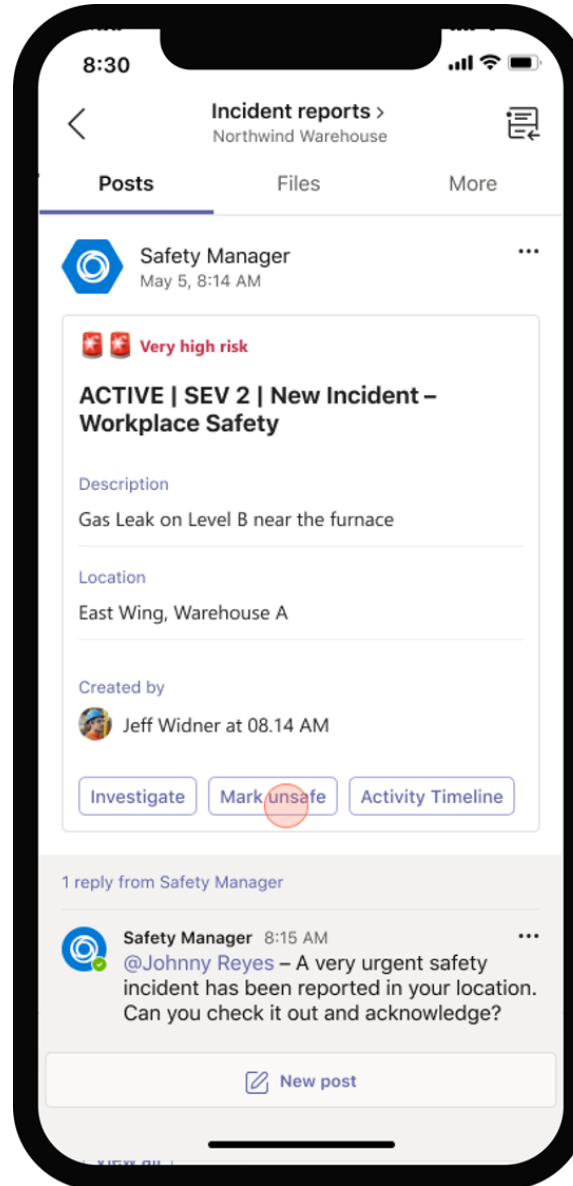
After acknowledging the incident, Johnny may choose to mark to the area as unsafe for other staff in the factory floor.
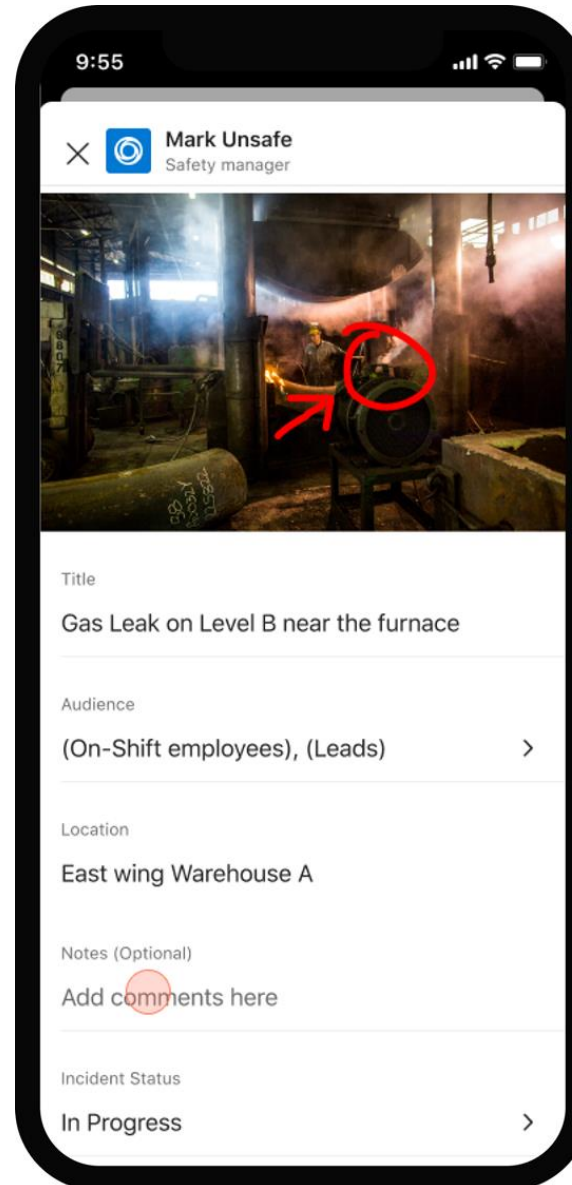
Marking unsafe opens a task module allowing Johnny to enter the intended audience for the broadcast message. In this case, the unsafe message will be sent to all On-shift employees and leads who might not be on shift as well.
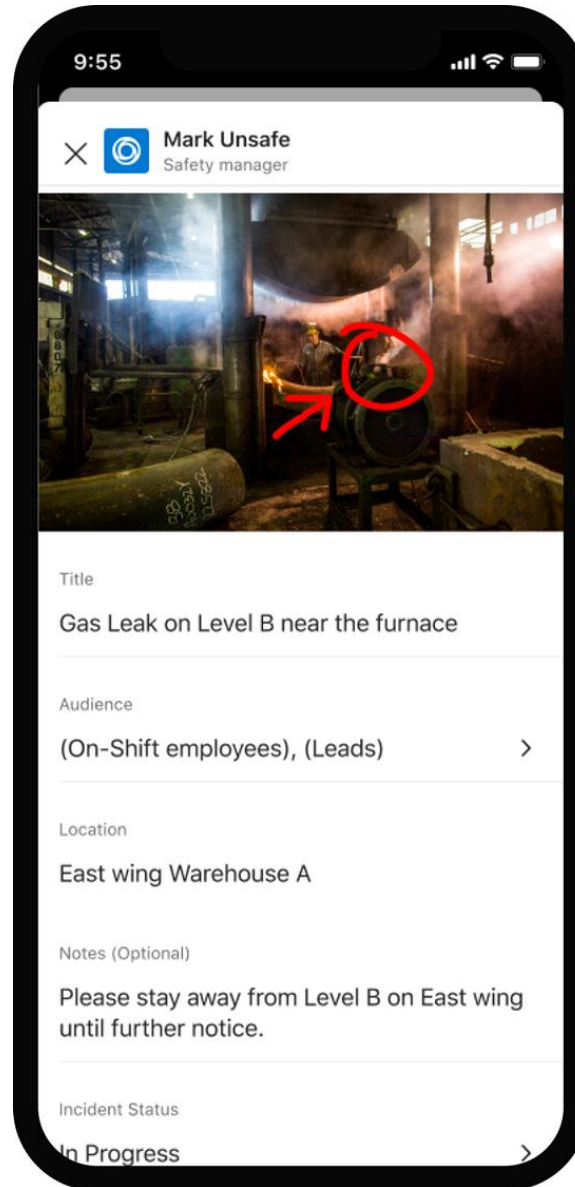
Johnny enters an optional note to stay away from Level B to prevent harm for any humans. This message is sent as a broadcast to each staff currently on the factory floor.
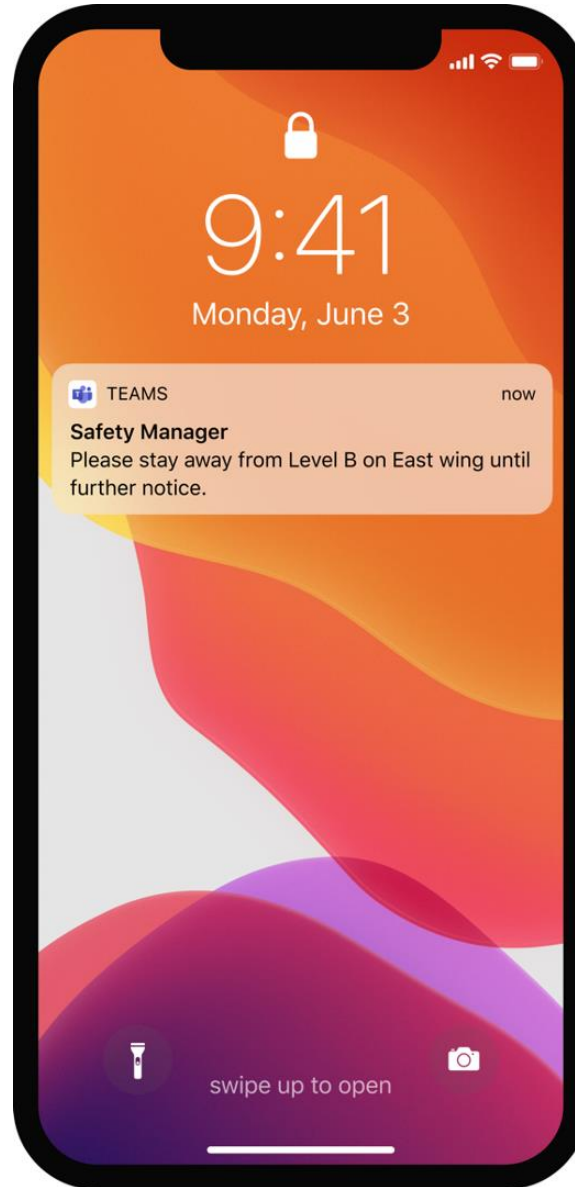
All staff receive an alert from Safety manager indicating them to stay away from Level B as mentioned in the note from Johnny.
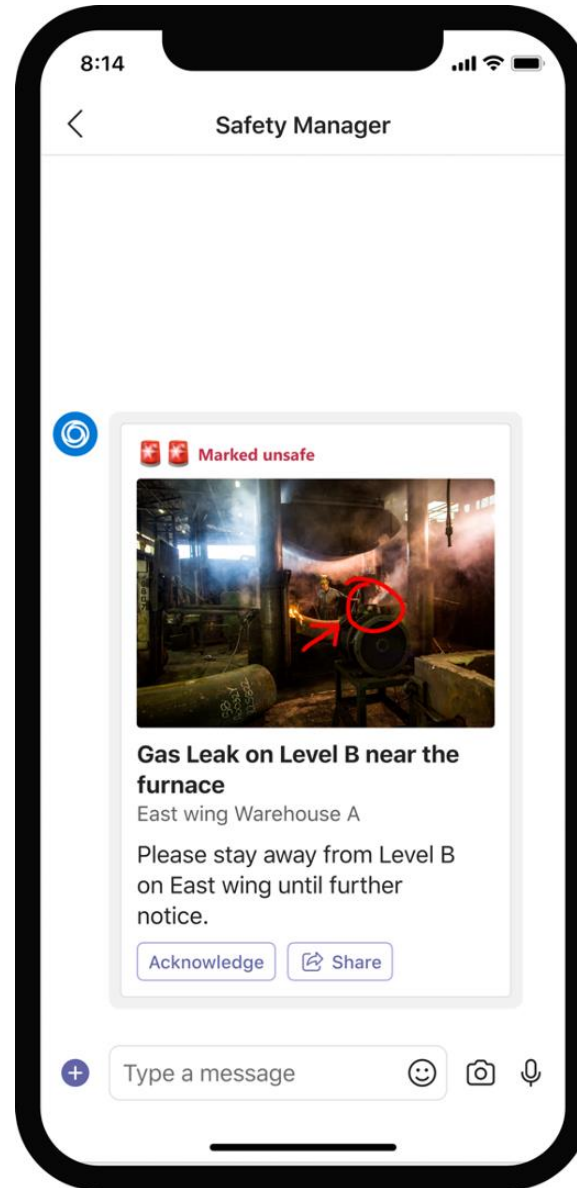
On clicking on the notification, the Safety manager bot shows an adaptive card for staff to view the incident details, location and acknowledge that they have viewed the notification alert.

The app also allows to audit the incident response activities in a timeline fashion to allow for reporting
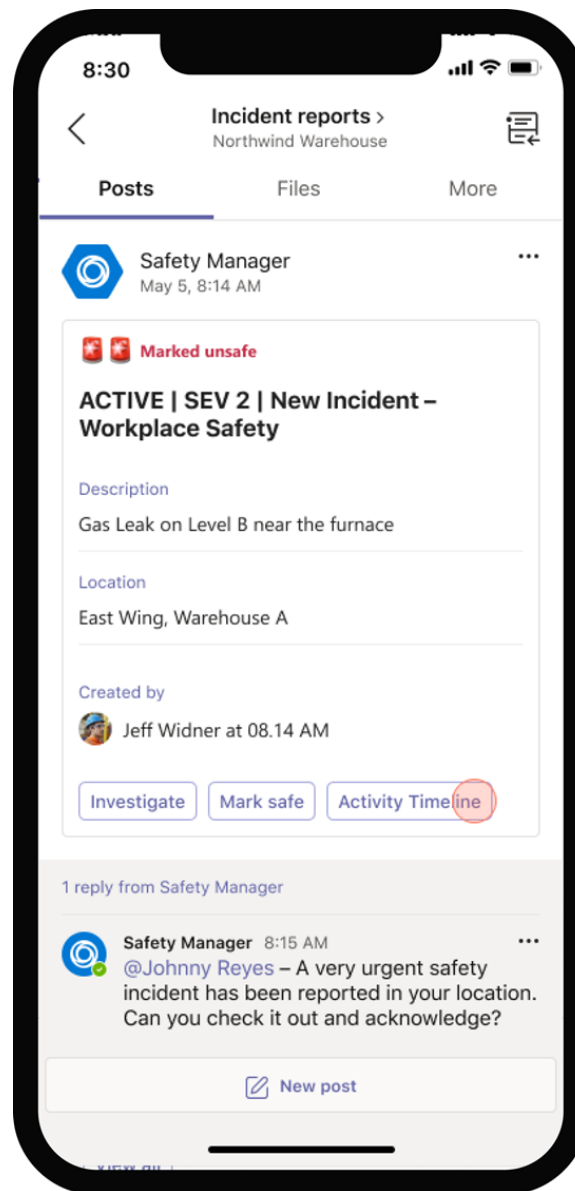
On clicking activity timeline in the incident card, the app provides a real time view of changes, activities made on the incident.
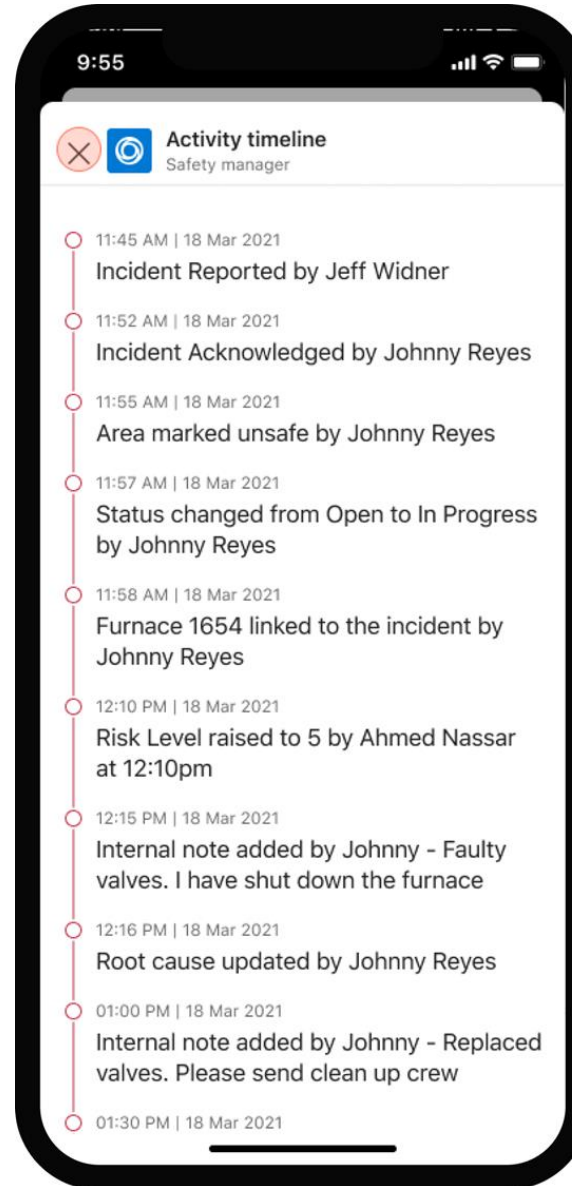
Task module opens to show the incident timeline from the moment it was reported by Jeff to all the triage, diagnostic steps taken to drive closure of incident.

Solution Highlights – Best Practices

Key Solution Design Considerations

Platform Extension Points

- **Personal Scoped App** The app operates mainly via Personal scoped tab and a channel scope bot

  o Personal Tab – Personal tab is preferred for most use cases such as reporting incidents, clocking in, since FLWs need a quick and easy way to trigger the process and a conversational bot would be cumbersome.

  o Channel scope bot is used for posting incident cards. This will help all oncall response team to see the request and allows rest of the staff to be aware of the incident for safety reasons.

- Personal bot – Bot in personal scope is used mainly for sending broadcast messages when an area is marked unsafe.

- **Device Capabilities** – The app makes use of QR / Barcode scanner in the Teams JS SDK to open the mobile camera and use that as scanner for heavy equipment and media capabilities to take photos of incidents.

User Experience

- **Card refreshes** are used to update the card status instead of sending multiple different cards about the same request. This ensures that readability is easier, and app does not spam with multiple cards for updates.

- Bot also @mentions users in the channel to bring attention to action owner and provide change in status of incidents to all members in the channel.

- **Proactive Messages** are sent to staff to bring safety incidents to their attention.

- **Adaptive card user specific views** provide different view of the incident card for rest of the channel and the on call maintenance worker.

Graph API

- Shifts Graph API is used to send safety broadcast notifications and alerts to employees on shift

Solution Architecture
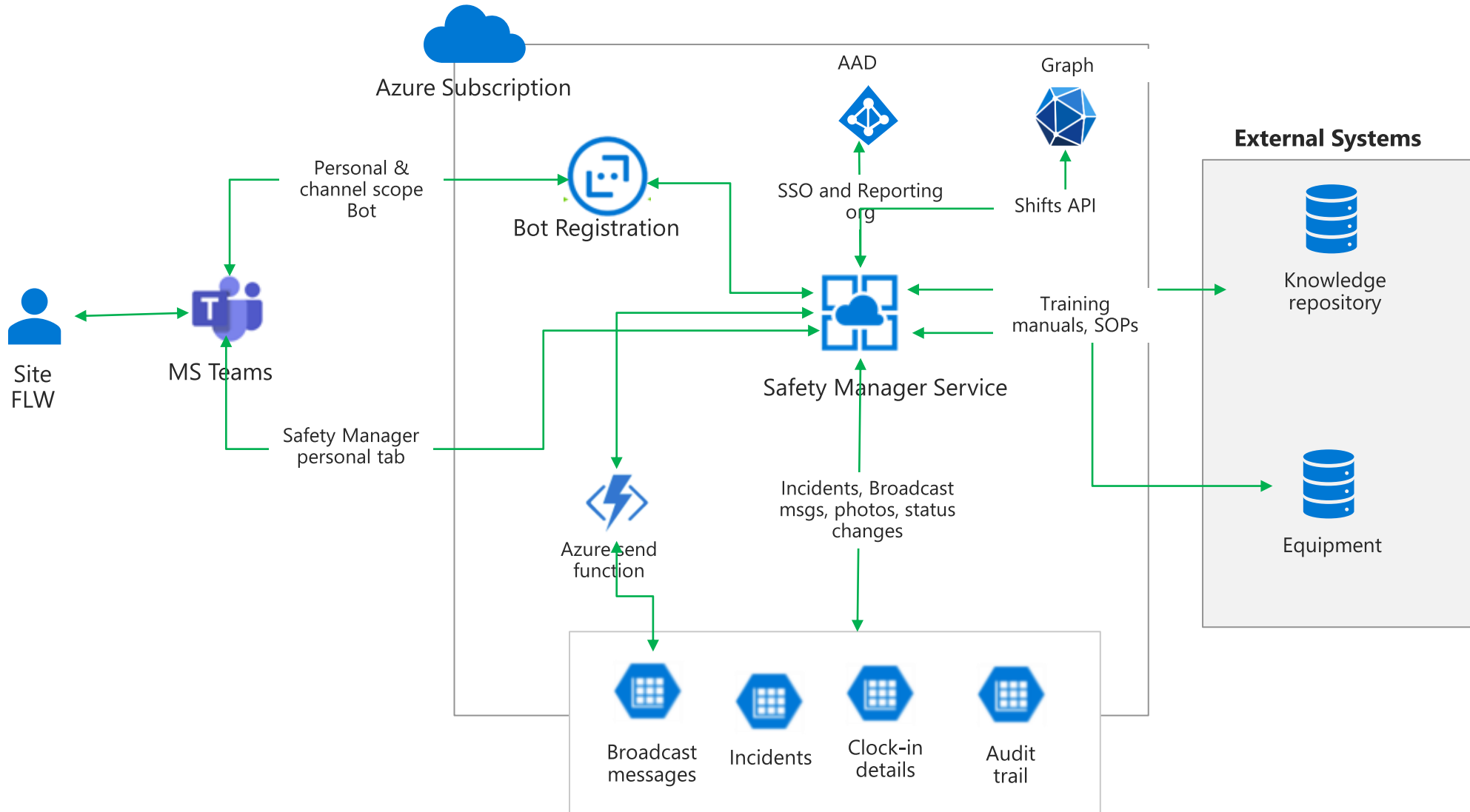
FLW Book of Dreams

Airline Crew Communications

Scenario Vision

Context
- Contoso Airlines has 100s of flights operating at any point of time and requires an efficient way to handle communications among crew members and also between cabin crew and rest of staff in the airport for each flight.
- In addition to handling communications, Contoso Airlines also likes to have a structured way of reporting incidents and minimize response time.

Current State

⚠ Kian Lambert, cabin crew lead in Contoso airlines checks his roster, trip details for the upcoming week through emails. Whenever there are any changes, there are follow-up emails sent.

⚠ With multiple trips, layovers the emails quickly become unmanageable and confusing to get the latest correct information.

⚠ Kian also manually checked information about currency exchange rates, weather outside on his own depending on the countries in the trip.

⚠ Coordination among crew members is ad hoc and through various communication channels such as mobile text messages, emails or walkie talkie.

⚠ Since crew members differ for each flight, members will have to check their email for list of crew members for each flight

⚠ Any inflight incidents, passenger incidents were reported as email to the respective mailer group. Acknowledgment, real time tracking is not available.

Future State

✓ Kian Lambert signs into the app to be greeted with details around upcoming trip. He can also choose to view roster with real time information around trips and accommodation for the next week.

✓ Any changes in schedule, roster is communicated directly via the app and the dashboard always has latest real time information.

✓ App also fetches currency rates, weather information from APIs real time and updates it frequently for benefit of user.

✓ Group chat exists for each flight trip allowing for easy communication among crew members.

✓ App automatically takes care of finding the right members for each flight and brings them into a group chat.

✓ Inflight incidents, passenger emergencies can be reported real time to be tracked as incident tickets.

✓ Acknowledgments around the incidents are communicated real time to the reporter.

⚠ – Points of Friction

Kian Lambert, Cabin Crew Lead

Kian Lambert is a cabin crew lead at Contoso Airlines. He is in charge of smooth operations on flight, customer service and safety on board. He works with his cabin crew to service onboarded passengers, coordinates with ground crew from time to time for special requests and emergencies

Kian Lambert has an upcoming flight to Dubai scheduled. He chooses to see his roster for the week to plan ahead.
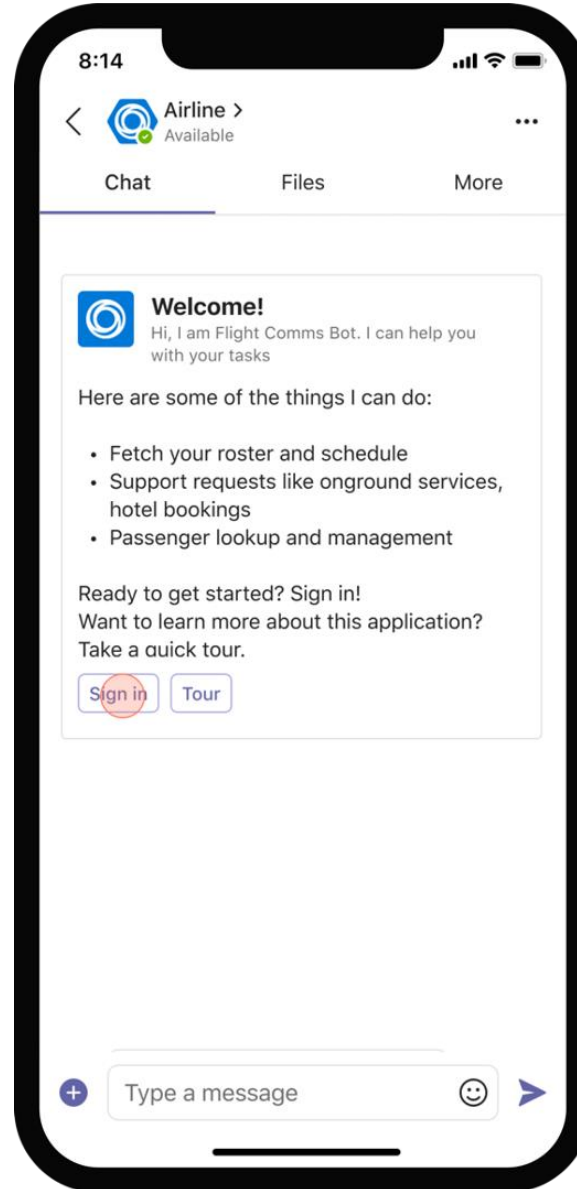
As Kian opens the app, he is greeted with a welcome message indicating the various capabilities of the app. Before interacting further, the app prompts Kian to perform a sign-in.
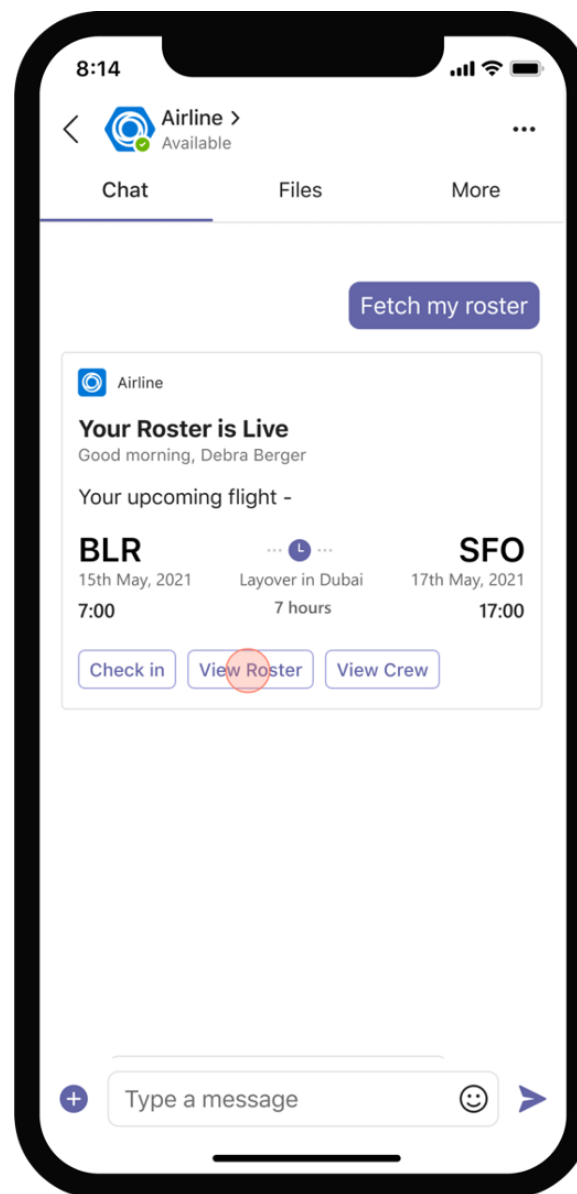
Upon signing in, the app provides information on the immediate upcoming trip(s). Kian can choose to check-in for the upcoming trip or view the roster to see his schedule for the next week.
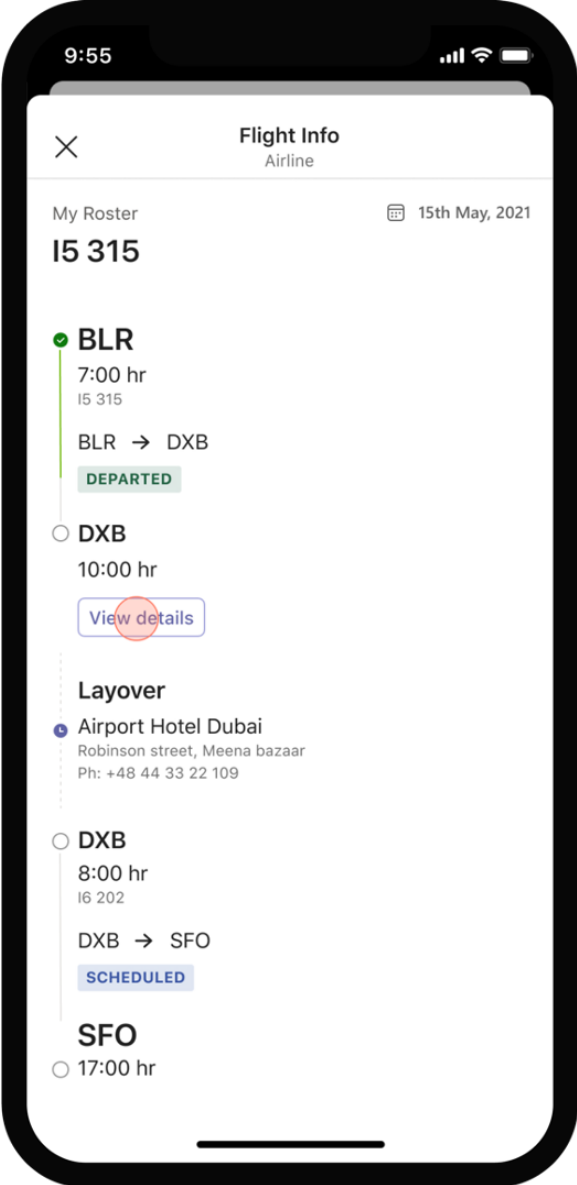
As Kian views the roster, he is able to see timeline of his travel schedule, accommodation for each day of the next week. Each section can be clicked on to select further details on the leg of travel.
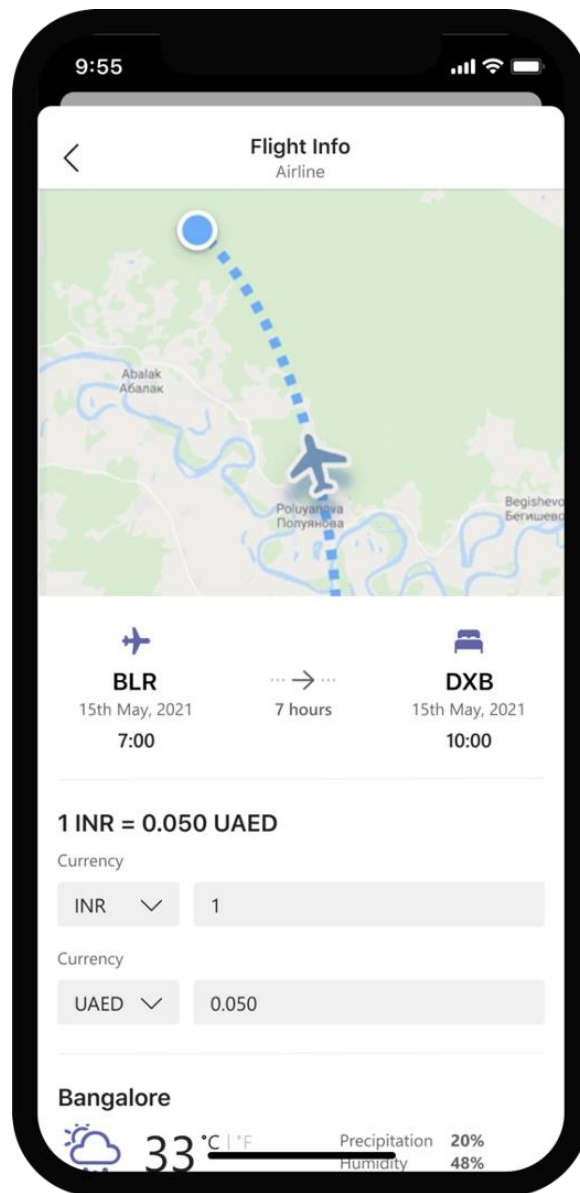
Selecting the Bangalore to Dubai travel leg, the task module shows the flight path, currency conversion and time duration of trip
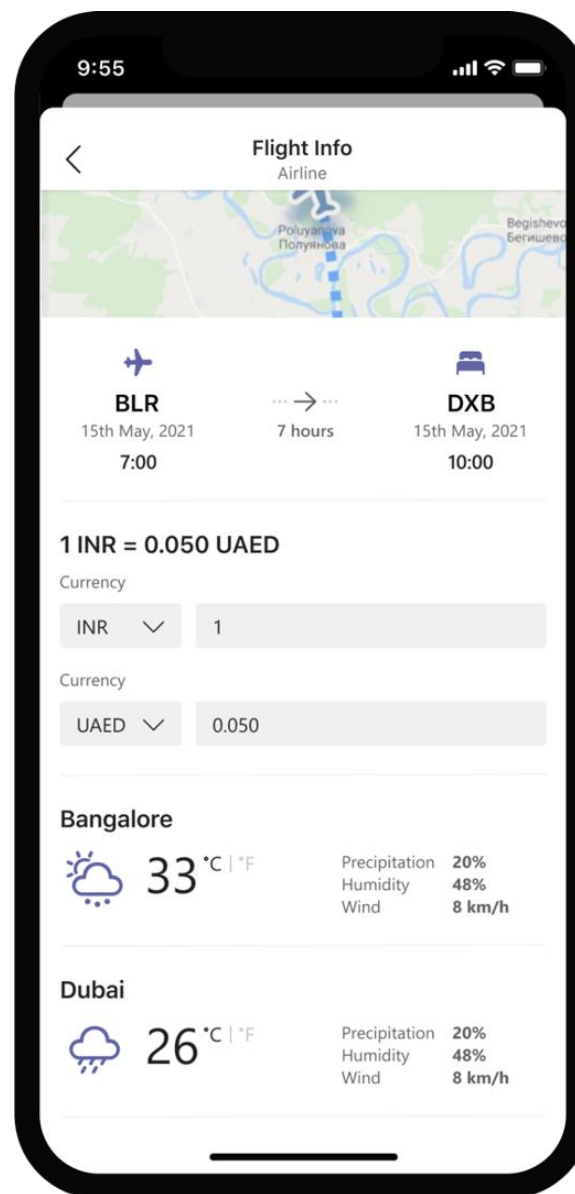
In addition, it also integrates with the weather app to show weather in source and destination cities. This would help Kian to plan his day better upon landing in Dubai.
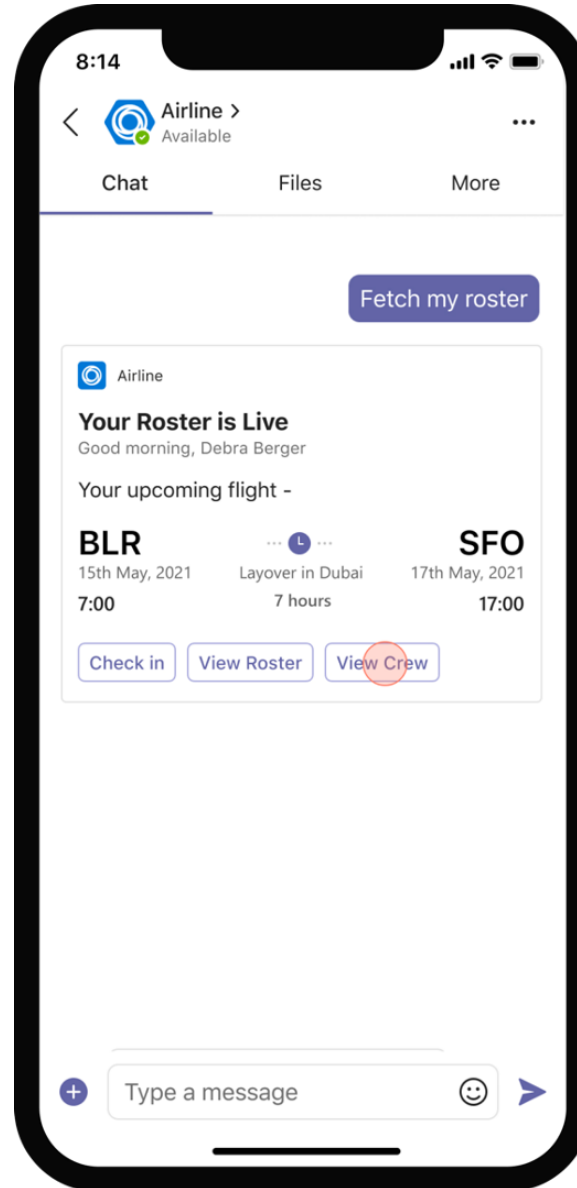
Kian can also view the crew who will be accompanying him on the trip. In addition to cabin crew, Kian can also view other members such as Gate agents, maintenance worker and other staff involved with flight operations.
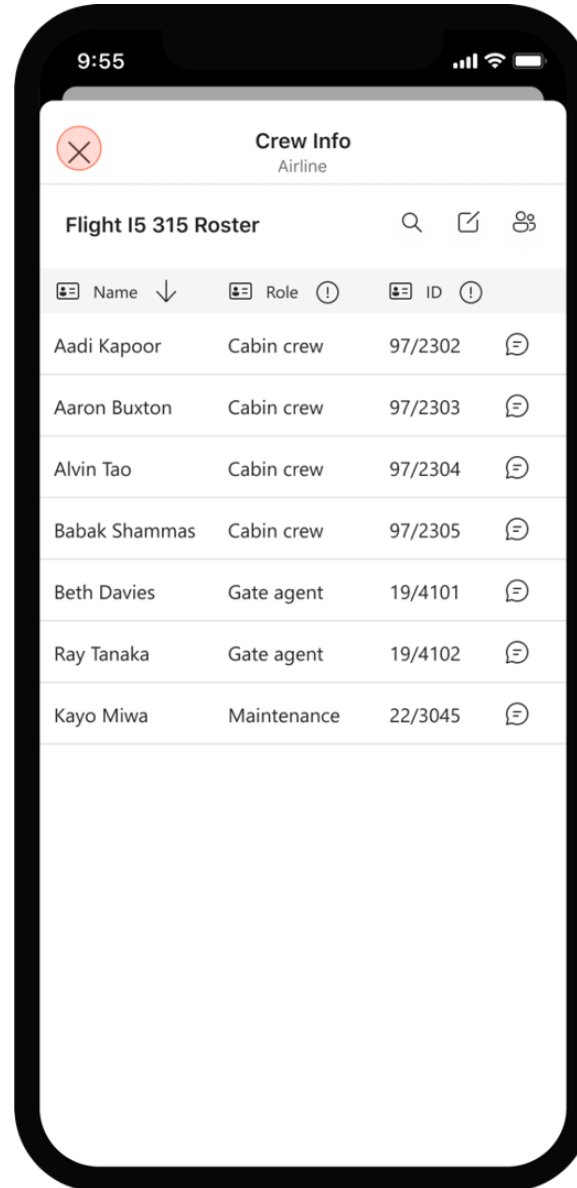
On opening the crew task module, the app lists the crew members involved in flight operations. Kian may choose to contact the members individually or create a group chat among all.

A Group chat is created for each flight trip operated by Contoso Airlines. All members involved in the flight operations are added as part of Group chat automatically.
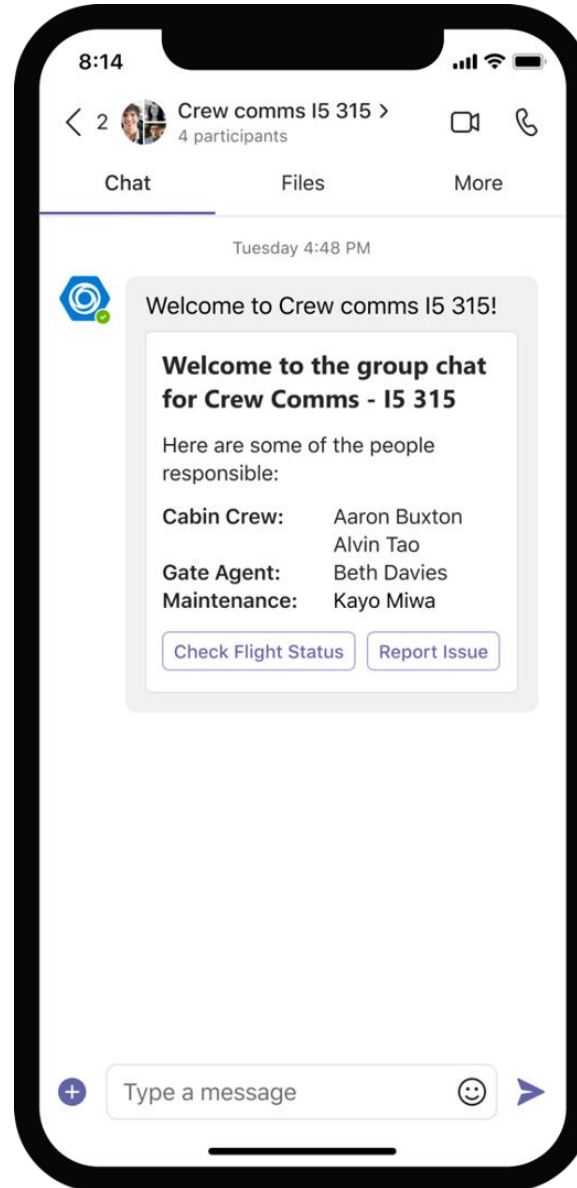
In addition to the flight operations staff, the group chat also has the app installed automatically. Airlines bot proactively posts information about the members and their roles as an introduction for all other staff.
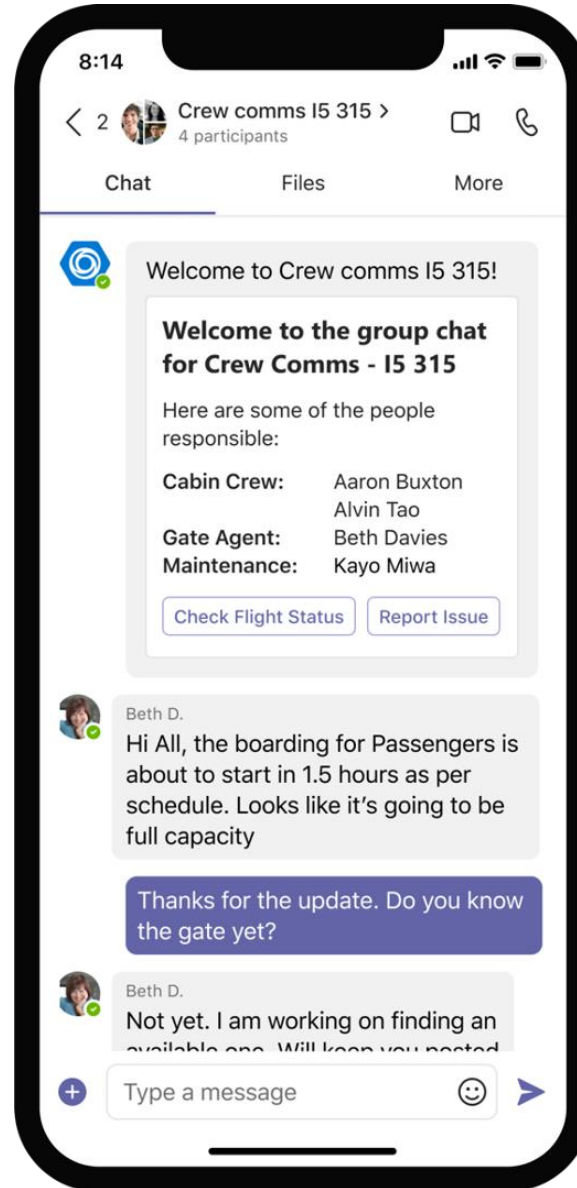
The group chat can be used by members to chat among each other about flight information, any requests, exchange of information and assistance.
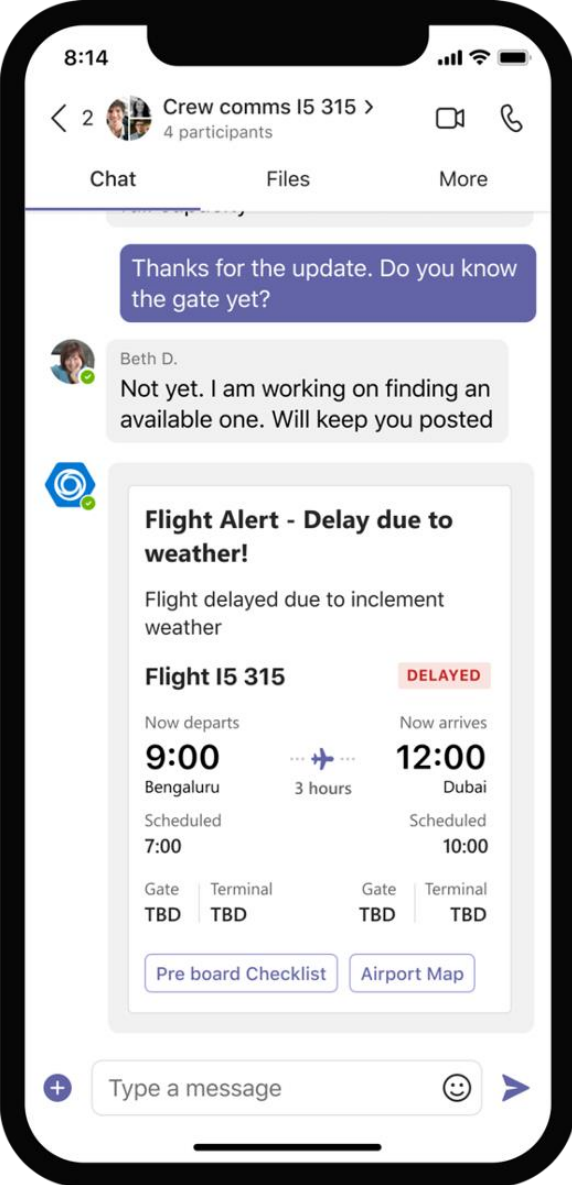
The bot also proactively posts any flight updates in the Group chat for awareness of all members involved in the flight operations. In this case, the flight to Dubai is delayed and the bot proactively conveys this information to all staff to help them be prepared.
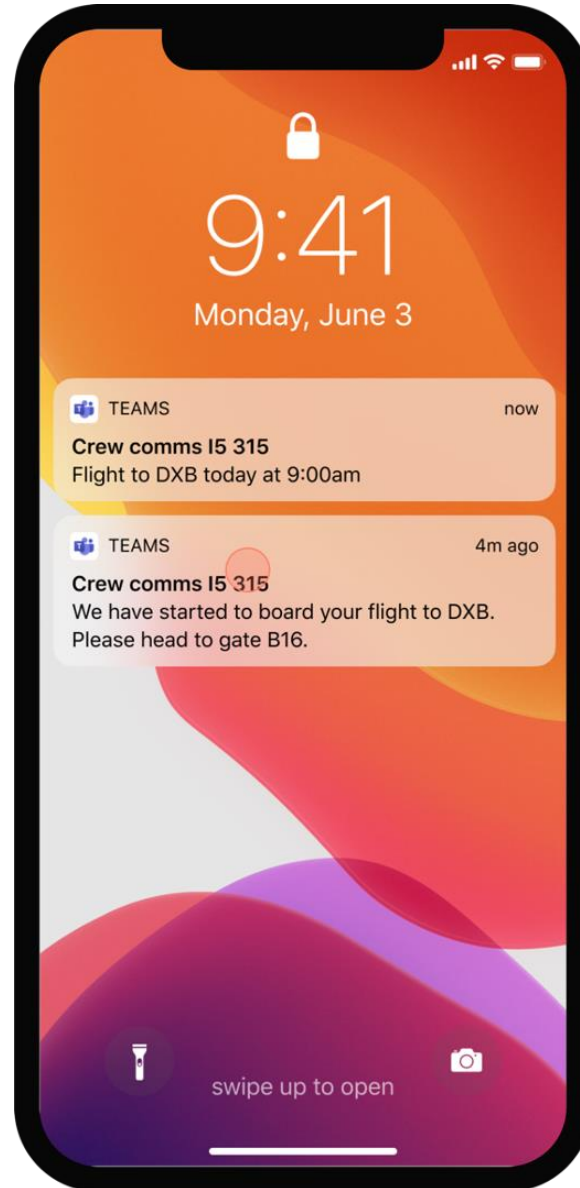
As the flight gets ready to be boarded, the bot again sends an adaptive card to alert all members
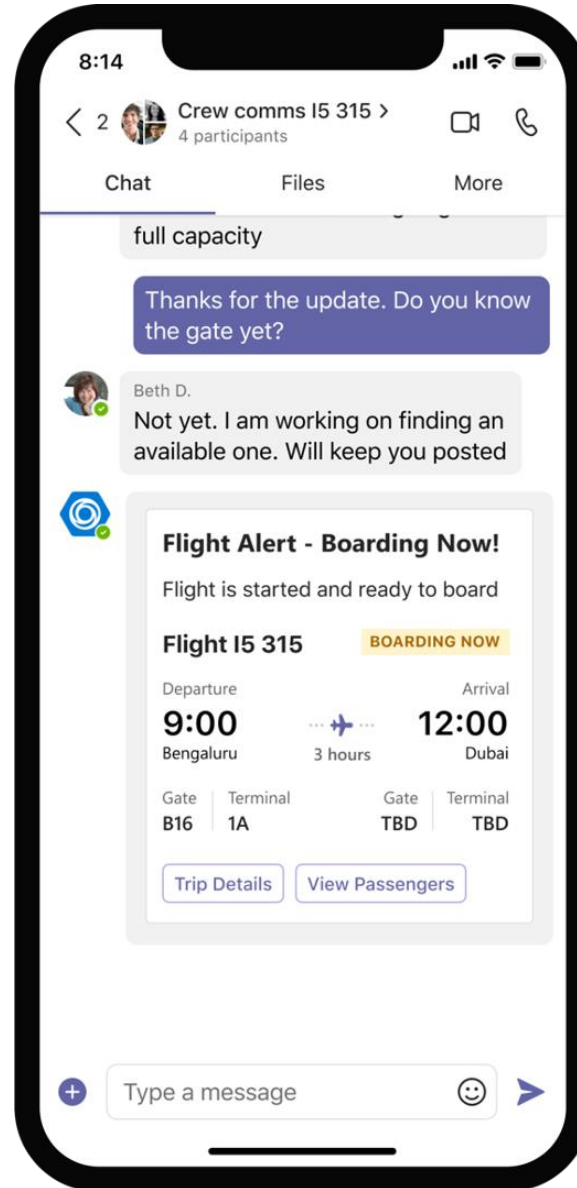
The adaptive card shows that flight has begun boarding now and is also updated to show the terminal and gate number. This will be useful for pilot and onboard crew to identify the right gate and terminal.
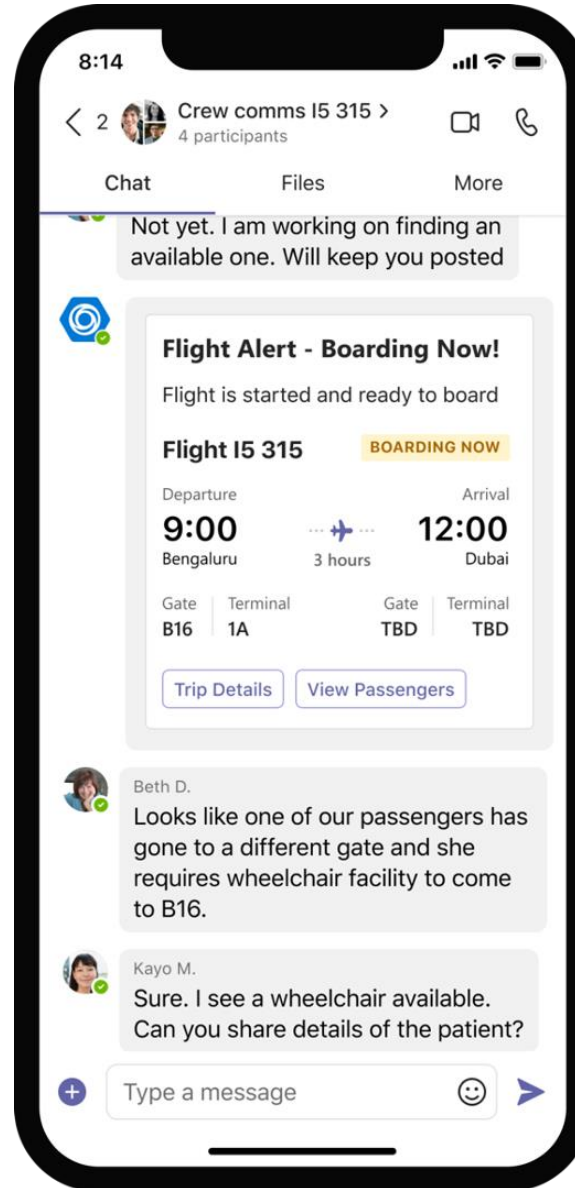
As boarding has started, one of the passenger assistance members points out that a passenger has mistakenly approached a different gate. It appears that the passenger also requires special assistance with wheelchair.
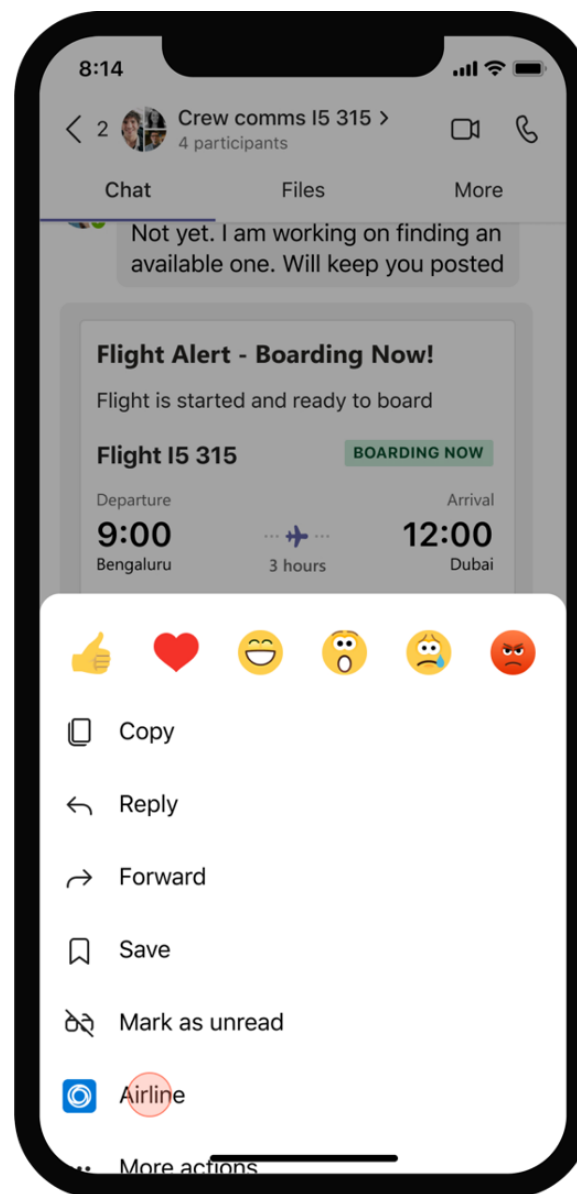
In addition to just mentioning about the passenger needs, the cabin crew may also share the passenger information as cards easily using Messaging extensions.
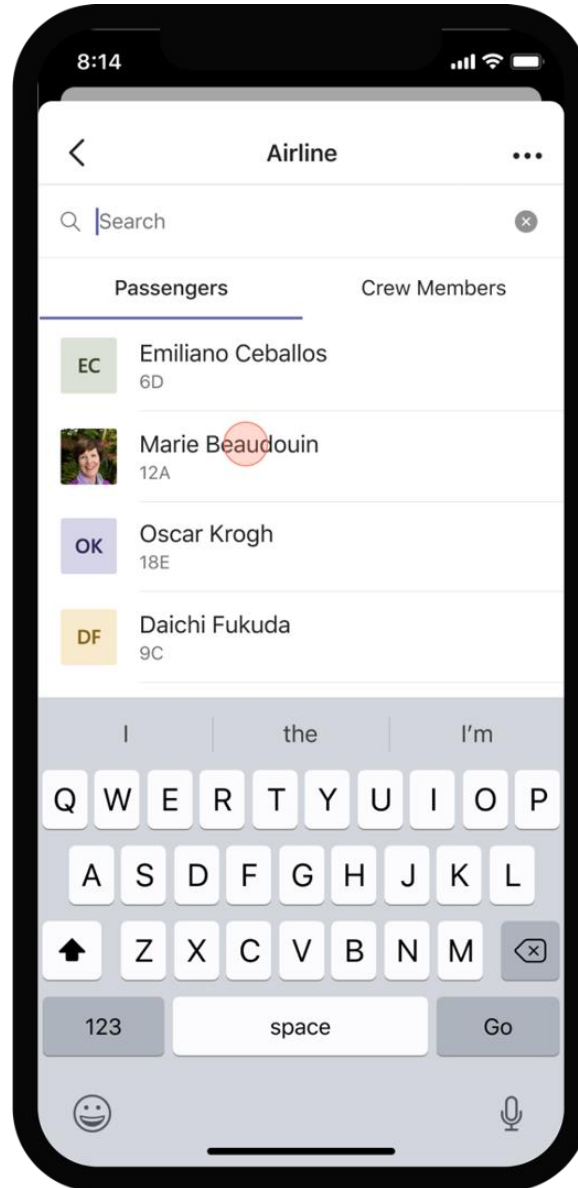
Beth searches for passengers for the current flight. The app also understands the context of Messaging extension and displays only passengers relevant to the current flight at the top.
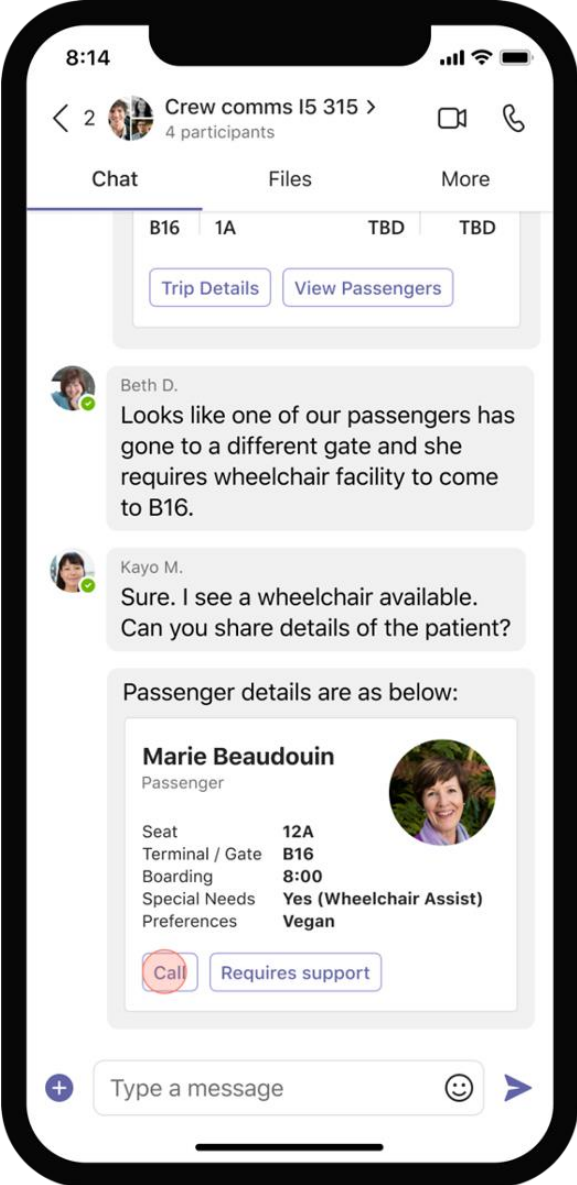
The passenger information is shared as a card inside the Group chat. In order to aid locating and reaching out to the passenger, the card has passenger details, photo and ability to place a call directly from the card.
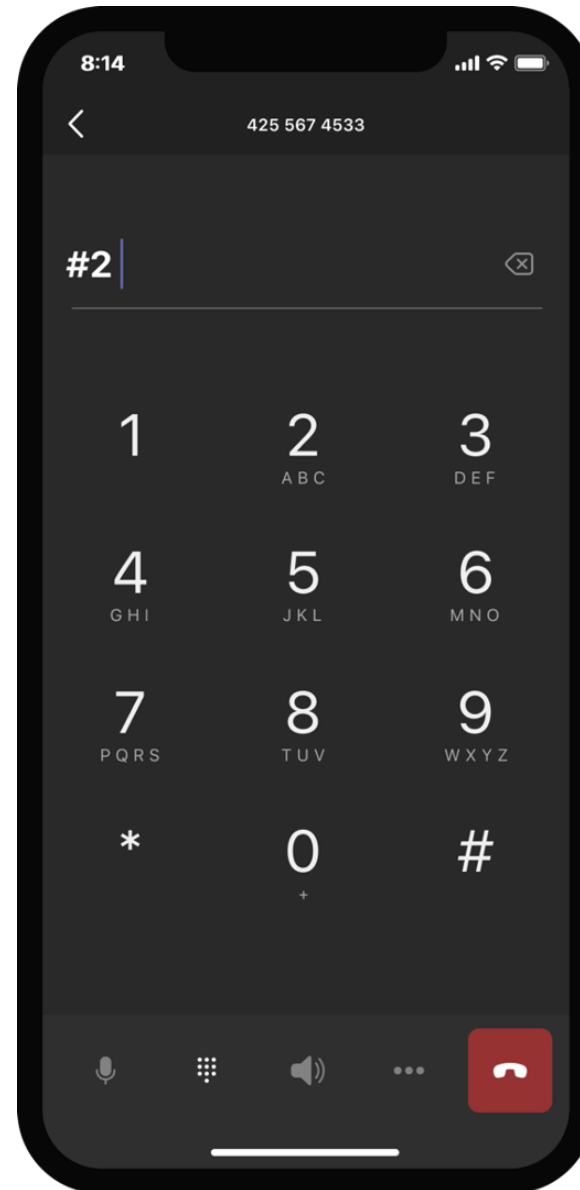
The app opens the phone's dialer UI with customer's phone number typed in. The crew member can directly reach out to customer using their mobile device.

App also provides a way for Airline staff to view their profile as a personal dashboard, perform quick actions and any HR activities
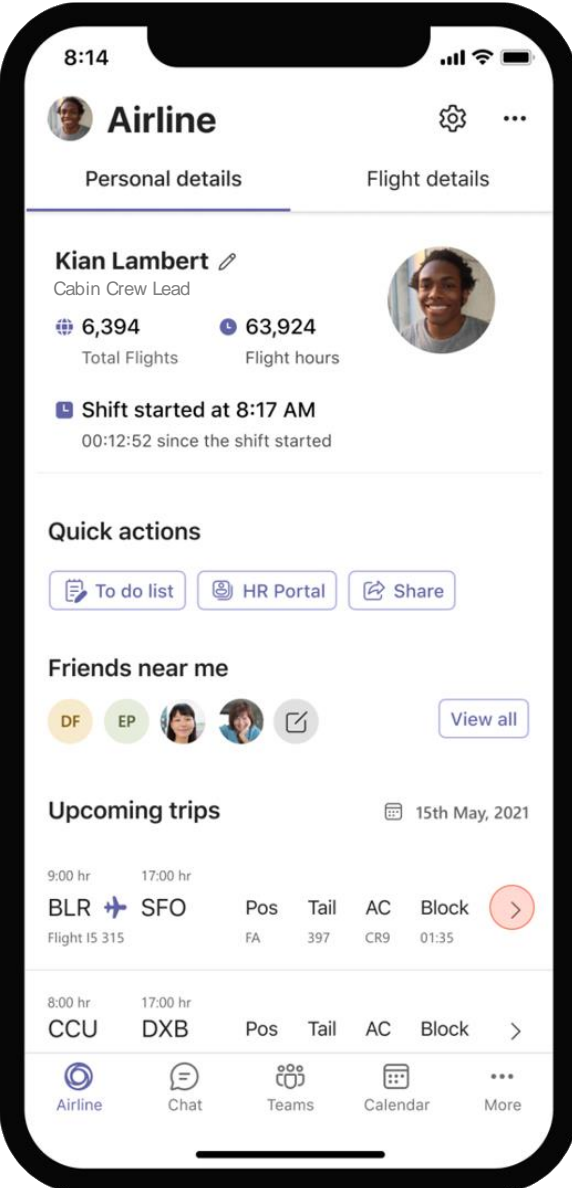
Clicking on the Airline app brings up a dashboard view of the signed in user – Kian Lambert. It shows summary view of Kian's flight stats and any quick actions. Kian can also reach out to his network / colleagues who are currently in the same location as he is
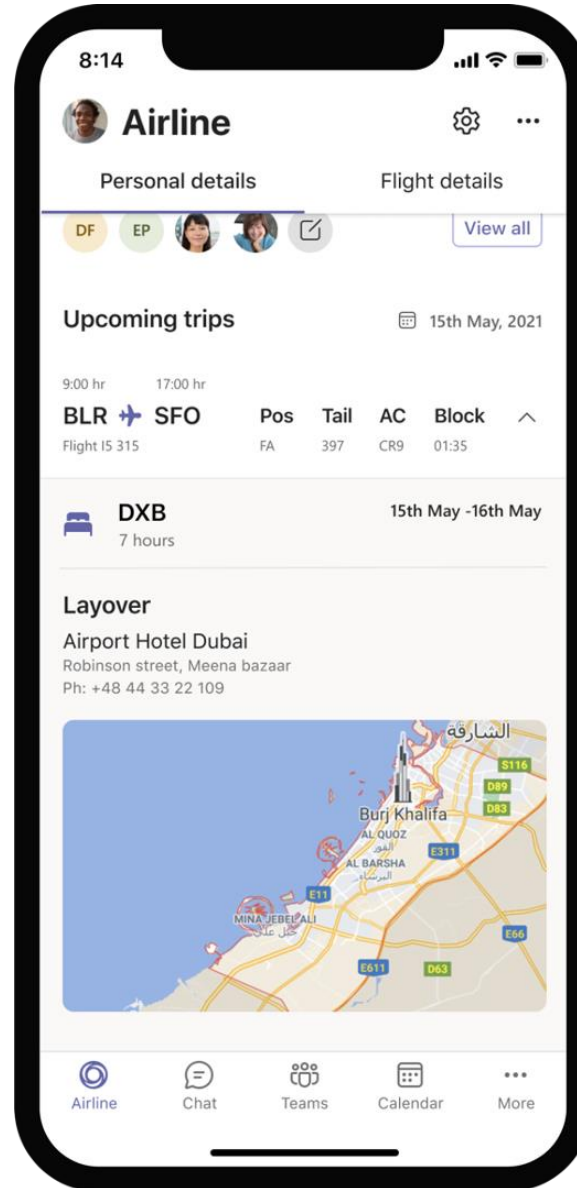
The same page also shows all the upcoming trips, layover and accommodation information for Kian to view and edit.
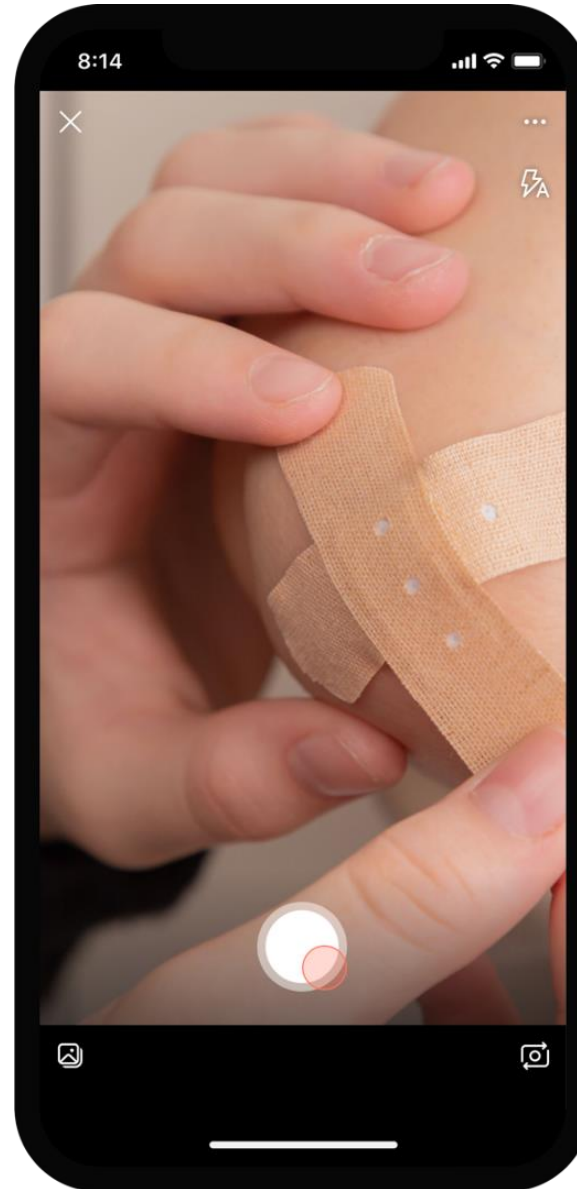
During the flight, Kian notices a passenger who is hurt and requires medical assistance as the flight lands.
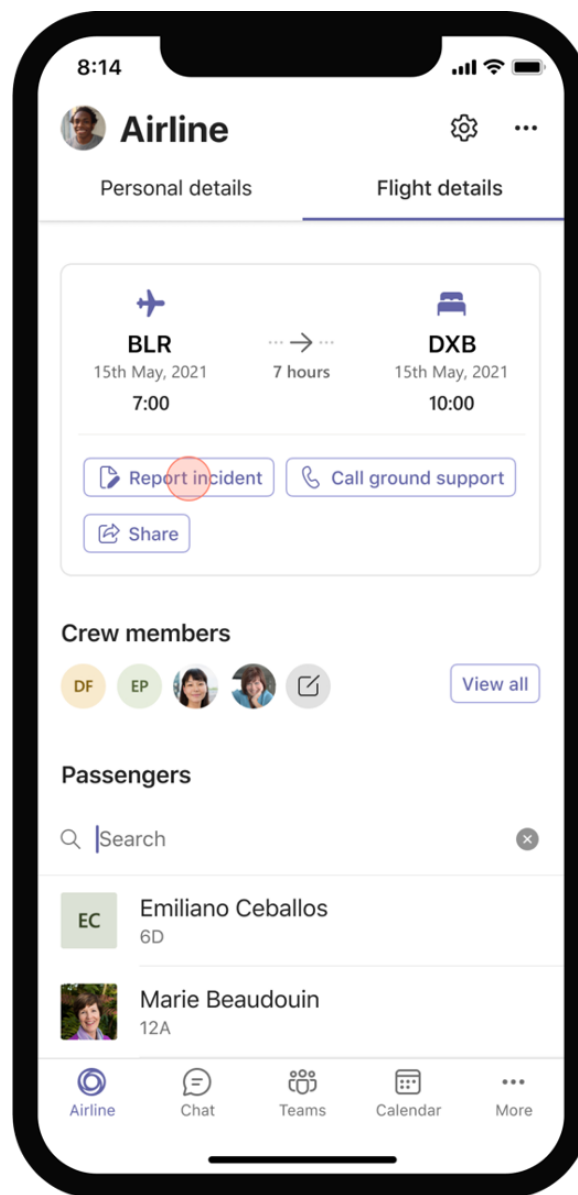
As Kian notices the passenger who is unwell, he brings up the dashboard view to report an incident onboard.

The incident page asks for basic details around the incident and allows Kian to take a photograph using the device camera.

Kian uses the phone camera to take photo of the hurt passenger. This image can be used to gauge the incident impact and urgency. It will also provide necessary intel for the responders to be prepared.
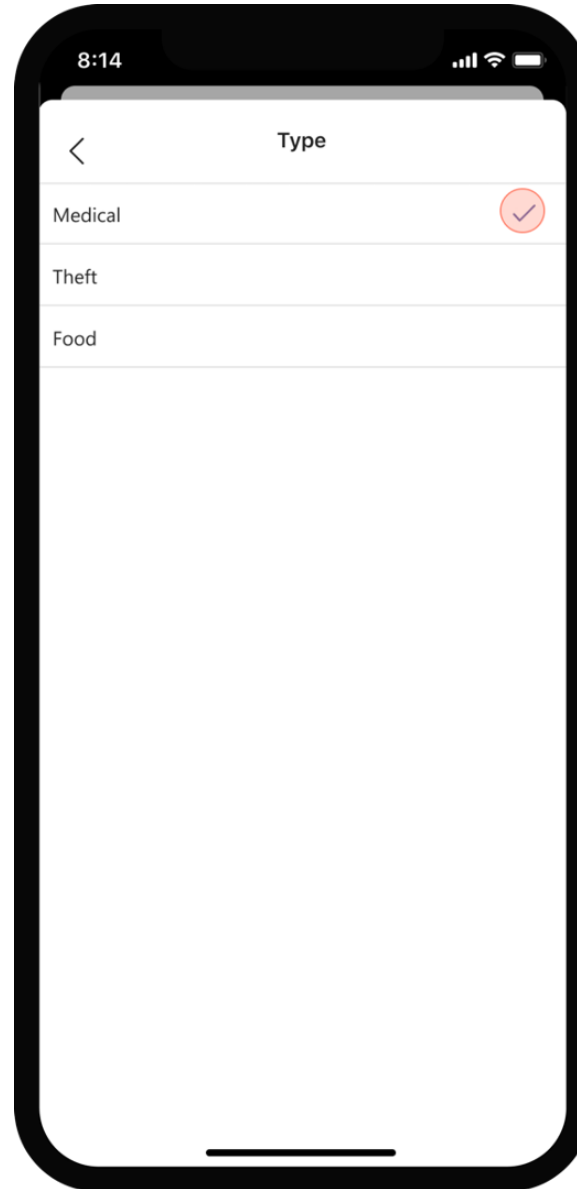
Kian marks the incident as Medical as the passenger has been hurt and requires medical assistance. This categorization would be helpful in intimating and reaching out to the right team for assistance.
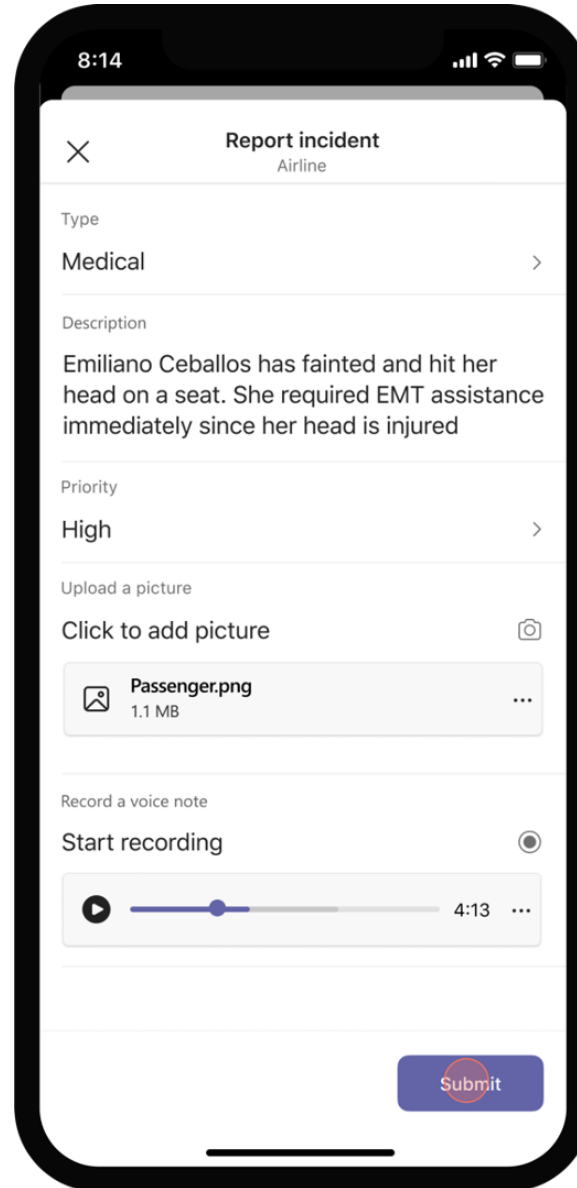
Kian mentions the priority as High and records a voice note describing the medical incident. He describes the passenger's condition, any allergies, complications for the benefit of EMT response who will be receiving the incident report.

As Kian submits the incident, it is posted as a card in the right channel in the Team for airport. This channel contains all the medical assistance members who can view the incident and acknowledge.

Medical assistance member David acknowledges the incident and replies that the medical response team will be waiting at the arrival gate ready to tend to the passenger.

Solution Highlights – Best Practices

Key Solution Design Considerations

Platform Extension Points

- **Personal Scoped App** The app operates mainly via Personal scoped tab and a group chat scope bot

  o Personal Tab – Personal tab is preferred for most use cases such as reporting incidents, checking personal stats, flight details since FLWs need a quick and easy way to trigger the process and a conversational bot would be cumbersome.

  o Group chat scope bot is used for sending messages around flight to each group chat relevant to a flight.

- Personal bot – The app uses personal scope bot for fetching information specific to a particular crew member for their individual consumption. E.g. Roster, schedule, trip or accommodation details

- **Device Capabilities** – The app makes use media capabilities to take photos of incidents and access microphone to record voice messages

User Experience

- **Card refreshes** are used to update the card status instead of sending multiple different cards about the same request. This ensures that readability is easier, and app does not spam with multiple cards for updates.

- **Proactive Messages** are sent to staff to update them of change in status of flights, roster or schedule

- Group chats are created for each flight trip and not team or channel because 100s of flights operate in a day and need a temporary place for members of the flight to collaborate and chat. Channel / Teams are more permanent in nature and require use of Graph APIs for setting up and adding members for a short period of time.

- Usage of group chats over Team / channel also removes the effort of managing a Team lifecycle.

Graph API

- Shifts Graph API is used to determine employees on shift and assigned to a flight to view flight details.
- Relevant people API is used to bring up contacts under 'Friends near you'. Combined with location permissions, this can be filtered to show relevant people near user's location
- The app is added to each group chat created using add app to chat Graph API.

Solution Architecture

Azure Subscription

AAD

Graph API

Airline Crew Bot messages

Bot Registration

SSO and Reporting org

Top Collaborators, Proactive msgs, Shifts

External Systems

Employee

MS Teams

Crew Member roles

Employee Database

Airline Crew Comms

Personal scope tab
User Profile / Flight details

Weather API

Flight Trip, conversation IDs

Incident Details

Passenger Bookings

Azure storage

Chat – Flight IDs

Flight Crew

Incidents

Passenger Details

Hotel Bookings API