

VISUAL DESIGN CHALLENGE • CANSU KAYA

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CONTENT

INTRO: A STORMY CHALLENGE

FROM THE CENTER OF THE STORM:
STRUGGLES OF A MAINTENANCE ENGINEER

BENCHMARKS TO INSPIRE

“TO-BE” SCENARIOS

WIREFRAMES

STYLE GUIDE

FINAL WORDS

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INTRO: A STORMY CHALLENGE

The company in the case has the responsibility to offer immediate maintenance services for its aircrafts.

The engineers in the team need to run checks for problems and provide fixing solutions. However, the solutions can not always be offered immediately.

- Not being able to assess the severity of non-normal conditions fully and certainly to take precautions,
- Not being able to identify possible needed parts for fixing hence ordering them beforehand,
- Lack of storage for parts to be replaced,
- Delays in orders

are among the obstacles that increase the time to solve the maintenance problems. As a result, the company can face operational costs due to cancelled flights and refunds while facing increased customer dissatisfaction.

The major challenge for engineers in the maintenance team is to

fix things before they are broken without letting obstacles get in their way.

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PRIMARY USER RESEARCH

PERSONA

PRIMARY USER RESEARCH

To understand the challenge through the perspective of the ones who are directly experiencing it, I have organized video-call in-depth interviews with

- Two project managers who are also taking part in maintenance planning in a national defense electronics company
- One production engineer working in the assembly line of a national white goods production company
- One mechanical engineer working as the design engineer in the production and assembly branch of a German originated transportation company

I have chosen to interview with above mentioned interviewees as they are all actively participating in supply chain management of their companies through material planning of production and maintenance, following the fulfillment of supplies, procuring the missing supplies through regular contact with suppliers and distributors.

PRIMARY USER RESEARCH

My user research is focused on understanding

- Challenges they face regarding planning of maintenance activities,
 - How they respond to unusual circumstances (as an example for national defense electronics company, the urgent need of repairing the damaged infrastructure of license plate recognition system in rural part of east Turkey where is prone to terror attacks),
 - The advantages and disadvantages they perceive about the tools they are using to plan maintenance,
 - The difficulties they face with different suppliers about their orders
- to develop a real persona representing a maintenance engineer.

PRIMARY USER RESEARCH

Major difficulties all the interviewees have are

- Last minute updates regarding missing spare parts under critical situations,
- Suppliers being not transparent about the delivery process hence orders taking longer than expected,
- Consuming time to reach senior engineers to solve some problems as “know-how” is not digitalized and accessible to everyone,
- Not being to always foresee complicated problems to take precautions before they happen.

The tools they are using were hard to learn in their first years of their jobs as new graduates. The tools provide them certain level of information they need regarding stocks, order status; however they usually double-check with a related responsible. They are skeptical whether the tools provide actual real-time feedback as all of them have at least one stressful memory of having hard time solving a maintenance problem. In addition, they think the tools are lacking adequate forecasting of possible major problems.

PERSONA

Jim Anderson

28, Boston

Aircraft maintenance engineer
in American Airlines

Organized

Hard-working

Analytical

Ambitious

"I must know when things will get broken so I can prevent that from happening."

Bio

Since high school, Jim was interested in the aviation industry and he has been working as a maintenance engineer in American Airlines for the past 3 years. He likes his job; however, he also feels under pressure as he is part of a team to assure safety of millions as they are flying. When everything goes as planned, Jim feels confident and in control; however, he gets stressed when there are many unexpected problems occur regarding the maintenance of the aircrafts, especially during unusual circumstances like during the storms. He also values the company; therefore, he wants it to be associated with safe and good flight experiences.

Habits

- Keeping the record of the problems, the spare parts he needs the most in Google Drive and updating them regularly
- Following weather forecasts
- Spending time with fellow engineers and discussing technology news

Workload

- ☒ Overloaded
- ☐ Balanced
- ☐ Flexible hours

Me-Time

- ☒ No time for himself
- ☐ Work-life balance
- ☐ More time for himself

Tech Background



Goals

- Getting faster in diagnosing aircraft problems
- Making more accurate predictions regarding future needs
- Becoming a team lead

Pain Points

- Not having well-kept data to assess quantities and costs to plan procurements
- Consuming time with finding guidance among paper manuals or searching for colleague with more experience for problems above his expertise
- Last minute updates about not having enough stocks
- Not being able to take immediate action due to delay of missing part orders
- Not being able to foresee and act before problems occur

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BEING PLANNED

KNOWING “WHEN” AND “HOW”

FEELING IN CONTROL

FORECASTING WHAT TO EXPECT

BEING PLANNED

- Categorizing tasks as in “to-do”, “in progress” and “done” helps to identify what is finished and what is remaining.
- Keeping track of unsolved problems also help to identify team’s and individual’s capacity hence helps to improve planning.

Trello - Task categorization and follow-up of progress

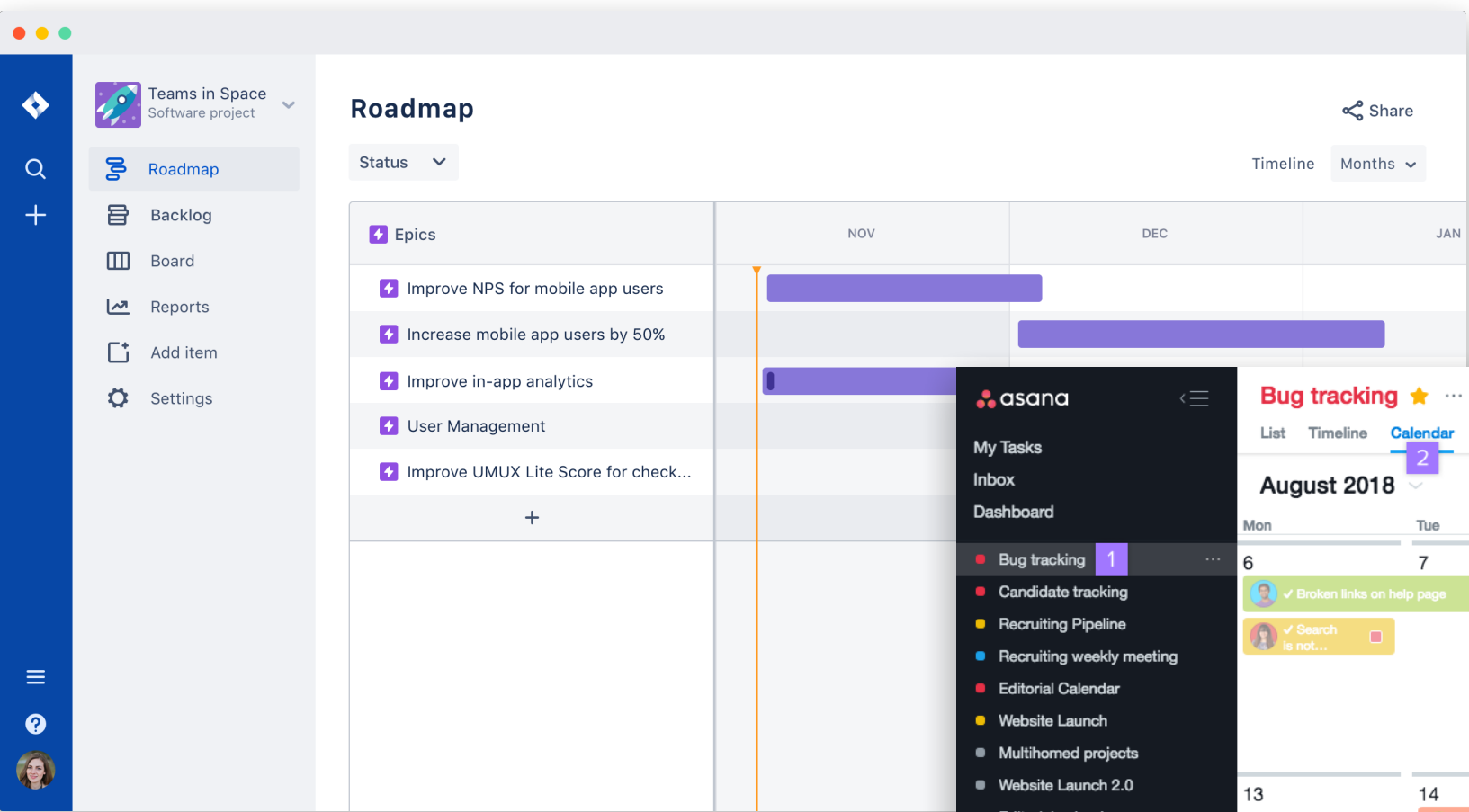
The screenshot displays a Trello board for 'The Great Kitchen Redesign' under the organization 'Taco's Organization'. The board is organized into four columns: 'Ideas', 'To Do', 'Doing', and 'Done!'. Each column contains tasks with progress bars, votes, and due dates.

- Ideas:**
 - Get a new window valence to match the cabinet colors
 - Install pot rack over the island (includes an image of a pot rack with five pots)
- To Do:**
 - Adjust water pressure of the sink (1 vote, 0/4 progress, due Nov 10, 2013)
 - Remove old refrigerator and stove (includes a photo of a person)
 - Install new sink (1 vote, 0/10 progress, due Nov 4, 2013)
 - Install new flooring
- Doing:**
 - Pick countertop colors (due Nov 27, 2013)
 - Buy new kitchen cart (includes a photo of a person and a kitchen floor plan diagram)
- Done!:**
 - Call contractor (1/2 progress, includes an image of a kitchen faucet)

The right sidebar shows the board's menu, members (including Bobby Grace), and recent activity log.

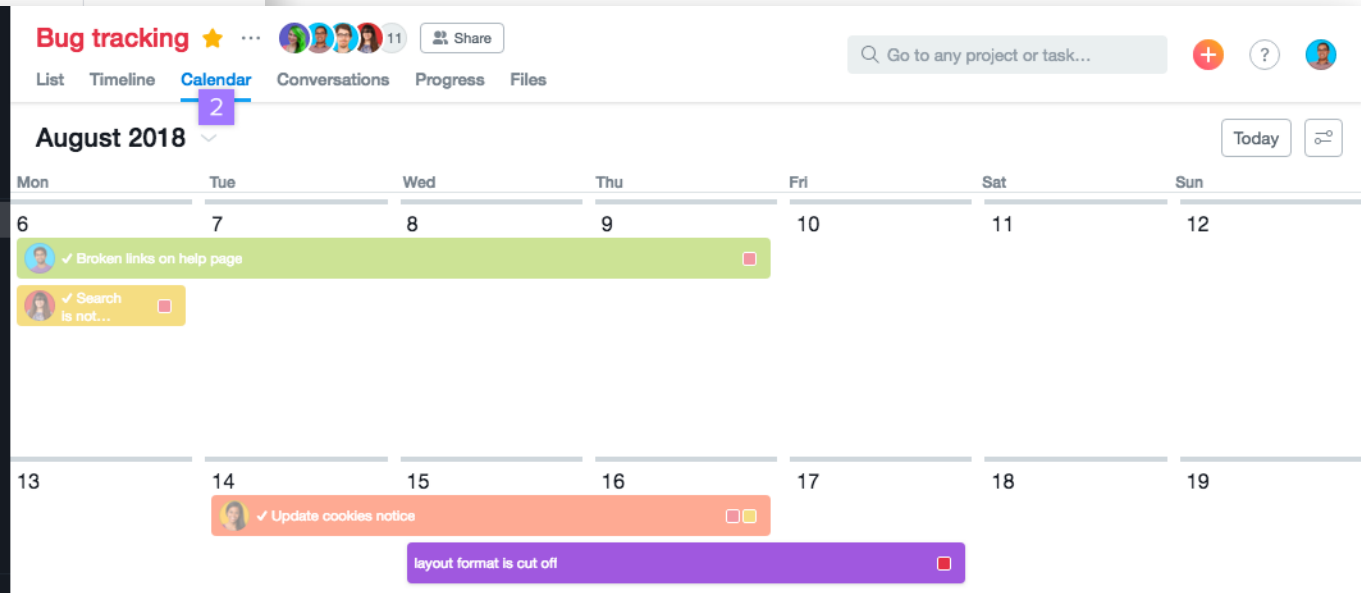
BEING PLANNED

- Presenting tasks and their responsables on a roadmap facilitates planning for upcoming time frames while providing all active participants with the vision of the big picture.



Jira - Epic related roadmap

Asana - Epic related tasks, their responsables and due time



BEING PLANNED

- Visible prioritization allows to differentiate what is critical hence needs to be focused on first.

Marketing campaigns

Add Project

	Status	Progress	Dates	Budget	Priority	
<div>Spring brand campaign</div> <div>Brand marketing</div>	<div>On Track</div> <div>Just now</div>	<div><div></div></div> 58%	Jan 1 – Mar 31	\$1.25MM	Medium	
<div>EMEA brand awareness campaign</div> <div>International marketing • 8 overdue tasks</div>	<div>At Risk</div> <div>4 days ago</div>	<div><div></div></div> 43%	Nov 1 – Feb 28	\$2MM	High	
<div>Influencer campaign</div> <div>Brand marketing • 2 overdue tasks</div>	<div>On Track</div> <div>30 minutes ago</div>	<div><div></div></div> 89%	Feb 1 – Mar 31	\$10K	Medium	
<div>Global customer growth campaign</div> <div>Acquisitions • 10 overdue tasks</div>	<div>Off Track</div> <div>2 days ago</div>	<div><div></div></div> 92%	Dec 1 – Feb 15	\$4MM	High	
<div>Customer love campaign</div> <div>Social Media • 1 overdue task</div>	<div>On Track</div> <div>2 hours ago</div>	<div><div></div></div> 73%	Jan 1 – Mar 31	\$125K	Low	
<div>Spring product campaign</div> <div>Product Marketing • 10 overdue tasks</div>	<div>At Risk</div> <div>Yesterday</div>	<div><div></div></div> 67%	Feb 1 – Mar 31	\$750K	Medium	

Product launches

Add Project

New mobile app launch

Go to project

Latest Status

Post Status Update

Squash those bugs!

At risk

Kat

January 18

We found a few more bugs than expected during initial QA. We're hoping this won't impact our timeline, but the team is still costing out how long it will take to fix each bug. Good news — we built in some extra time to our plan!

Write a comment...

Followers

Follow Status Update

About this project

This is the official project of our new mobile app launch. Research, design, development, QA, and usability testing will be tracked in this project.

Owned by

Kat

Date Range

Dec 1 – Feb 4

Priority

High

Progress

3

Overdue Tasks

27

Incomplete Tasks

102


Completed Tasks

Asana - Priority tags, status updates and progress details

KNOWING “WHEN” AND “HOW”

- Status updates help to identify when issues will be resolved and which ones are problematic.
- Reminders about processes help to follow up with the progress.

Zoho Sprints - Status follow-up and reminders



Reminder : You have a **Meeting** for the **Sprint** in the project **Altershot**. Get ready!

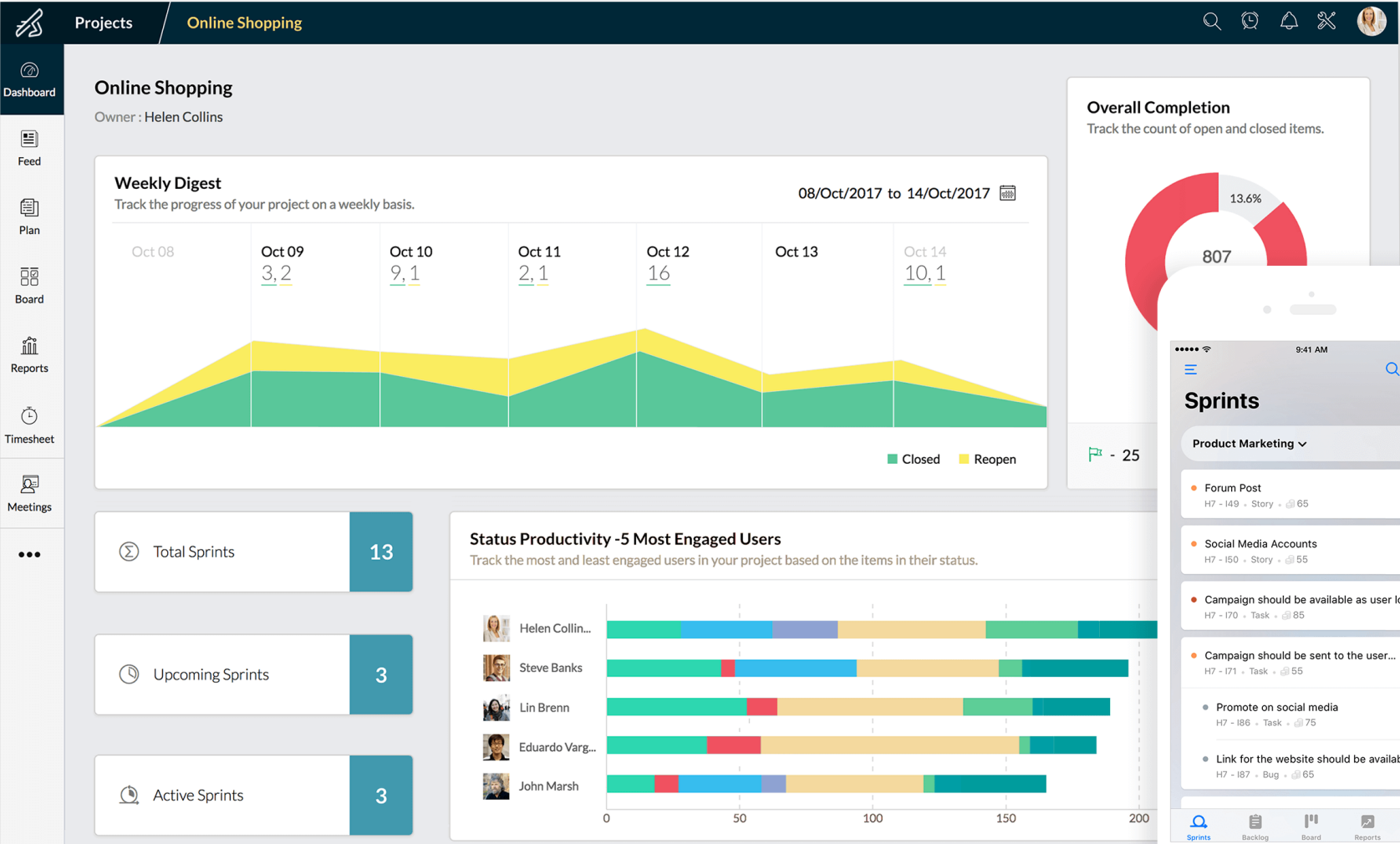
22/Jun/2017 02:30 pm , thespark

Jun

22

Level 1 retrospective
Conf Hall 1 @ 02:30 pm

Share your comments here



Sprints
Product Marketing

- Forum Post
H7 - 149 - Story - 65
- Social Media Accounts
H7 - 150 - Story - 55
- Campaign should be available as user log in...
H7 - 170 - Task - 85
- Campaign should be sent to the user...
H7 - 171 - Task - 55
- Promote on social media
H7 - 186 - Task - 75
- Link for the website should be available i...
H7 - 187 - Bug - 65

KNOWING “WHEN” AND “HOW”

- Keeping online documentation provides accessible knowledge whenever needed.
- Categorization of the documentation helps to find the information easier.

Evernote - Pinning notes under categories to facilitate access

Marketing Campaign 10 members [Invite](#)

Spaces are great for projects and working groups. This one shows how your team can manage a campaign launch.

What's new

- George V. **Q4 Conversion Rate** 0 min ago
- Ezra B. **Video Image Stills** 30 min ago
- Megan R. **Landing Page Photos** 1 day ago

Pinned Notes

- Campaign Results
- 2018 Marketing Plan
- Vendor Contact List
- Video Image Stills
- Design Files
- Pitch Template

Notes and notebooks

TITLE	UPDATED ↓	UPDATED BY	ACCESS
Acme Marketing (10)	02/02/18 - 5M	Ezra B.	Only
▼ Emails (3)	02/02/2018 - 30M	Megan R.	Only
Email Concepts	02/02/18 - 30M	George V.	Only
Email Details	02/1/2018 - 1D	George V.	Only
Email Content	01/27/2018 - 2D	Megan R.	Only
▼ Meeting Notes (2)	01/19/2018 - 3D	Alex L.	Only

Microsoft Teams - Team-specific files

Northwind Traders > Marketing [★](#) [...](#)

Conversation **Files** Notes Planner +

Marketing [Upload](#) [New](#)

Type	Name	Modified	Modified by	Size
Excel	DesignBudget-102016.xlsx	Today	Francisca Miles	1.64 KB
Word	JulyPromotion.docx	Today	Luis Valdez	2.4 KB
Word	Alignment_Process.docx	Yesterday	Christa Huber	5.9 KB
OneNote	Designstyleguide.onenote	Yesterday	Myron Schramm	2 KB
Excel	Finance_Report_2016.xlsx	Yesterday	Brandy Sargent	1.2 MB
Excel	Photoshoot_Budget.xlsx	6/20	Brandy Sargent	2.4 MB
PowerPoint	Marketing_Spring_Campaign.pptx	6/20	Brandy Sargent	1000 Bytes
PDF	UserTestimonials.pdf	6/20	Brandy Sargent	3.2 KB
Word	BannerAdsCopy.docx	6/16	Patti Hull	8.4 MB
Word	Client-copyreview.docx	6/14	Cory Little	10.2 MB
PowerPoint	Design-WinterCampaignPitch.pptx	6/14	Otto McCoy	2.4 KB
PDF	DevelopmentSchedule.pdf	6/13	Brandy Sargent	1000 Bytes
PowerPoint	Northwind_Press_Articles.pptx	6/13	Brandy Sargent	3.2 KB

FEELING IN CONTROL

- Splitting tasks into checklists as steps facilitates follow-up of progress and fitting due dates.

monday

Invite Team Members

High Level Board

This Month


	Person	Design	R&D	Testing	Launch	Timeline
New app		Done	Done	Done	Working on it	<div></div>
New website		Done	Done	Working on it	Stuck	<div></div>
Revamp security		Done	Working on it	Stuck		<div></div>

Next Month

	Person	Design	R&D	Testing	Launch	Timeline
Web app		Done	Done	Working on it	Stuck	<div></div>
Billing platform		Done	Working on it	Stuck		<div></div>
Blog post						<div></div>

Monday - Process steps and fitting timeline

Trello - Checklists



Install pot rack over the island

Members: Labels: Installation

Description: The pots and pans are piling up on the ground and I'm always tripping over them. I would say we should get rid of a few, but I love every single pot and pan we own! We need a pot rack. It would go great over the island in the kitchen.

Attachments: pot-rack.jpg

67% Checklist

- Buy the pot rack
- Drill some holes in the wall
- Measure...

Add

- Members
- Labels
- Checklist
- Due date
- Attachment

Actions

- Move
- Copy
- Subscribe

Activity

- Ugh. Going to need a new drill bit. Dang!

Trello - Checklists

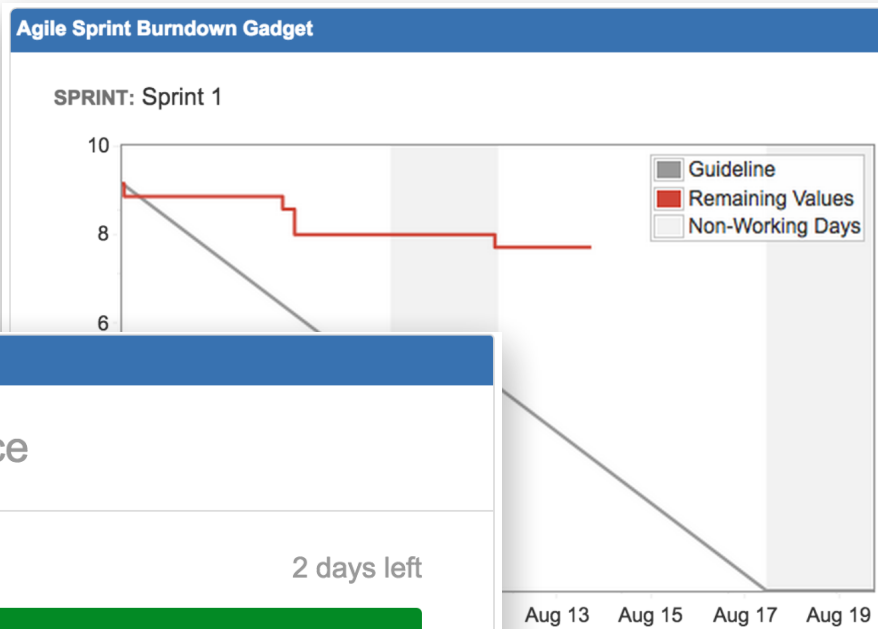
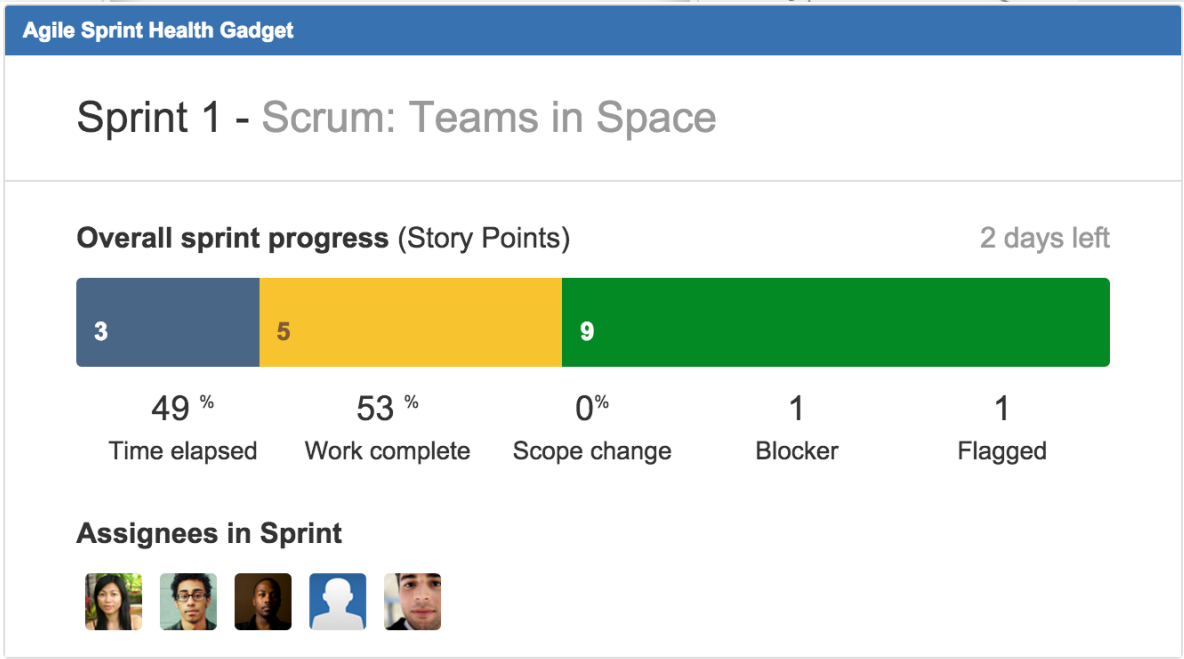
FEELING IN CONTROL

- Progress reports allow to follow task completion success, problematic steps as well as a teams' or individual's performance.

Jira - Sprint reports

Filter Results: Super-important TIS issues				
T	Key	Summary	P	Status
	TIS-56	Add pointer to main css file to instruct users to create child themes	↓	REOPENED
	TIS-17	Engage Saturn's Rings Resort as a preferred provider	↑	OPEN
	TIS-9	After 100,000 requests the SeeSpaceEZ server dies	⊘	IN PROGRESS
	TIS-7	500 Error when requesting a reservation	⊘	OPEN

1-4 of 4

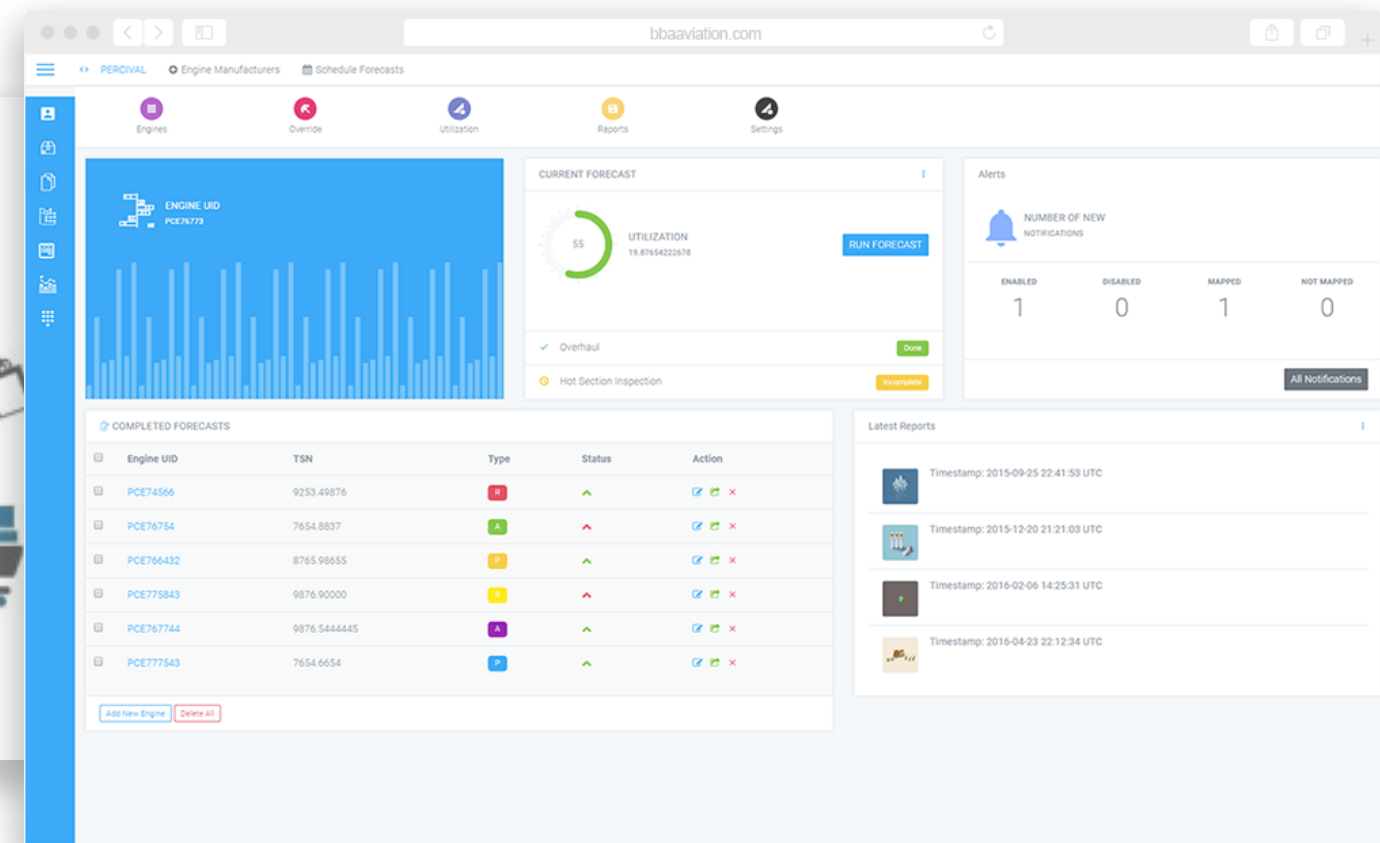


FORECASTING WHAT TO EXPECT

- Data-driven reports help to make sense of big data to provide estimations about future; for example when orders should be placed to keep inventory levels high for sales or catch seasonality.



Walmart's vendor-managed inventory allowing suppliers monitor inventory rates to replace stocks hence Walmart to decrease order delays



Percival - Aircraft maintenance forecasting

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TO-BE STORYBOARD

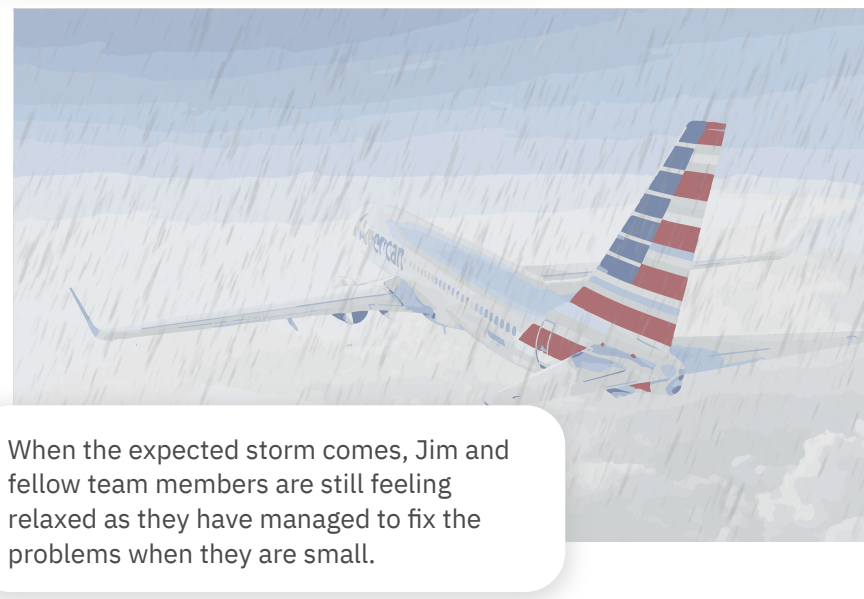
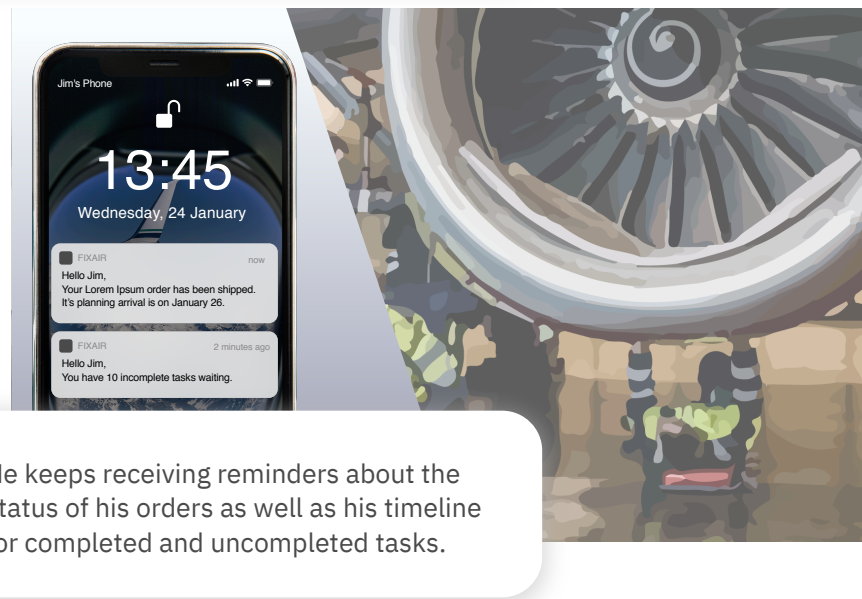
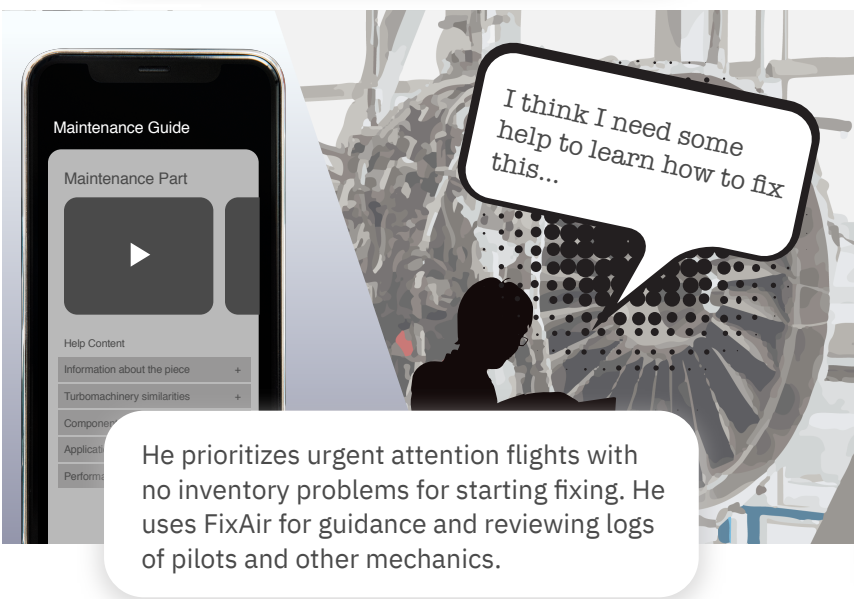
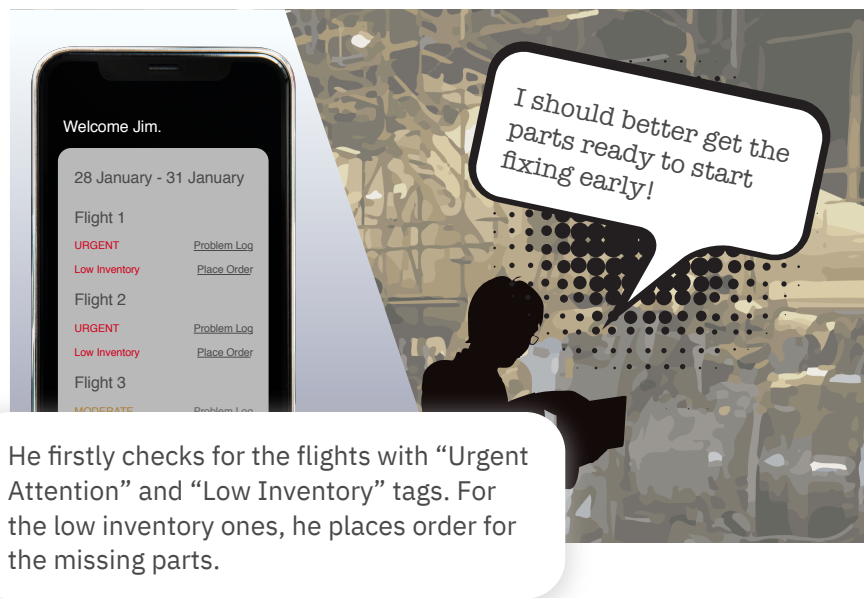
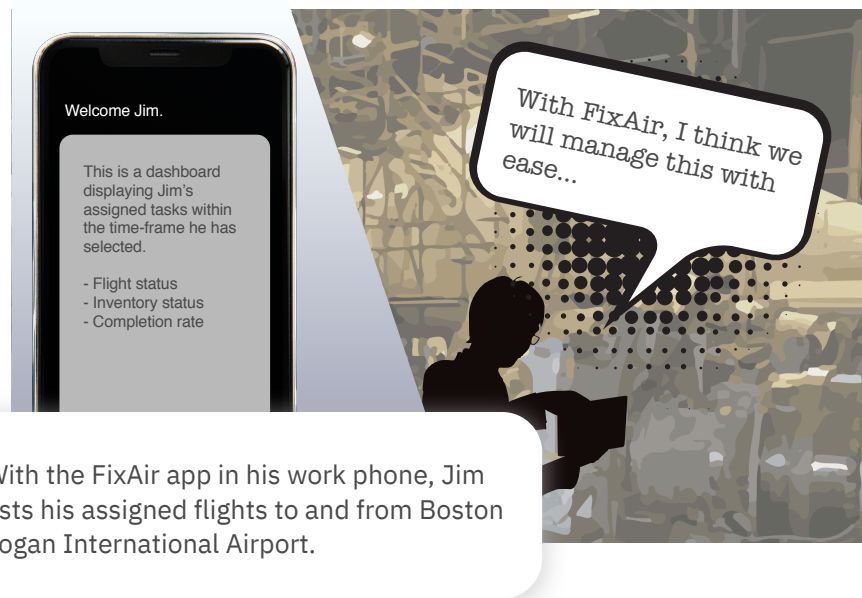
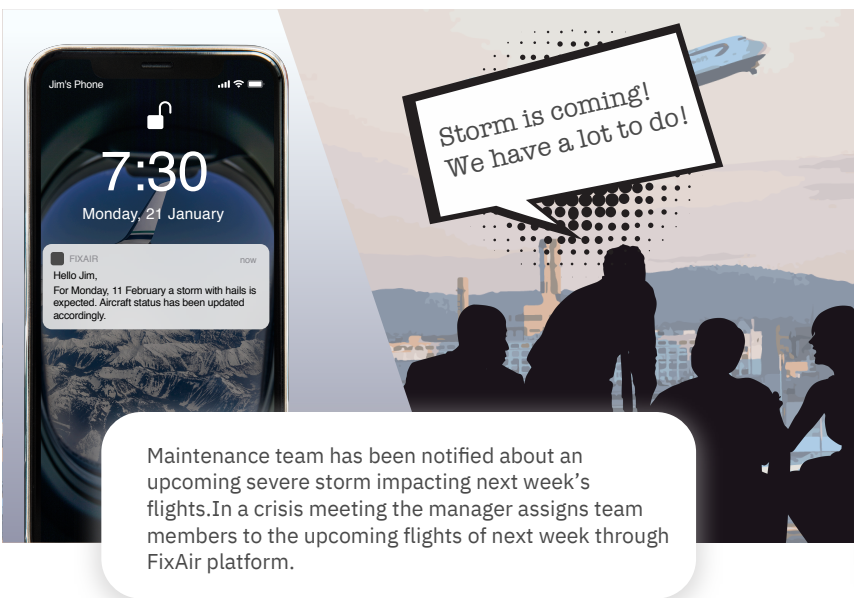
WIREFRAMES

TO-BE JOURNEYMAP

STYLE GUIDE

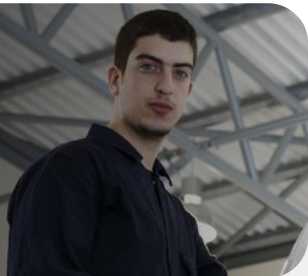
FINAL WORDS

TO-BE STORYBOARD



TO-BE JOURNEYMAP

Stormy Challenge for Jim



Scenario

Jim is part of the airline maintenance team and with the upcoming storm, he needs to act quick before small problems get bigger hence unfixable in time.

Goals and Expectations

- Learning possible problems and their severity beforehand
- Accessing guidance with ease
- Getting status update feedbacks real-time

DISCOVERING

The maintenance team receives upcoming storm notification via FixAir platform.

The forecast about the severity of possible problems for the related week's flights are also updated in the backlog.

PLANNING

The flights are distributed among team members and Jim (as well as other team members) filters his assigned tasks for the related time period.

Tasks are ordered regarding their priority for attention.

PERFORMING

Each task contains information related to the urgency of fixing, inventory fulfillment, log history and guiding manuals.

Jim orders missing inventory items through the app and as he fixes the aircrafts, he uses digital manual and records of the flights.

FOLLOWING

Jim is updated about the status of his orders with notifications and order delivery progress in the app.

Jim is also regularly updated about his incomplete tasks, due dates and new information (ex. a new problem warning from an IoT sensor) with notifications and in-app warnings.

FINALIZING

Jim can review the condition of aircrafts after he sets all his tasks as "done".

Jim can also review his own task performance as well as the overall maintenance team's performance through variety of reports.



"Need to act fast and wise to provide safe flights!"



"I know I have a lot to do and it's good to understand where I should start from."



"When I need help, I can access the information I need with ease."



"I am fitting the timeline and all my orders will arrive in time."



"No storm can bring us down!"

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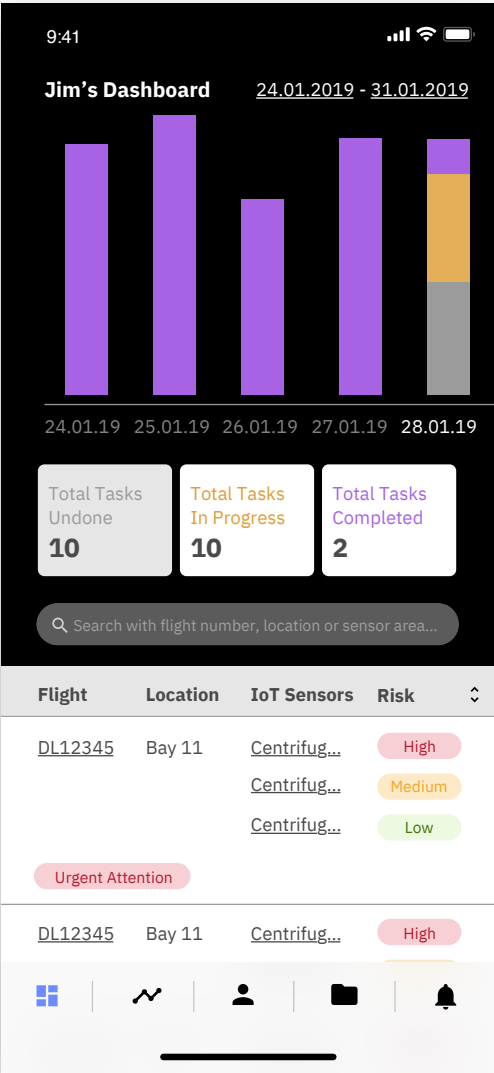
“TO-BE” SCENARIOS

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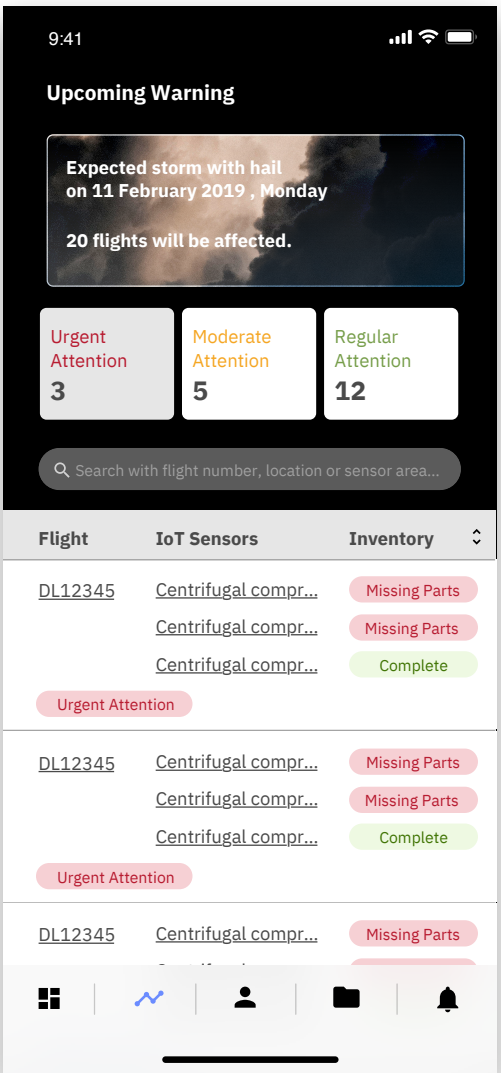
FINAL WORDS

WIREFRAMES



Dashboard

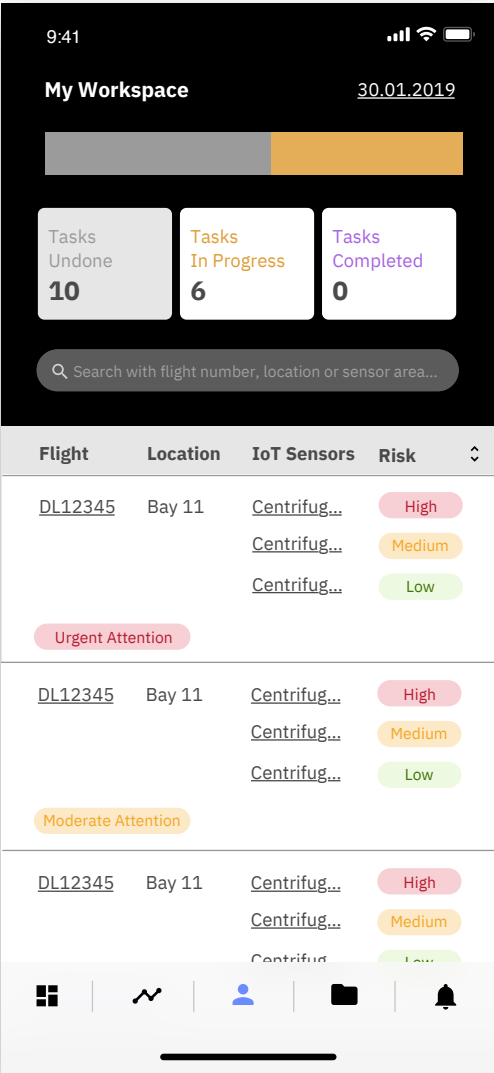
- Shows undone, in progress and completed tasks between a time range on day basis.



Forecast

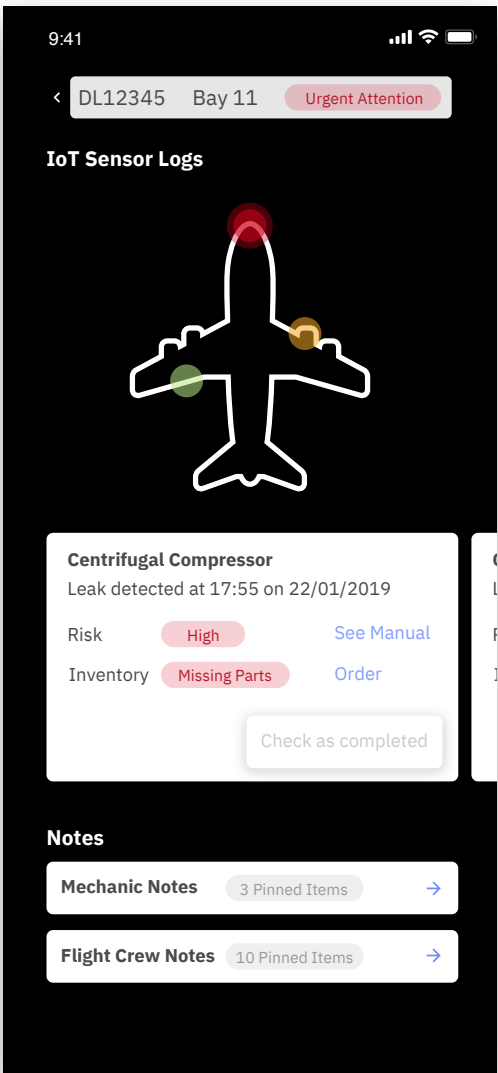
- With updated warnings and aircrafts' conditions, shows aircrafts that will need urgent, moderate or regular attention.
- Also shows inventory levels provided through IoT sensors.

WIREFRAMES



My Workspace

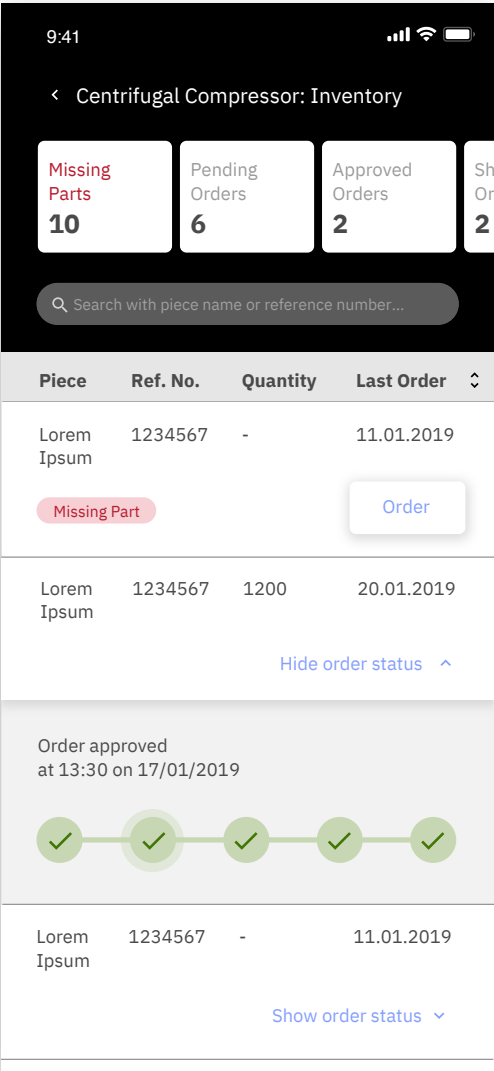
- Shows undone, in progress and completed tasks of one day with risk and urgency indicators.



Flight Detail

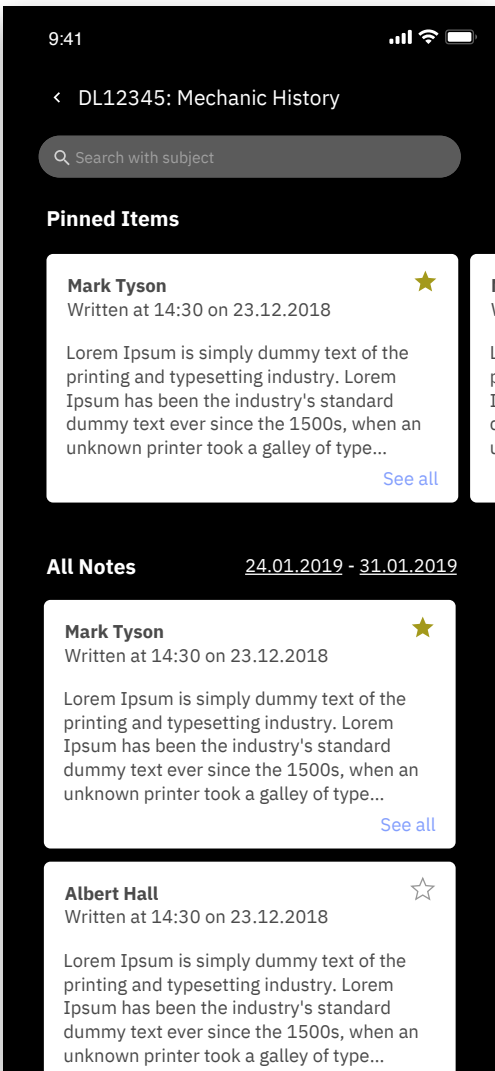
- Shows where the IoT sensors are located.
- Shows sensor log with risk and inventory level indicators.
- Has an access to mechanic and flight crew notes.

WIREFRAMES



Inventory

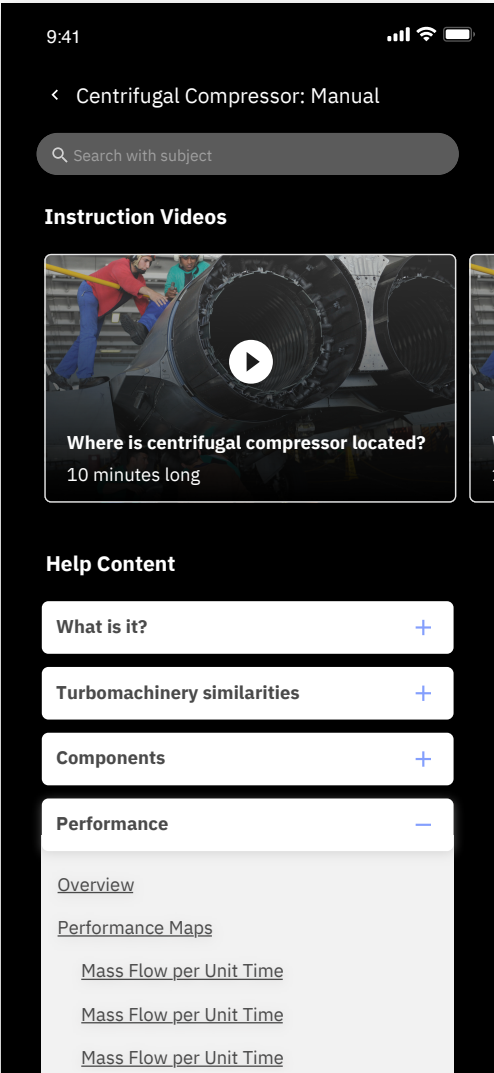
- Shows information about missing parts and order status.
- Provides quick order for missing parts.



Notes (Mechanic)

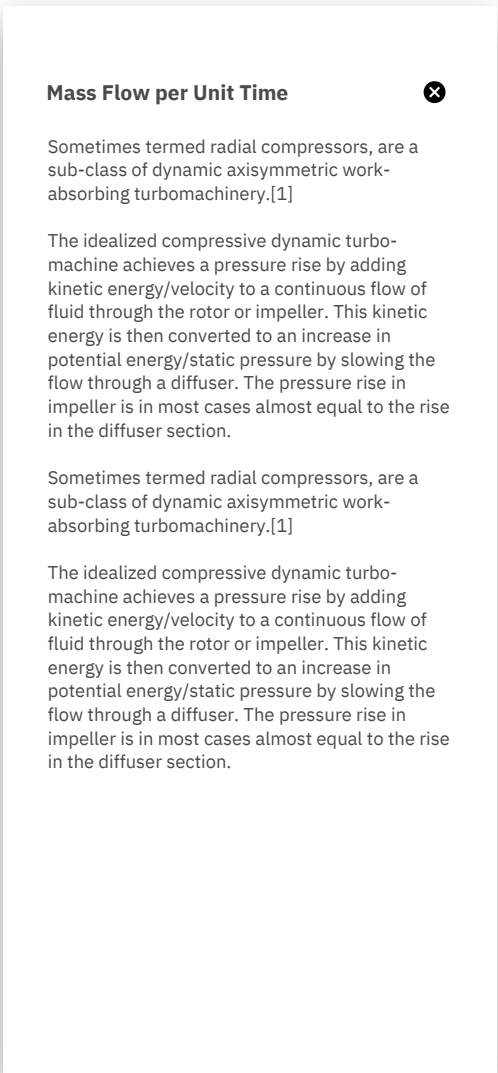
- Shows notes between a time range.
- Provides quick access to pinned notes.

WIREFRAMES



Digital Manual

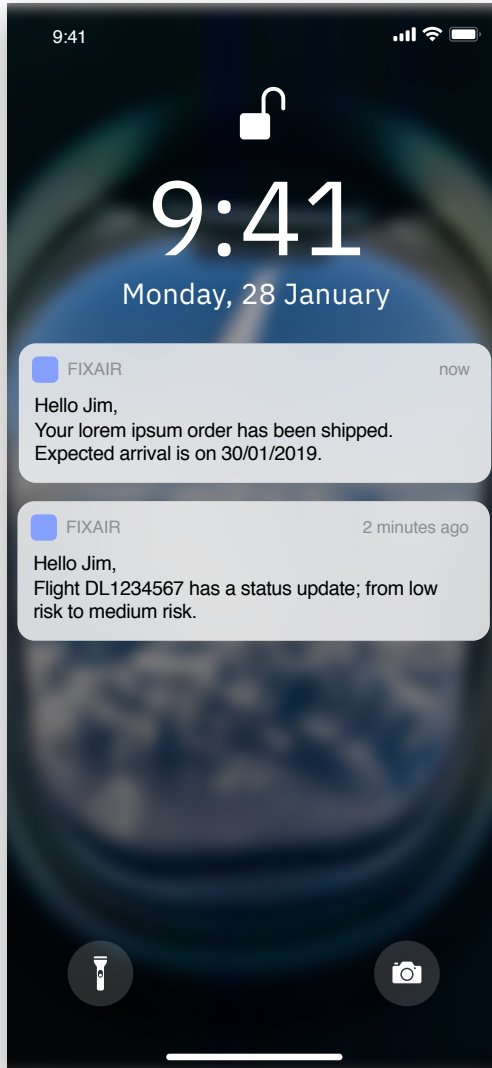
- Contains instruction videos and help content.



Digital Manual Detail

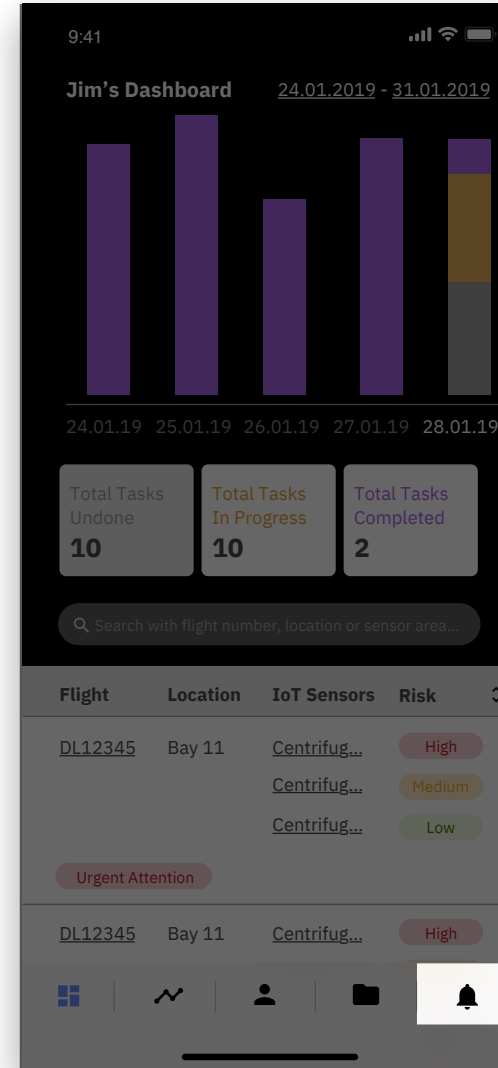
- Help content items open in a pop-up to increase focus while reading.

WIREFRAMES



Notifications

- Flight status changes, order status updates, forecast warnings are received as notifications.
- Can also be accessed in the app.



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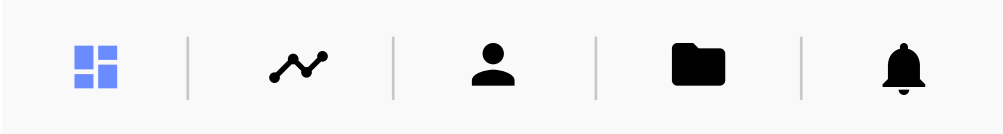
WIREFRAMES

STYLE GUIDE

FINAL WORDS

STYLE GUIDE

Menu



Tags

Risk Level



Urgency Level



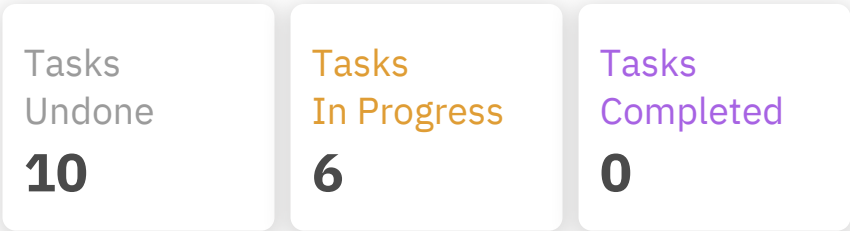
Inventory Level



Pinned Items



Tasks



Typography

H1: IBM Plex Sans, 16 pt, Bold

H2: IBM Plex Sans, 14 pt, Bold

Body: IBM Plex Sans, 14 pt, Regular

Buttons



Links

[CTA Links](#)

[Content Links](#)

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FINAL WORDS

FINAL WORDS

This challenge has enabled me to test my skills in a unique topic.

Within the limited time I am content that

- I have managed to conduct user research (a mini version) with people working in similar roles as in the case
- I have checked for different benchmarks and put together the ones that were more meaningful to me.
- I have worked on the user scenarios before getting to the solution; which helped me to analyze what I would focus in my solution.

What would I do next if this is an on-going project?

- I would prepare a prototype to test with the users I have interviewed to see the proposed solution in a context.
- I would analyze the missing parts and what needs improvement.
- I would reconsider and redesign the user journey and use flows regarding the insight I have gathered.

THANK YOU FOR YOUR TIME.

E-MAIL ME

HELLO@CANSUKAYA.ME

CALL ME

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