Requirements:

- Management of inventory levels
    - The ID number for a program
        - The ID numbers of the parts associated with this program and their quantities
    - How many of each part are in stock
    - ID number of each part
        - What programs this part is associated with
    - The model number for each part
    - Engineer drawings for each part
        - Track the changes made to the drawing
            - Worker ID, time day, etc
        - Ensure the most recent design is being used
            - Sort by time? Like a stack
    - Costs of each part
- Management of labor costs
    - The skill level and job title
    - Project assigned
    - Hours worked per program (aircraft)
        - Clock-in / clock-out feature?
- Management of customers/orders
    - Each has one or more customer
    - Past current and future orders

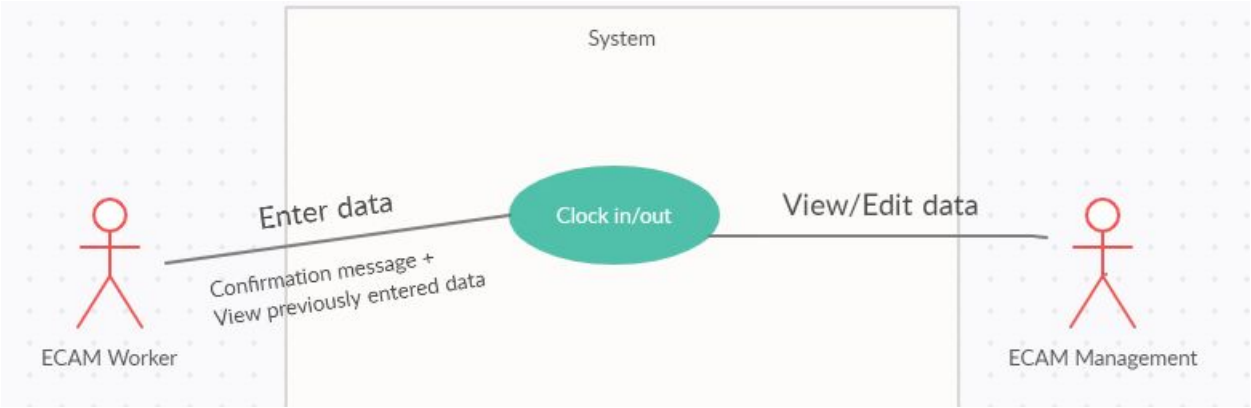
1. What (if any) are the speed requirements for the system? Does it need to be in real-time?

2. How secure would it have to be considering you could be a client with nations militaries? Would a certain encryption standard/security protocol be required?
3. What kind of machine would the system be running on? Windows, Mac, Linux? Are these computers already purchased? Do they need upgrades/What are their specs? How many of them would be used?
4. How many workers are there?
5. What are some pieces of information you want to present in the order history? Program #, cost, customer, etc.
6. What is the maximum number of workers to be assigned to one program at a time? Is there a max?
7. How many different aircraft models are there?
8. Could you provide some details on how we could sort the parts? Maybe by location: wing parts, tail parts, etc.
9. Are there any workers with disabilities that could affect their use of the system? Ex. poor vision -> zoom/increase text size feature
10. Where would the server be stored? How would it be protected? Who will inherit and maintain the system post-delivery?

Use cases:

Worker time function

Brief Description Will allow each worker to clock into work and clock out via the system. Requires that the worker enters their Worker ID and password, or swipe their worker ID card.
Step-by-step Description 1. A worker will enter their information or swipe their ID card 2. The system will take this information to locate their position in a list of all workers 3. The system will present the worker with two options: sign in or sign out. 4. Once the worker selects one of the latter: a. If sign-in selected -- the system will record the current date, time, and who signed in, and will display a confirmation message to the user. b. If sign out selected -- the system will record the current date, time, and who signed out and display a confirmation message to the user. The system will then determine how many hours the person worked for the day. 5. Anyone within the management offices of ECAM will be able to retrieve this data, either for performance measuring or for payroll purposes.



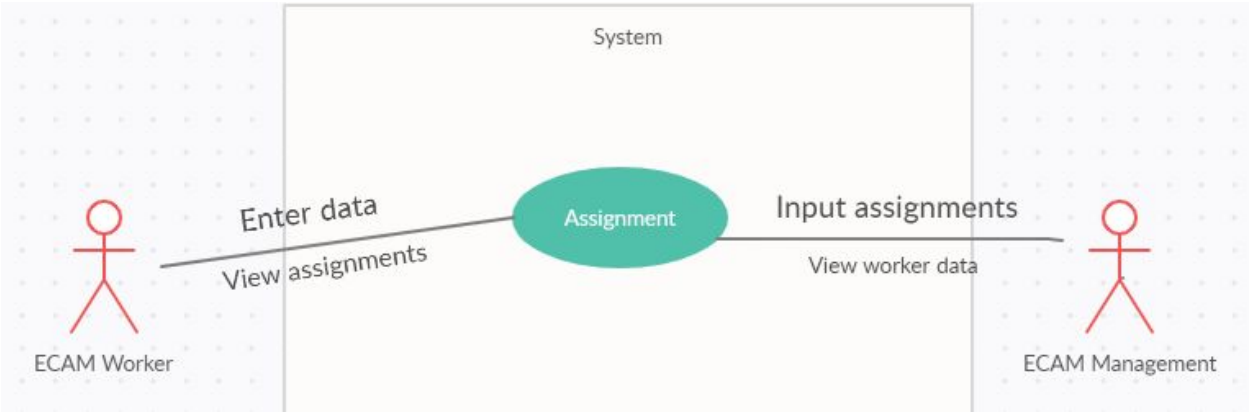
Program assignment function

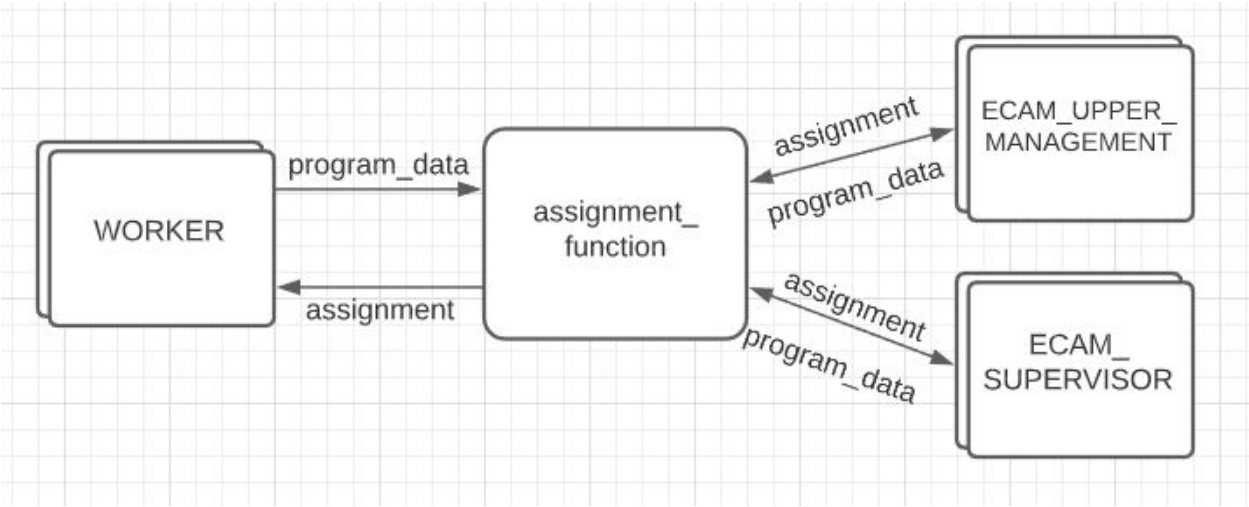
Brief Description

Mainly supervisors, but any form of upper management will be able to select individual workers to assign them to their tasks. The inputter will also have the option to include a length of time that the worker will work on one task, eg. 3 hours, 4 days. They will also be able to assign multiple tasks to the same worker.

Step-by-step Description

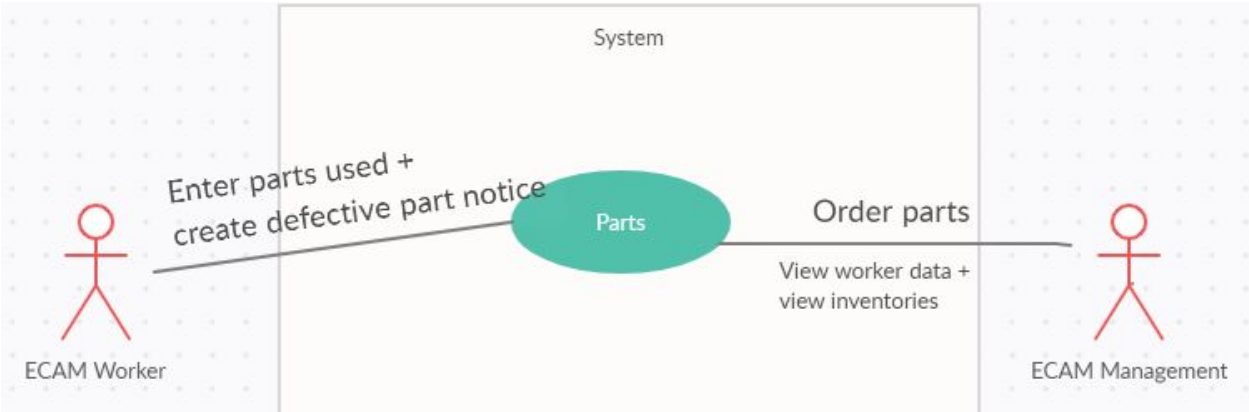
1. Supervisors select which worker they would like to assign a task(s).
2. They will input the task at hand, and the time the worker should take to complete this task
3. The worker will be able to see, once clocked in, a menu option for “assignments”, where they will be able to see this information
    a. In this menu screen, the worker will be able to enter the time it takes them to complete each assignment, as well as an optional text field to include any notes they seem necessary.
4. The supervisors and management teams will be able to view this information, which is all stored in the database.

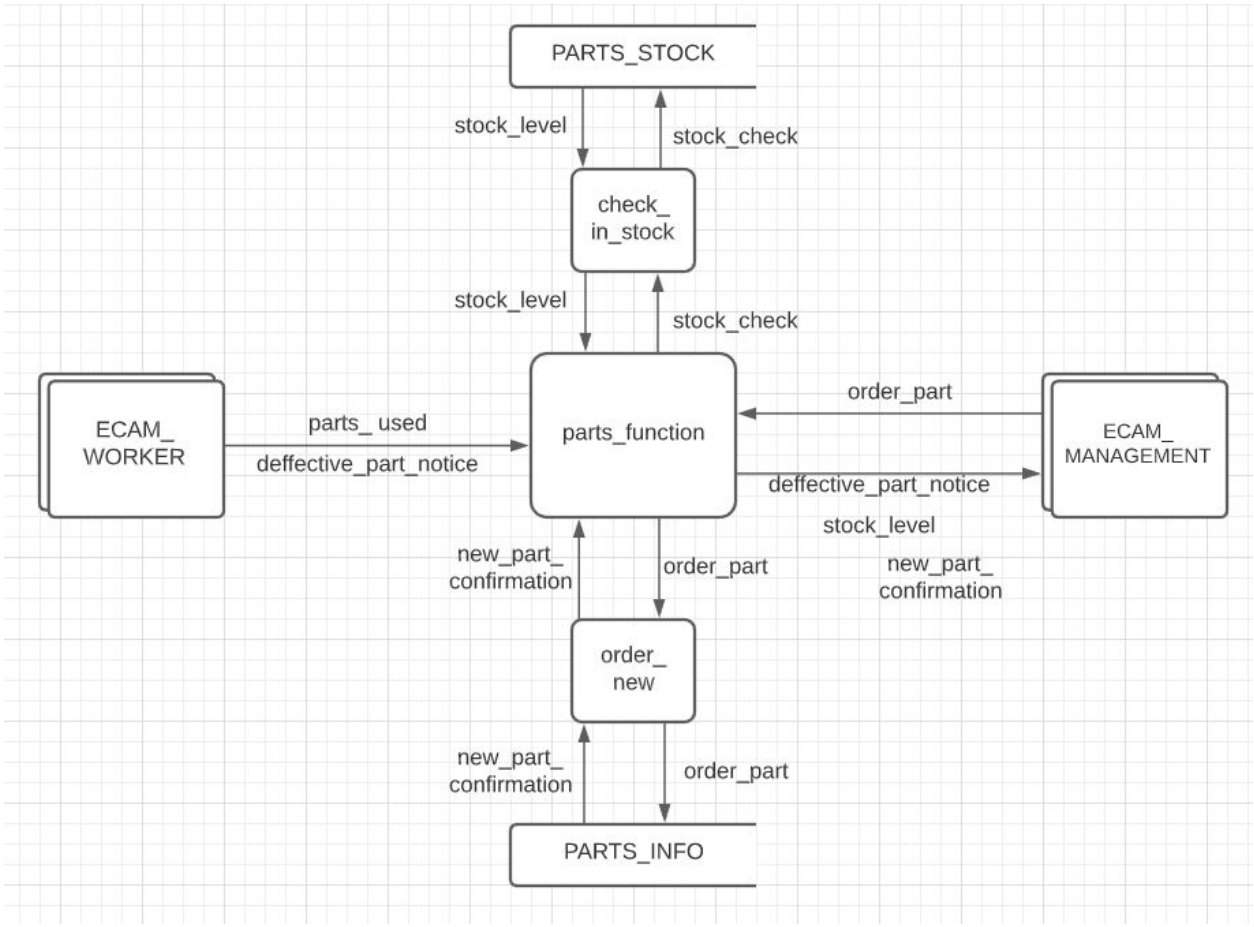



WORKER
program_data
assignment
assignment_
function
assignment
program_data
ECAM_UPPER_
MANAGEMENT
assignment
program_data
ECAM_
SUPERVISOR

Part function

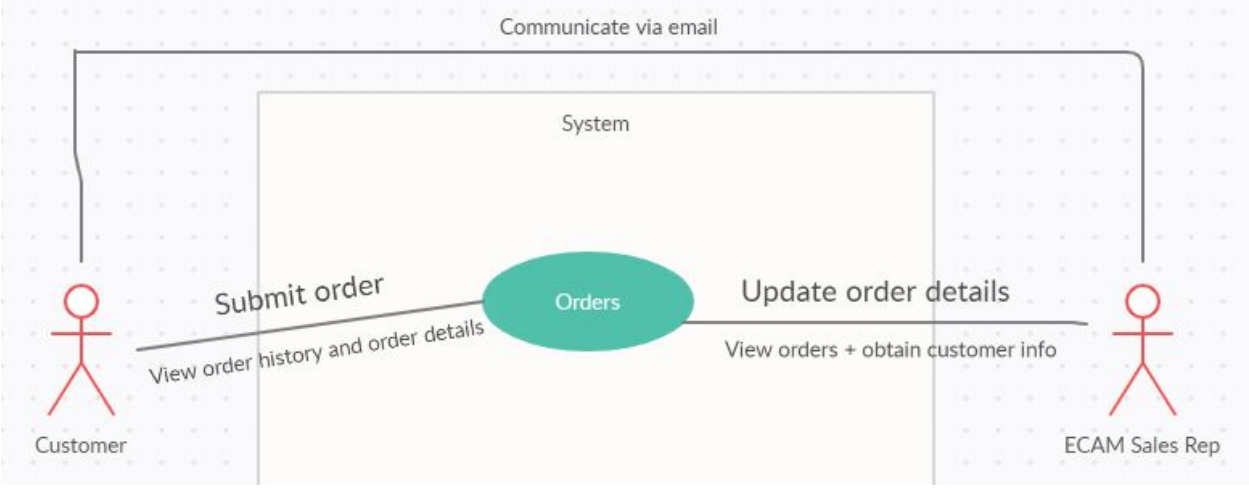
Brief Description
ECAM Management will be able to see all information necessary about parts. That includes how many they have in stock, where the part came from, that part's ID number, what programs the part is associated with, and an option to order more.
Step-by-step Description 1. The workers will be able to enter parts that they used based on their assignments. The use of one will decrease the stock by 1. A worker will also have the option to go back and add one to the stock if one was not needed for some reason a. A worker will also have the option to report that a withdrawn part is defective. If a part is defective, the stock count remains unchanged, and a notice is sent to upper management. 2. ECAM management will be able to view the stock of any part at any time, search the database either by part ID# or name, view any claims of defective parts, and order more parts. 3. When new parts are ordered, the number of parts ordered will immediately adjust the accompanying stock numbers.

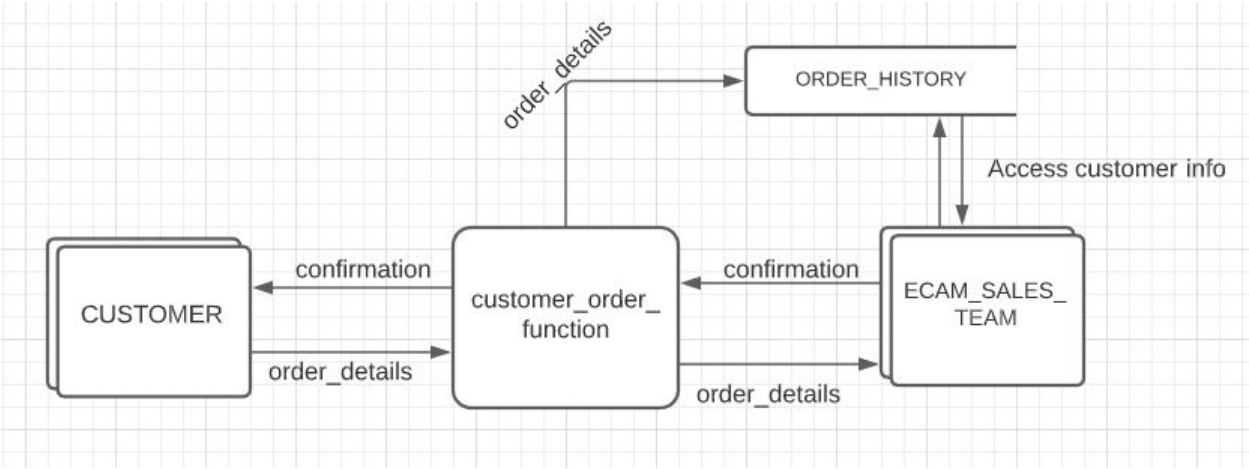



PARTS_STOCK
stock_level
stock_check
check_
in_stock
stock_level
stock_check
ECAM_
WORKER
parts_ used
deffective_part_notice
parts_function
order_part
deffective_part_notice
ECAM_
MANAGEMENT
stock_level
new_part_
confirmation
order_part
new_part_
confirmation
order_
new
new_part_
confirmation
order_part
PARTS_INFO

Order function

Brief Description
Customers will be able to see via a web-based platform their previous orders, as well as their current order status. Customers will also be able to place new orders. This information is sent to the database to be sent to the sales department. The sales department using the part function will be able to order any parts necessary for the order and be able to update the status of orders. They then will be able to inform supervisors of the new order to start production.
Step-by-step Description 1. The customer places an order via the company web-store. 2. The order and its details are sent to the database to be distributed among the sales department. 3. Each sales representative is able to see the customer's order and use the parts function to determine if parts need to be ordered or not for their order. 4. The sales representative will inform supervisors that a new order has been placed and whether or not to begin construction. 5. Sales reps will also be able to contact the customer via email should anything require it, which the customer's email is required at checkout.




order_details
ORDER_HISTORY
Access customer info
CUSTOMER
confirmation
customer_order_
function
confirmation
ECAM_SALES_
TEAM
order_details
order_details

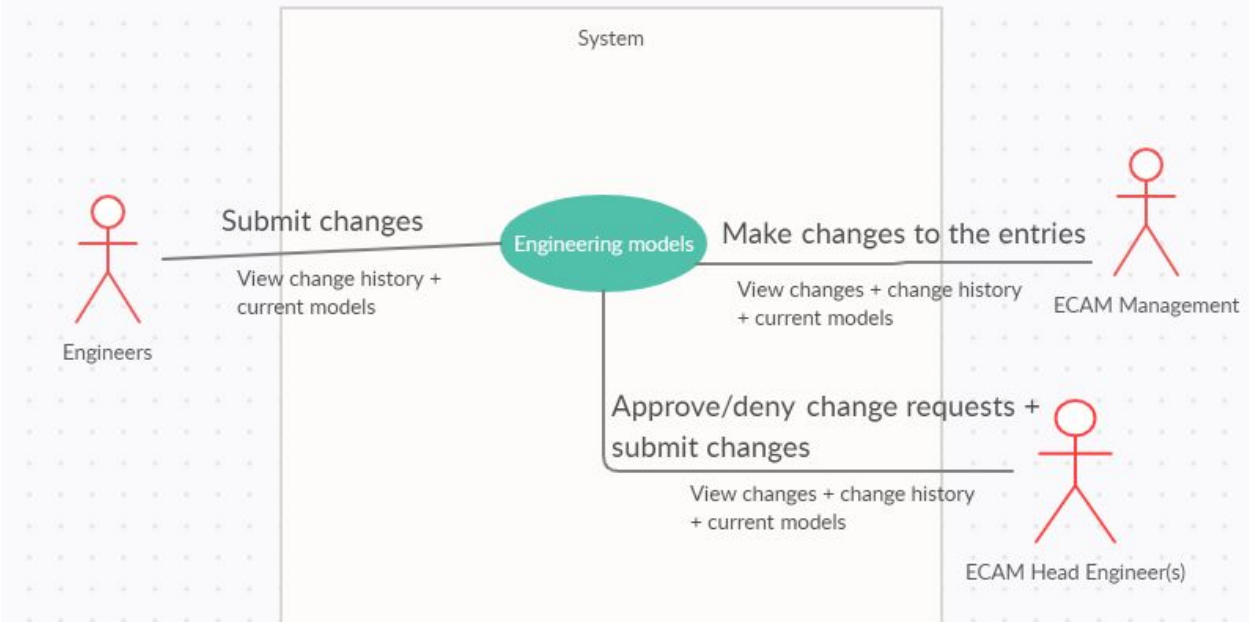
Engineer drawings function

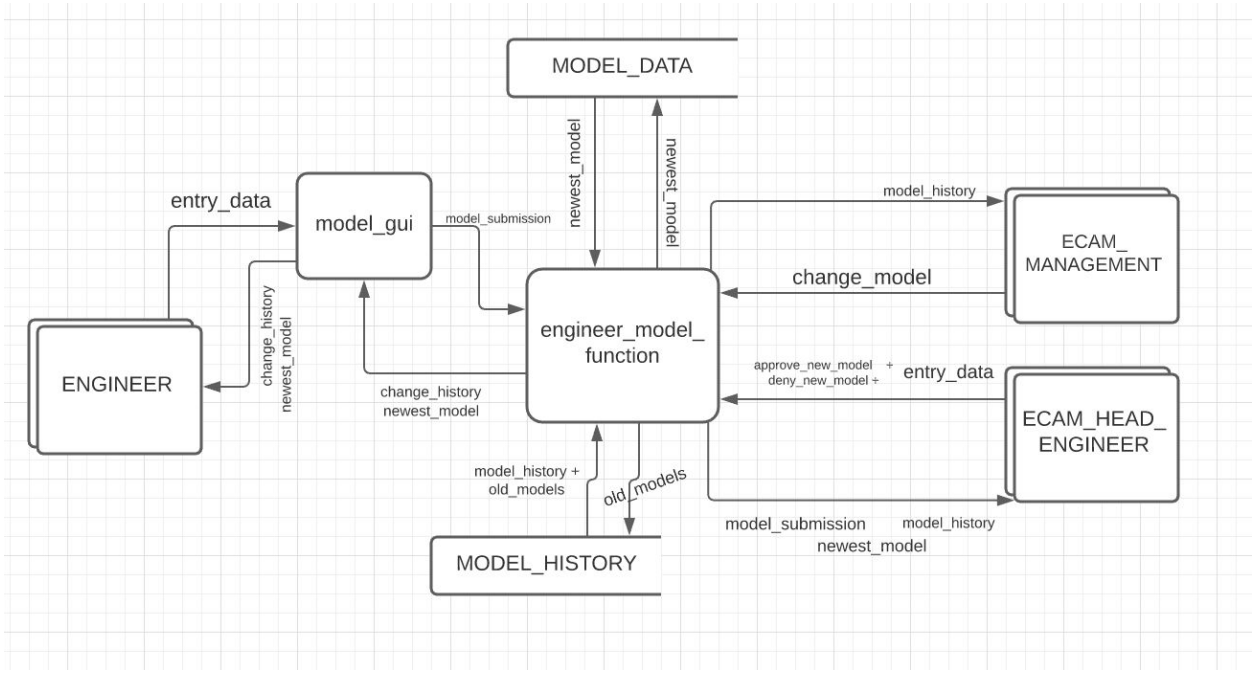
Brief Description

The engineers at ECAM are constantly updating the models/blueprints for each program. These changes need to be stored, and documented, as well as accessible to manufacturing. It is imperative that the latest model be used, not a previous version.

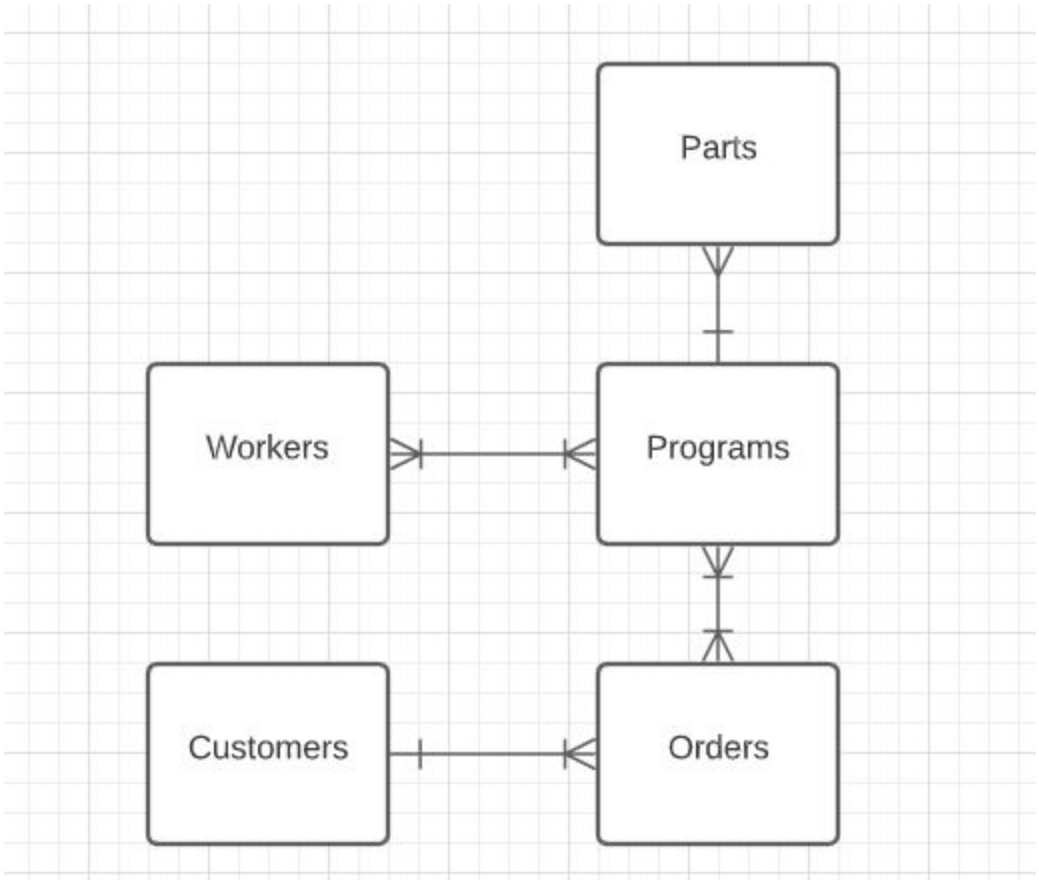
Step-by-step Description

1. Engineers complete their new version of a model and upload it to the system via a graphical user interface.
    a. The engineers will be prompted with a mandatory text box to list the changes made to the model, and will also have the option to include other engineers in the design.
2. The system records the time, date, and engineer who submitted the changes, and once approved by the head engineer, will be placed in the database. The data will be sorted by time, that is, the newest design will be at the top.
3. Any engineer or upper management will be able to see a table of all changes made to the engineering models, including the data from line 2. Any upper management will also be able to edit the data if needed.





Entity Relationship Diagram



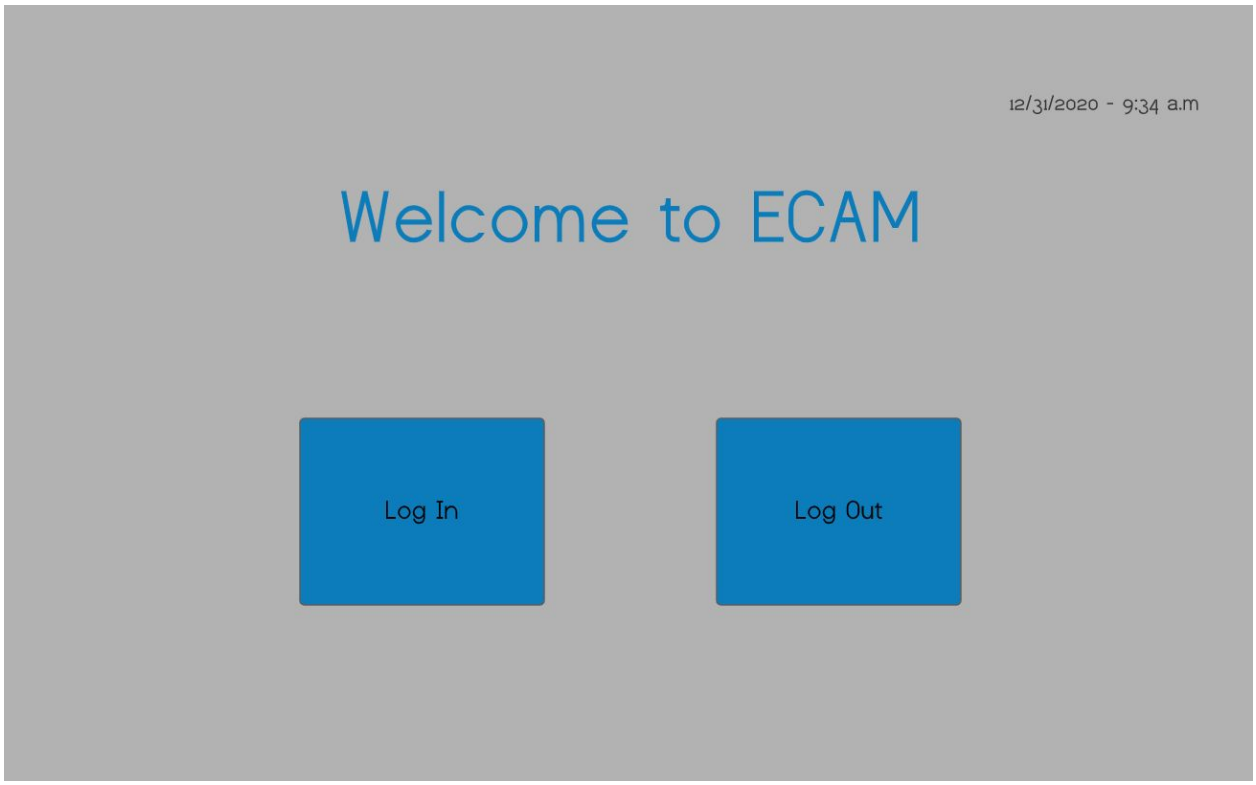
Training:

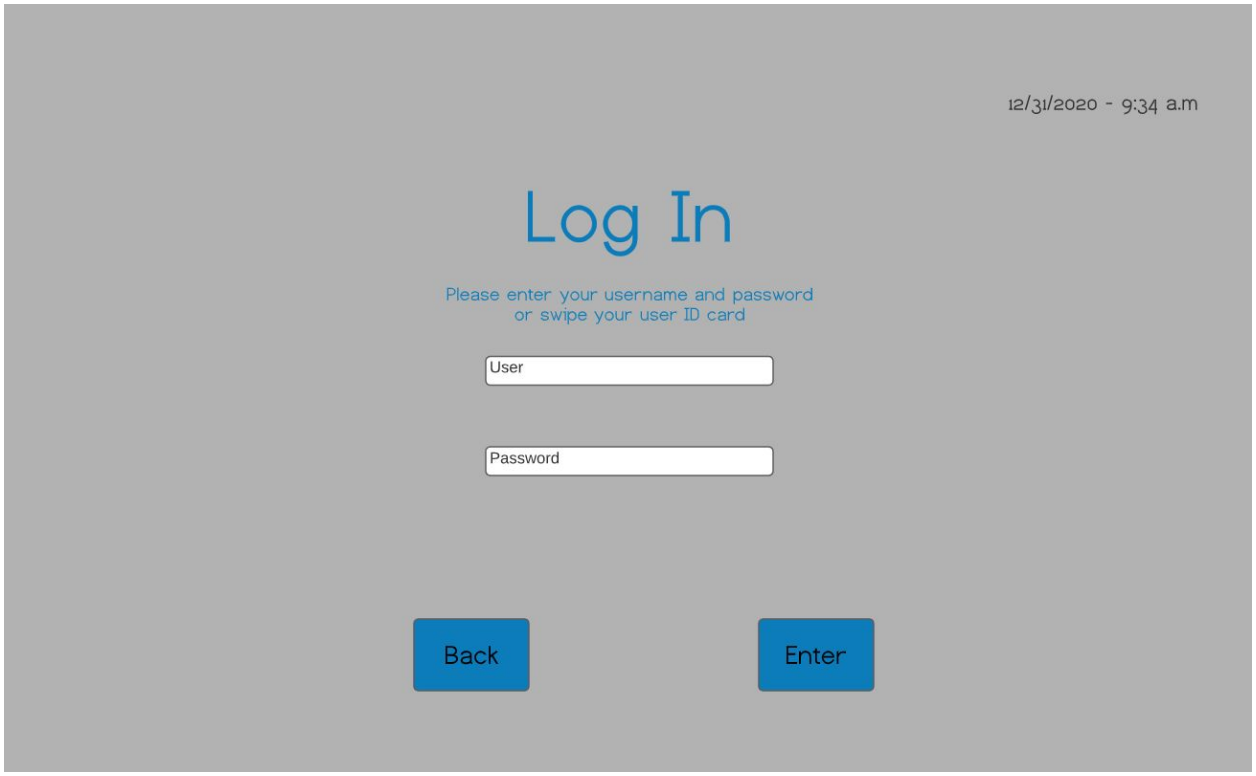
The system plans to be delivered and implemented on December 31st, 2020. With that, training will begin three weeks before this date, on Dec. 10th, 2020. From this point forward the new system will be running in parallel with the old system. Also, from Dec 10th to January 7th, 2021, there will be certified trainers on the ECAM premises every business day from 11 am to 5 pm. ECAM workers will be able to ask questions with these wonderful trainers on their own time, but also during a weekly workshop held every Friday until Jan 7th. The dates for those days are Dec. 15th, 22nd, 29th, and Jan 5th. During these four workshops, the trainers will be presenting how to use the new system, answering questions as they come up, and comparing the new system to the old system.

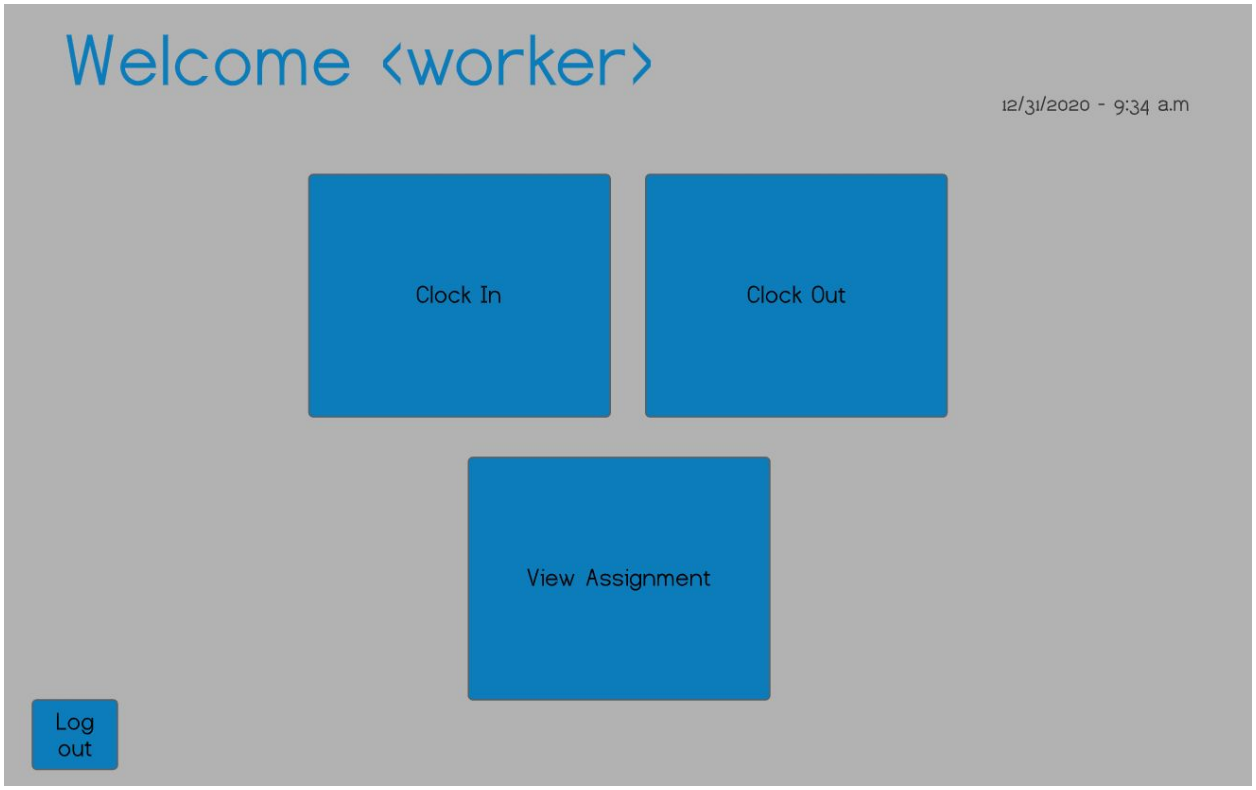
Security:

Considering ECAM has worked with the government in the past, the entirety of the system must be held securely to store their information should they be customers again. The United States Government requires all sensitive information to be encrypted via AES 192 or 256-bit encryption. With that, all customer orders, customer information, engineering models, worker information, etc. will be encrypted via AES 256-bit encryption. Additionally, the physical location of the server used to run the ECAM web store and database for all the aforementioned data will be held securely on ECAM premises. There will be 24/7 video monitoring, as well as security personnel to guard the server location. To gain access to the room, biometric authentication will be used. Only a few people will be able to access this server room, those people will be designated over the training period and will most likely consist of upper management. Implementation of Cloudflare will be used to prevent DDoS attacks, further increasing the security of the system.

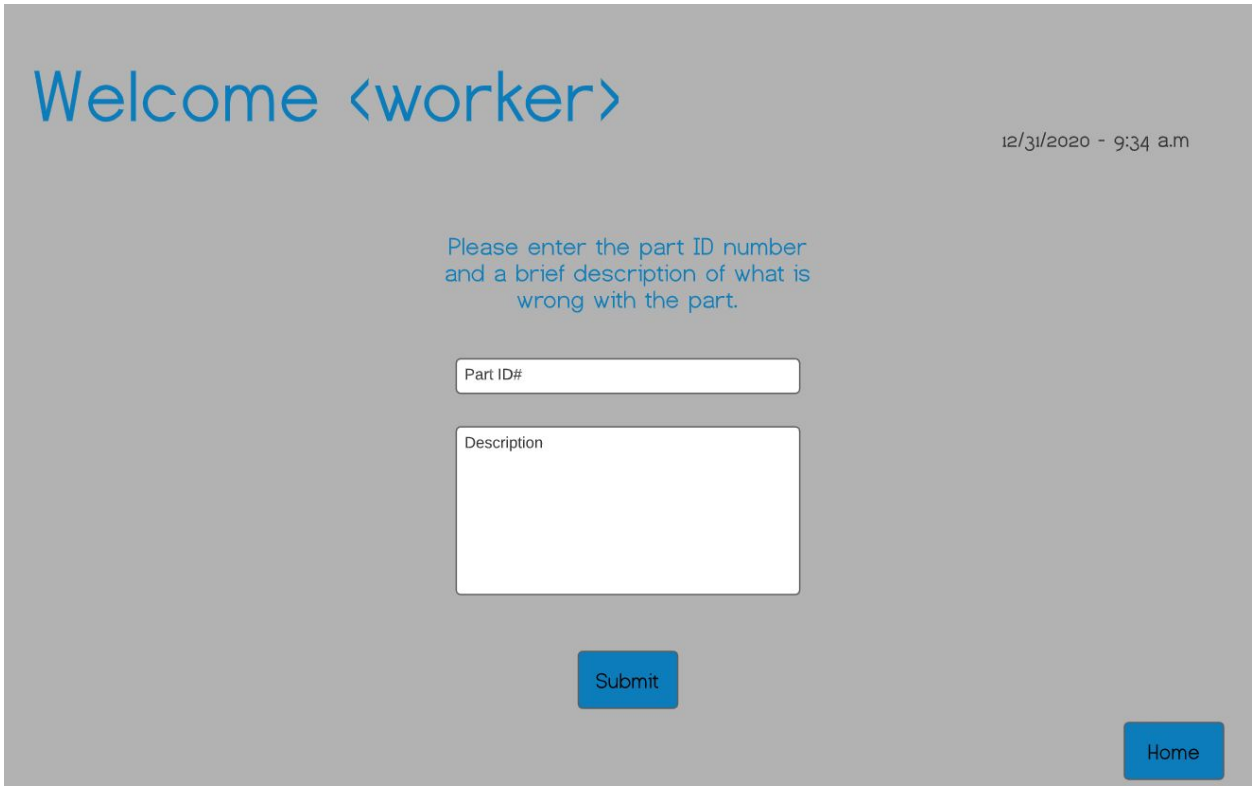
Mock UI Designs

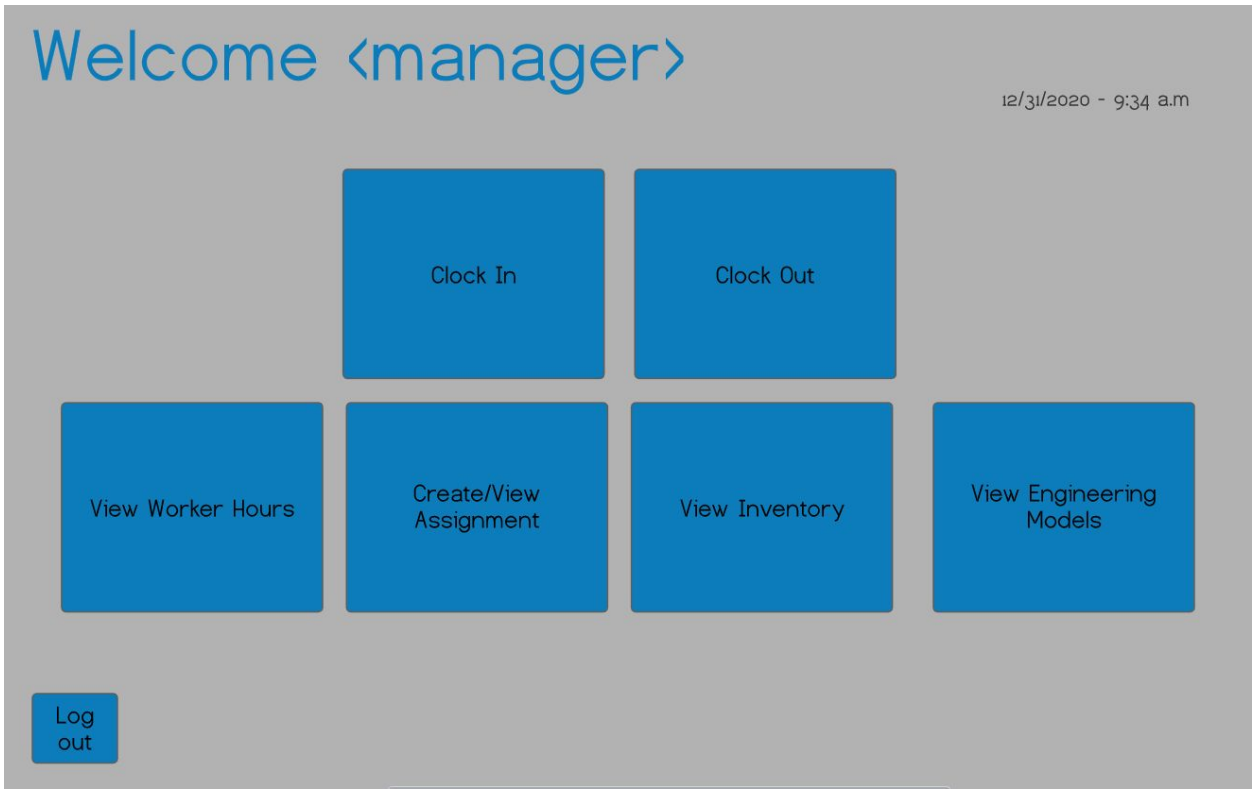


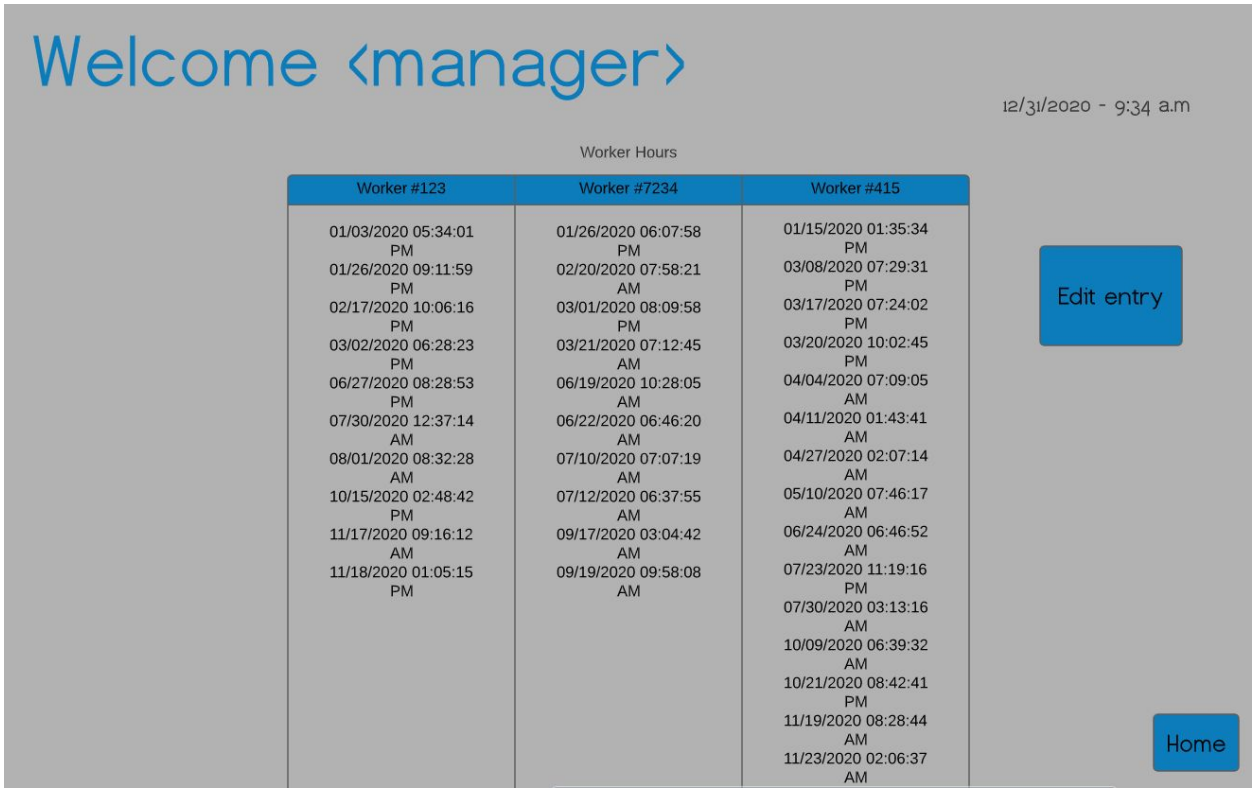


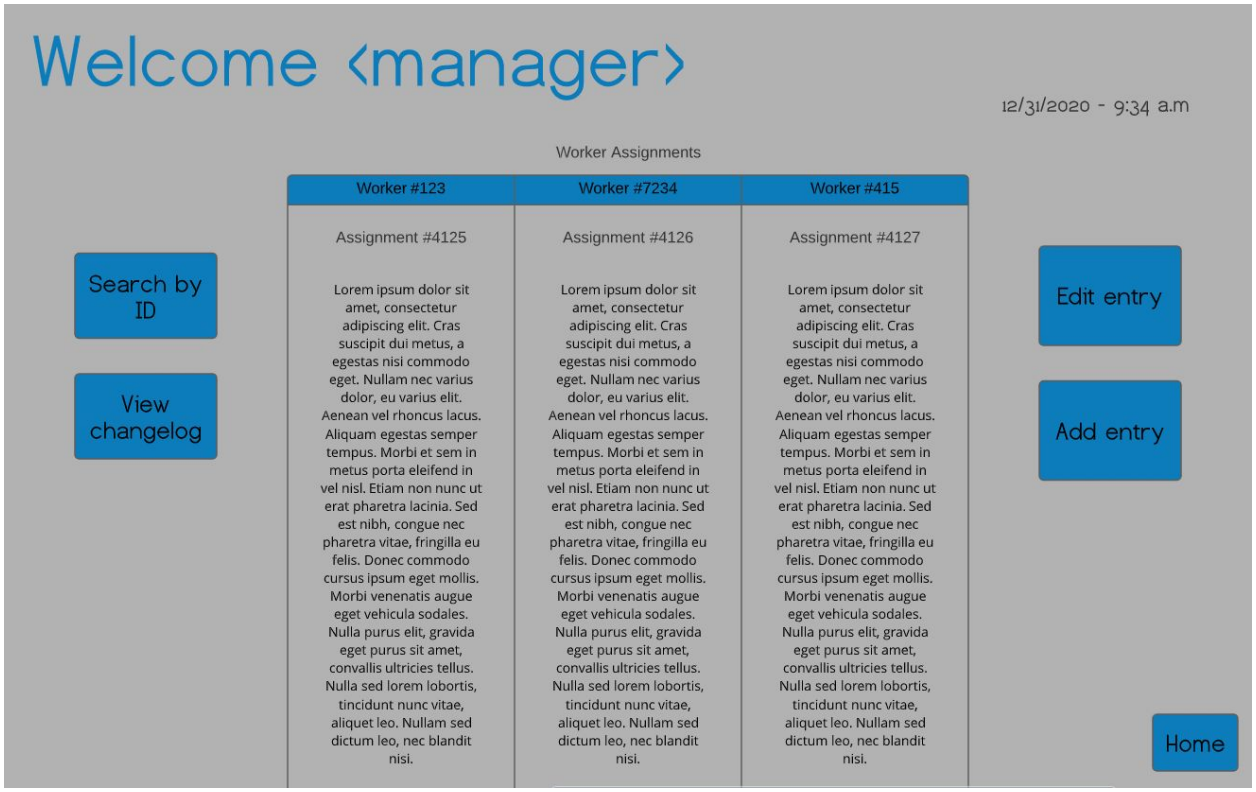

Welcome <worker>
12/31/2020 - 9:34 a.m
Clock In
Clock Out
View Assignment
Log out

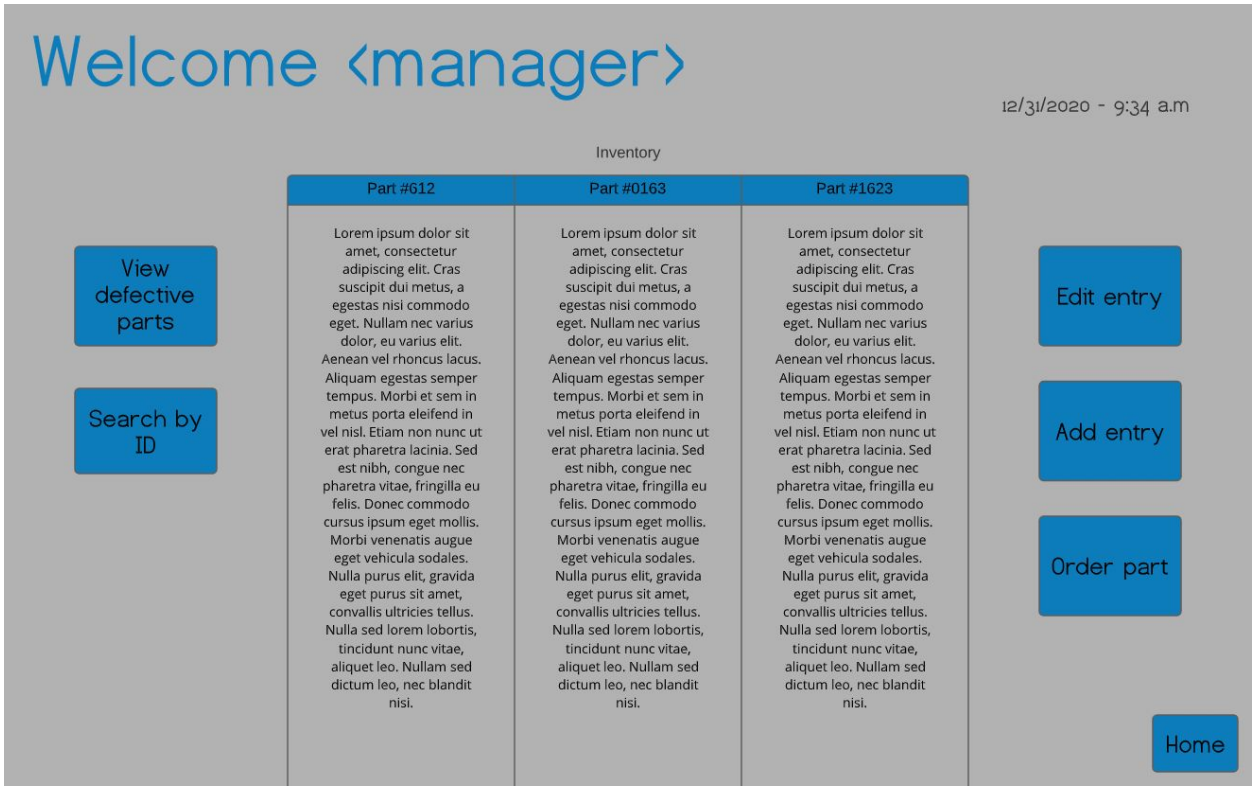

Welcome <worker>
12/31/2020 - 9:34 a.m
Assignment #4125
Assignment #4126
Assignment #4127
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras suscipit dui metus, a egestas nisi commodo eget. Nullam nec varius dolor, eu varius elit. Aenean vel rhoncus lacus. Aliquam egestas semper tempus. Morbi et sem in metus porta eleifend in vel nisl. Etiam non nunc ut erat pharetra lacinia. Sed est nibh, congue nec pharetra vitae, fringilla eu felis. Donec commodo cursus ipsum eget mollis. Morbi venenatis augue eget vehicula sodales. Nulla purus elit, gravida eget purus sit amet, convallis ultricies tellus. Nulla sed lorem lobortis, tincidunt nunc vitae, aliquet leo. Nullam sed dictum leo, nec blandit nisi.
Enter part used
Create defective part notice
Home

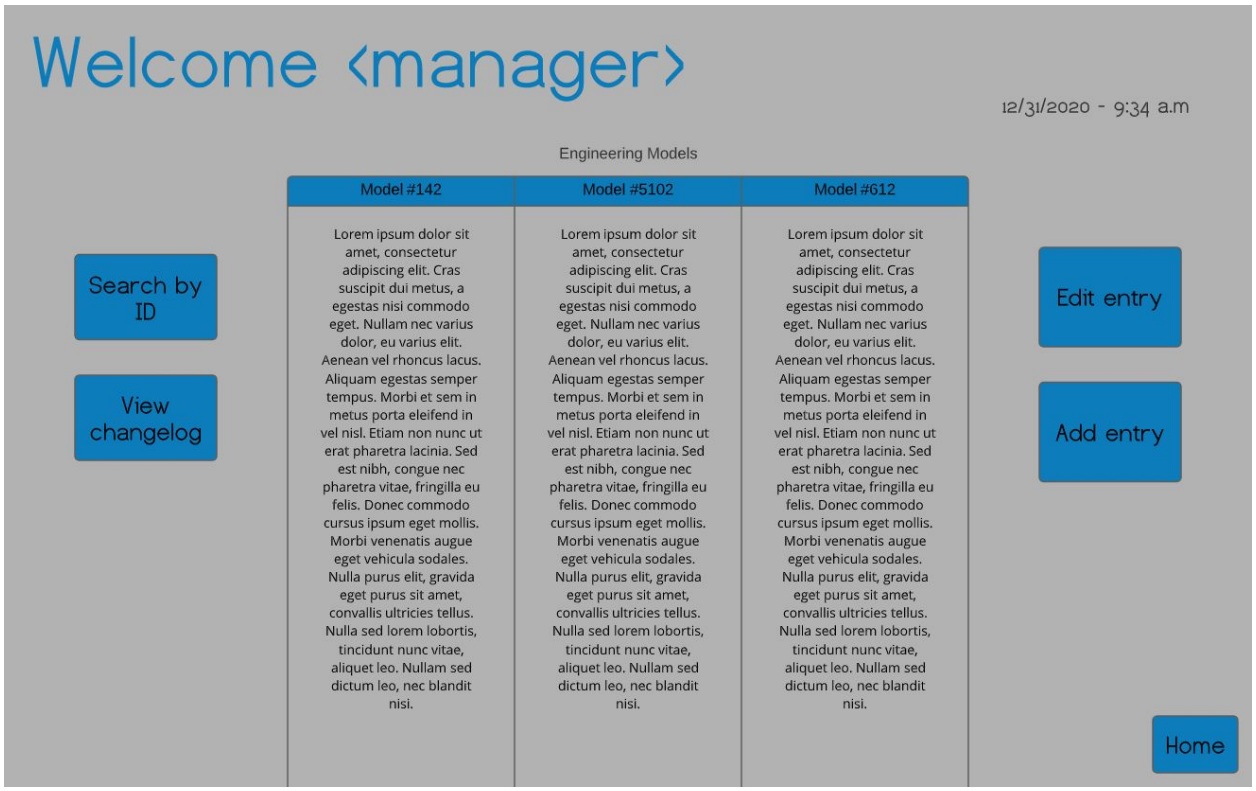

Welcome <worker>
12/31/2020 - 9:34 a.m
Please enter the part ID number and a brief description of what is wrong with the part.
Part ID#
Description
Submit
Home


Welcome <manager>
12/31/2020 - 9:34 a.m
Clock In
Clock Out
View Worker Hours
Create/View Assignment
View Inventory
View Engineering Models
Log out


Welcome <manager>
12/31/2020 - 9:34 a.m
Worker Hours
Worker #123
01/03/2020 05:34:01 PM
01/26/2020 09:11:59 PM
02/17/2020 10:06:16 PM
03/02/2020 06:28:23 PM
06/27/2020 08:28:53 PM
07/30/2020 12:37:14 AM
08/01/2020 08:32:28 AM
10/15/2020 02:48:42 PM
11/17/2020 09:16:12 AM
11/18/2020 01:05:15 PM
Worker #7234
01/26/2020 06:07:58 PM
02/20/2020 07:58:21 AM
03/01/2020 08:09:58 PM
03/21/2020 07:12:45 AM
06/19/2020 10:28:05 AM
06/22/2020 06:46:20 AM
07/10/2020 07:07:19 AM
07/12/2020 06:37:55 AM
09/17/2020 03:04:42 AM
09/19/2020 09:58:08 AM
Worker #415
01/15/2020 01:35:34 PM
03/08/2020 07:29:31 PM
03/17/2020 07:24:02 PM
03/20/2020 10:02:45 PM
04/04/2020 07:09:05 AM
04/11/2020 01:43:41 AM
04/27/2020 02:07:14 AM
05/10/2020 07:46:17 AM
06/24/2020 06:46:52 AM
07/23/2020 11:19:16 PM
07/30/2020 03:13:16 AM
10/09/2020 06:39:32 AM
10/21/2020 08:42:41 PM
11/19/2020 08:28:44 AM
11/23/2020 02:06:37 AM
Edit entry
Home


Welcome <manager>
12/31/2020 - 9:34 a.m
Worker Assignments
Search by ID
View changelog
Worker #123
Assignment #4125
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras suscipit dui metus, a egestas nisi commodo eget. Nullam nec varius dolor, eu varius elit. Aenean vel rhoncus lacus. Aliquam egestas semper tempus. Morbi et sem in metus porta eleifend in vel nisl. Etiam non nunc ut erat pharetra lacinia. Sed est nibh, congue nec pharetra vitae, fringilla eu felis. Donec commodo cursus ipsum eget mollis. Morbi venenatis augue eget vehicula sodales. Nulla purus elit, gravida eget purus sit amet, convallis ultricies tellus. Nulla sed lorem lobortis, tincidunt nunc vitae, aliquet leo. Nullam sed dictum leo, nec blandit nisi.
Worker #7234
Assignment #4126
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras suscipit dui metus, a egestas nisi commodo eget. Nullam nec varius dolor, eu varius elit. Aenean vel rhoncus lacus. Aliquam egestas semper tempus. Morbi et sem in metus porta eleifend in vel nisl. Etiam non nunc ut erat pharetra lacinia. Sed est nibh, congue nec pharetra vitae, fringilla eu felis. Donec commodo cursus ipsum eget mollis. Morbi venenatis augue eget vehicula sodales. Nulla purus elit, gravida eget purus sit amet, convallis ultricies tellus. Nulla sed lorem lobortis, tincidunt nunc vitae, aliquet leo. Nullam sed dictum leo, nec blandit nisi.
Worker #415
Assignment #4127
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras suscipit dui metus, a egestas nisi commodo eget. Nullam nec varius dolor, eu varius elit. Aenean vel rhoncus lacus. Aliquam egestas semper tempus. Morbi et sem in metus porta eleifend in vel nisl. Etiam non nunc ut erat pharetra lacinia. Sed est nibh, congue nec pharetra vitae, fringilla eu felis. Donec commodo cursus ipsum eget mollis. Morbi venenatis augue eget vehicula sodales. Nulla purus elit, gravida eget purus sit amet, convallis ultricies tellus. Nulla sed lorem lobortis, tincidunt nunc vitae, aliquet leo. Nullam sed dictum leo, nec blandit nisi.
Edit entry
Add entry
Home


Welcome <manager>
12/31/2020 - 9:34 a.m
Inventory
Part #612
Part #0163
Part #1623
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras suscipit dui metus, a egestas nisi commodo eget. Nullam nec varius dolor, eu varius elit. Aenean vel rhoncus lacus. Aliquam egestas semper tempus. Morbi et sem in metus porta eleifend in vel nisl. Etiam non nunc ut erat pharetra lacinia. Sed est nibh, congue nec pharetra vitae, fringilla eu felis. Donec commodo cursus ipsum eget mollis. Morbi venenatis augue eget vehicula sodales. Nulla purus elit, gravida eget purus sit amet, convallis ultricies tellus. Nulla sed lorem lobortis, tincidunt nunc vitae, aliquet leo. Nullam sed dictum leo, nec blandit nisi.
View defective parts
Search by ID
Edit entry
Add entry
Order part
Home


Welcome <manager>
12/31/2020 - 9:34 a.m
Engineering Models
Model #142
Model #5102
Model #612
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras suscipit dui metus, a egestas nisi commodo eget. Nullam nec varius dolor, eu varius elit. Aenean vel rhoncus lacus. Aliquam egestas semper tempus. Morbi et sem in metus porta eleifend in vel nisl. Etiam non nunc ut erat pharetra lacinia. Sed est nibh, congue nec pharetra vitae, fringilla eu felis. Donec commodo cursus ipsum eget mollis. Morbi venenatis augue eget vehicula sodales. Nulla purus elit, gravida eget purus sit amet, convallis ultricies tellus. Nulla sed lorem lobortis, tincidunt nunc vitae, aliquet leo. Nullam sed dictum leo, nec blandit nisi.
Search by ID
View changelog
Edit entry
Add entry
Home


Welcome <salesrep>
12/31/2020 - 9:34 a.m
Clock In
Clock Out
View Orders
Log out


Welcome <salesrep>
12/31/2020 - 9:34 a.m
Search by order #
View customer information
Order #412523
Order #512395
Order #5109683
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras suscipit dui metus, a egestas nisi commodo eget. Nullam nec varius dolor, eu varius elit. Aenean vel rhoncus lacus. Aliquam egestas semper tempus. Morbi et sem in metus porta eleifend in vel nisl. Etiam non nunc ut erat pharetra lacinia. Sed est nibh, congue nec pharetra vitae, fringilla eu felis. Donec commodo cursus ipsum eget mollis. Morbi venenatis augue eget vehicula sodales. Nulla purus elit, gravida eget purus sit amet, convallis ultricies tellus. Nulla sed lorem lobortis, tincidunt nunc vitae, aliquet leo. Nullam sed dictum leo, nec blandit nisi.
Edit entry
Add entry
Home

Summary

ECAM is requesting a system be designed to increase their productivity and data collection for analysis. It allows them to keep watch of their inventory of parts and workers, as well as past orders and order details. The project will be broken down into multiple small parts, and integrated one by one into the final product. Each component will be designed by a small team of about seven people, and will be tested thoroughly throughout the entire production process. Upon completion of a component, it will be sent for review by senior project managers, where they will determine if the module is ready for final production. If it is determined not ready in this phase, it will be sent back to the developers with a list of reasons why. As for time management, developers will be assigned tasks on a daily basis via internal calendars. If one task takes longer than expected, depending on the importance of the task, time and other progress will be adjusted accordingly. A lesson learned is that gathering the requirements of a project is the hardest part: if the requirements are wrong, everything else is wrong, as then it is not what the customer wants. Knowing what people want and what they don't is frustrating and difficult to achieve, and unfortunately a matter of opinion. Things might be clear one day, and on another not so, or the requirements might contradict each other at some point.