PROJECT PLAN TEAM 1

1. <mark>Introduction</mark>

ABB Ports are developing automation and electrification for container terminals. Christoffer Holmstedt is team lead for an engineering team at ABB Ports and they are in need of a digital Kanban board. They have previously used post-it notes on a Whiteboard, but the high maintenance caused the system to ~~fell~~ apart about a year ago.

The team at ABB are working with an application lifecycle management software called TeamForge by Collabnet. While TeamForge has its built-in kanban board, it does not fulfill their requirements. It does not offer them options for custom categories, swimlanes and is not practical to use on daily meetings. The goal with this project is to create a digital Kanban board that use data from TeamForge and visualise it in the Kanban board so that the whole team can track project tasks.

The kanban board should be available as a web application for the team at ABB. The team members need to login to access it. The board will have two types of user roles, team lead and team members. The team lead should be able to modify the board.

The tasks in TeamForge the team are working with are referred to as "artifacts". The team lead should be able to select what artifacts that show up on the board. The artifacts should be movable using drag and drop, for moving them between different states. The states should not be stored in TeamForge, so our software need to keep the state of cards on the board.

2. Project organization

2.1 Project group (members, contact info, roles or responsibilities)

- **André Caldegren**
    - Developer, User Interface Designer
    - Contact Info: acn15007@student.mdh.se
- **Anton Roslund**
    - Project Manager, Client Communication, Developer
    - Contact Info: Anton.Roslund@minit.nu 072-001 01 80
- **Amer Surkovic**
    - Configuration Management, Developer, User Interface Designer
    - Contact Info: a.surkovic.ba@ieee.org
- **Dzana Hanic**
    - Developer, User Interface Designer
    - Contact Info: dhc17002@student.mdh.se
- **Jawid Nasiri**
    - Developer, User Interface Designer
    - Contact Info: jni15001@student.mdh.se
- **Kevin Oswaldo Cabrera Navarro**
    - Developer, User Interface Designer
    - Contact Info: kco17001@student.mdh.se
- **Robert Duras**
    - Wiki Editor/Organizer, Developer, User Interface Designer
    - Contact Info: rds15001@student.mdh.se
- **Noah Gustavsson**
    - Developer, User Interface Designer
    - Contact Info: ngn15002@student.mdh.se

2.2 Organization and communication

Communication

The main source of group communication is done via Slack where all the members discuss about meeting dates and share important information about the project.

To keep track of when and where meetings are to be held the group uses Google Calendar.

We have found some time where our schedules does not overlap:

- Monday, 13:00 – 17:00
- Tuesday, 13:00 – 17:00
- Wednesday, 08:00 – 12:00
- Friday, 10:00 – 12:00

In the planning phase of the project we will spend as much time as possible working together in person. Fridays 10-12 are reserved for our planning sessions where we plan our next week.

We are reporting our time spent in an Google Drive *Excel sheet*. With a sheet for each week and a sheet for absences.

2.3 Planned effort per member for each week in the project

	45	46	47	48	49	50	51	52	1	2	Total
André	6	22	22	22	22	22	22	0	6	6	150
Anton	14	20	20	20	20	20	20	5	5	6	150
Amer	14	20	20	22	22	22	22	0	2	6	150
Dzana	14	26	13	21	22	22	20	0	5	7	150
Jawid	13	20	24	20	20	20	20	3	10	0	150
Kevin	13	20	20	21	21	21	20	0	5	9	150
Robert	16	17	17	17	17	18	18	10	10	10	150
Noah	14	20	20	20	20	20	10	0	15	11	150

2.4 Deliverables, deadlines and milestone

Deliverable	Deadline
Project plan document	November 16
First version of design description	November 30
First version of product ~~document~~	November 30
Final version of product ~~document~~	January 10
Final version of design description	January 10
Final version of project report	January 10

Activities	Date
Steering meeting #1	November 8
Steering meeting #2	November 13
Steering meeting #3	November 20
Presentation preparation	November 21
Project presentation	November 22
Steering meeting #4	November 27
Steering meeting #5	December 4
Presentation preparation	December 5
Project presentation	December 6
Steering meeting #6	December 11
Steering meeting #7	December 18
Presentation preparation	January 10
Final presentation	January 10

Key milestones	Start date	End date	Effort
Project kick-off	Nov 6	Nov 6	32
Project plan	Nov 7	Nov 16	320
Project design	Nov 17	Nov 30	128
Environment setup	Nov 20	Nov 22	80
Teamforge API integration	?	?	24
Login and Logout implementation	?	?	28
Kanban board implementation	Nov 22	Dec 20	252
Administrator implementation	Nov 28	Dec 20	80
Filtering implementation	?	?	128
Project Testing	Jan 1	Jan 10	128

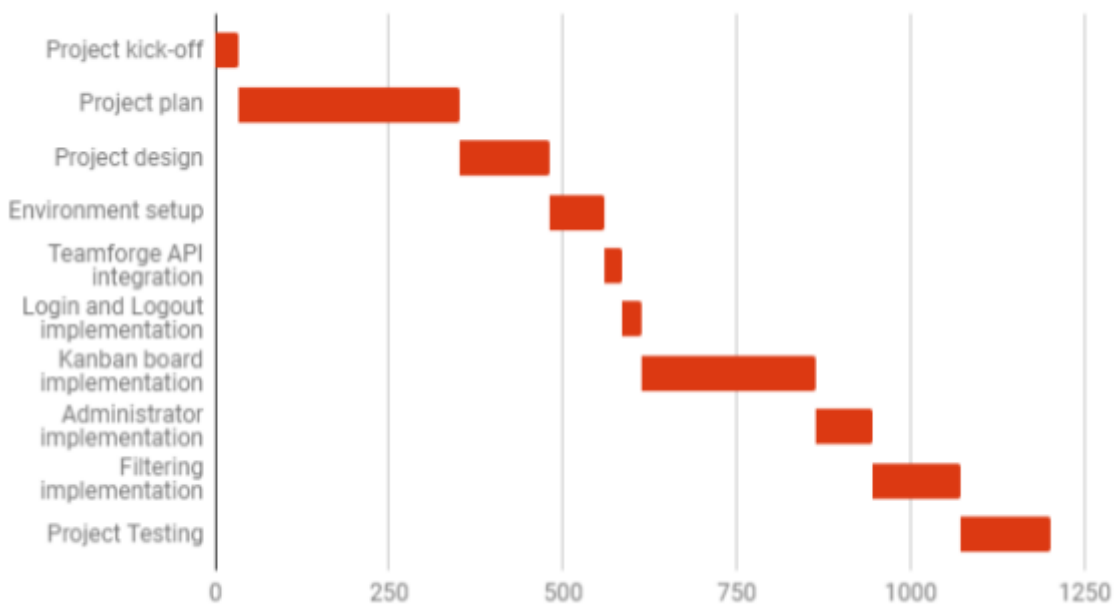1) Question marks because it's dependant on getting access to TeamForge

Figure 1. Gantt Chart

Figure 1. represents Gantt Chart based on key milestones and calculated effort.

2.5 Quality assurance (any planned activities or routines for ensuring quality, both regarding the final product and other deliverables)

"Quality assurance is a way of preventing mistakes or defects in manufactured products and avoiding problems when delivering solutions or services to customers" [1].

To assure that our product satisfies customer specified requirements we are planning to apply several methods. At this early stage, we are focused on understanding customer's requirements.

One of the methods we are planning to use is *code review*. This method will include multiple participants within our team who are involved in the implementation of the *Kanban Board*. To make sure that this step is conducted successfully, a person responsible for reviewing will check reasonable lines of codes per day, so the person is focused and can provide valuable feedback to our team. Correcting errors at early stages tends to reduce time and cost of further development and maintaining of the system in the later stages. In addition to the code reviewing, we will also do *documentation reviewing*. That includes rereading existing documents and overviewing their state in the *Github Kanban board*.

Second method we are planning to use is *white box testing*. People responsible for white box testing will have to be involved in the implementation of the system. End user will not be involved in this step, but it will provide him better experience with our system after delivering it.

Black box is another method we are planning to use. This method allows customer to test our product and provides feedback on his or her satisfaction.

3. Description of the system to be developed

3.1 High level description of the domain and the problem

Team of engineers in ABB ports currently uses TeamForge Collabnet tool for tracking and managing tasks for their projects. Although TeamForge offers Kanban-like board for tracking and managing team tasks, its features are not enough to satisfy the working engineers. This led them to use post it notes for grouping tasks and managing responsibilities between them. Tasks grew in numbers so regular whiteboard became insufficient for the team lead to track all of the project tasks. Reason why they did not use TeamForge tool for the actual work is that it does not give so many options in customizability of swimlanes and categories of work. TeamForge tasks are still updated but after some time passes by and are not actually used on daily meetings.

Solution to the mentioned domain of the problem would naturally be some kind of trello board management tool. One of the most famous ones is *Trello*. However, Trello tool or similar ones cannot be used because tasks need to be the ones stored in the TeamForge. This means that the solution to the described issue would be a Kanban board which has items imported from the TeamForge database used by ABB ports engineers.

3.2 Description of existing systems

This project will extend TeamForge. TeamForge is an application lifecycle management (ALM) platform for collaborative software development.

The Client uses TeamForge internally for development. TeamForge has functionality for Kanban boards, but it's not sufficient for our client's needs. In TeamForge, our client has artefacts which they want displayed as cards in a Kanban board. We are able to get access to the artefacts through TeamForge REST API.

We plan on developing using the free trial of TeamForge. However, we have not been able to get a free trial. When requesting a free trial you receive an email from a TeamForge Enterprise Account Specialist. We have emailing them back without getting a response.

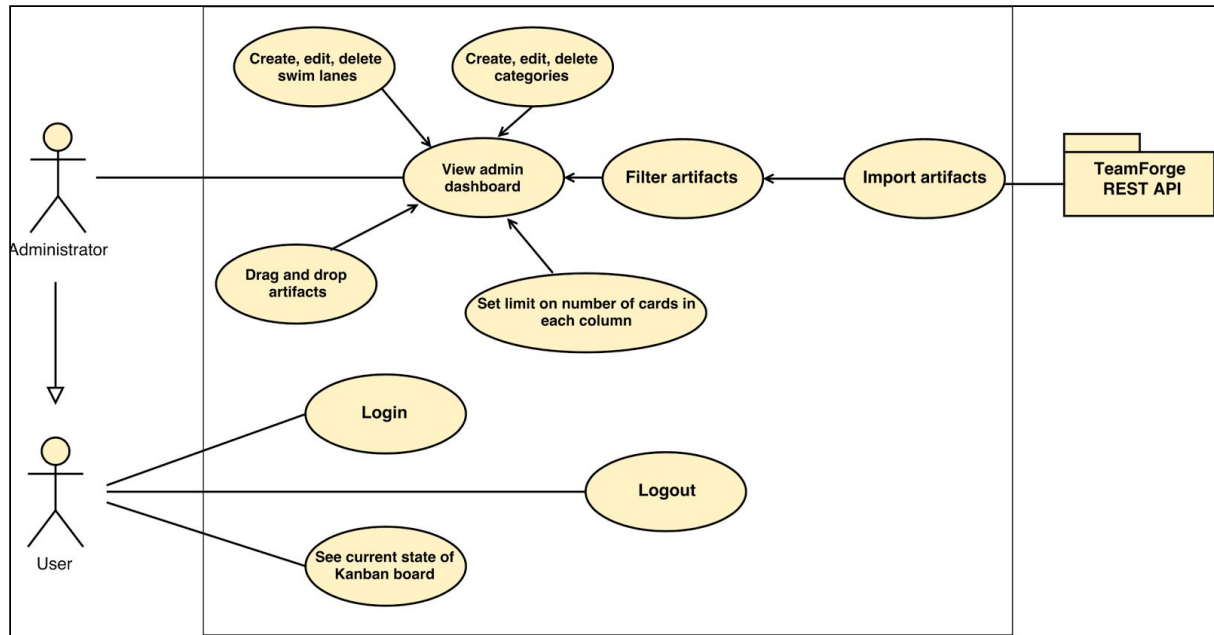## 3.3 High-level description of the desired functionality

Figure 2: Use Case Diagram

Login and logout: Both users and administrators must log in to access any content. Once they do, they're able to do the following:

- *User* is able to see the current state of the Kanban board that's associated with you and drag and drop artifacts.
- *Administrator* gets an access to the administrator dashboard and he is able to create/edit/remove categories, create/edit/remove swimlanes and filter artifacts imported from TeamForge REST API.

Kanban Board: board where the users will be able to see what team leader currently finds to the important and must be done. It's a view of the current project that the team leader has created via the admin dashboard.

Admin Dashboard: board where the administrator can edit the Kanban board so the team members can see it. The available actions that the administrator can take are the following:

- *Set card limit* - They can set a limit on a selected column which restrict how many cards can be present within it.
- *Import and filter artifacts* - They can import artifacts from the TeamForge server and filter them down to the ones they want the team to see.
- *Create Category* - They can create a custom category. The custom category can contain several columns.
- *Edit/Remove Category* - They can modify or remove selected category.

- *Create Swimlane* - They can create a custom swimlane on the board allowing them to separate different subsets of cards visually.
- *Edit/Remove Swimlane* - They can modify or remove selected category.

4.4 Additional Functional Requirements

The system must gather data from the ABB Ports Teamforge server, and update it in an interactive Kanban Board. This board must be configurable for a single team in the first phase of the project, in later phases, the system can work for several teams. For any change request, the Kanban board must use Teamforge REST API (https://forge.collab.net/apidoc/swagger/) to gather artifacts on current group tasks. Each artifact should contain information on person assigned, title, description, project affiliation and date. No syncs back to Teamforge should be done.

4.5 Additional Non-functional Requirements

Kanban board has to be available as a web application for the team at ABB. The web application must be able to run on Linux server (using web server like *nginx*). The system should reflect automatically the changes made by the user on real time. interaction with the system can be done using a touch screen display and it always must be available during working times of ABB. The Kanban board should be easy to understand and not be time consuming.

4. Initial project backlog

4.1 Functional requirements

User (main requirements)

1. Login

User story	As *ordinary user or administrator* I want to login into the system.
Prerequisite	User is previously registered in the TeamForge CollabNet.
Input	E-mail (or username) and password
Validation concerns	All input data should be entered correctly into the existing input fields.
Processing	User inputs data; System validates entered data; System authenticates user with TeamForge: TeamForge responses based on sent data; If TeamForge authorizes user login information, access is granted to the user on web application;
Output	Confirmation about successful login or message about incorrect input data.
Client priority	
Development priority	1
Effort estimation	20

2. Log out

User story	As ordinary user or administrator I want to logout of the system.
Prerequisite	User is previously logged into the system.
Input	User selects log out button.

Validation concerns	/
Processing	System logs out the user.
Output	Landing page is presented to the user after successful logout.
Client priority	
Development priority	1
Effort estimation	8

3. See current state of Kanban board

User story	*As ordinary user or administrator I want to see the Kanban board.*
Prerequisite	User is previously logged into the system.
Input	/
Validation concerns	/
Processing	System presents landing page which contains Kanban board.
Output	Landing page presenting actual state of the Kanban board
Client priority	
Development priority	1
Effort estimation	144

4. Drag and drop artifacts

User story	*As <mark>ordinary user or administrator</mark> I want to drag and drop artifacts on Kanban board*
Prerequisite	User is previously logged into the system and there are available artifacts

	assigned to users.
Input	Click and hold card for drag and drop.
Validation concerns	/
Processing	User clicks and holds the card; User moves the card to the wanted field; Card is moved to the wanted field;
Output	Card is moved to the wanted field
Client priority	
Development priority	1
Effort estimation	108

Administrator (additional requirements)

1. Create swim lane

User story	*As administrator I want to create swim lane on Kanban board.*
Prerequisite	User is previously logged in as an administrator.
Input	Name of the swim lane
Validation concerns	There should not be existing swim lane with the same name.
Processing	User presses button for creating a new swim lane; User enters name of the new swim lane; System creates new swim lane;
Output	System presents new swim lane.
Client priority	
Development priority	1
Effort estimation	25

2. Edit/delete swim lane

User story	*As administrator I want to edit/delete swim lane on Kanban board.*
Prerequisite	User is previously logged in as an administrator.
Input	Updated name of the swim lane.
Validation concerns	There should not be existing swim lane with the same name.
Processing	User presses button for editing selected swim lane or a button for removing it; User enters new name of the new swim lane for editing; System edits/removes swim lanes;
Output	System updates swim lanes.
Client priority	
Development priority	1
Effort estimation	10

3. Create category

User story	*As administrator I want to create a new category on Kanban board.*
Prerequisite	User is previously logged in as an administrator.
Input	Name of the category and the limit of the possible active cards for the named category.
Validation concerns	There should not be existing category with the same name. Number cannot be negative.
Processing	User presses button for creating a new category; User enters name and the limit of the

	new category; System creates new category;
Output	System presents new category
Client priority	
Development priority	1
Effort estimation	25

4. Edit/delete category

User story	*As administrator I want to edit or remove categories from Kanban board.*
Prerequisite	User is previously logged in as an administrator.
Input	New name of the category or the updated limit of the possible active cards.
Validation concerns	There should not be existing category with the same name. Number cannot be negative.
Processing	User presses button for editing or removing the category; User enters new name or the new limit of the selected category for editing; System edits/removes selected category;
Output	System updates categories.
Client priority	
Development priority	2
Effort estimation	10

5. Filter artifacts

User story	*As administrator I want to filter artifacts on Kanban board.*
Prerequisite	User is previously logged in as an administrator.
Input	Selected artifacts from the list of imported objects on TeamForge.
Validation concerns	No artifact is selected from the list.
Processing	System imports artifacts from the TeamForge; User selects artifacts; Selected artifacts are presented on the TeamForge;
Output	System presents selected artifacts
Client priority	
Development priority	2
Effort estimation	128

6. Set limit on number of cards in each column

User story	*As administrator I want to edit limit on number of cards in each column on Kanban board.*
Prerequisite	User is previously logged in as an administrator.
Input	New limit on number of cards
Validation concerns	Number cannot be negative.
Processing	User presses button for editing number of allowed cards for selected category; User inputs new limit on number of cards; System validates input;

	System sets up new limit on number of cards;
Output	New limit on number of cards is set up and system shows the confirmation message.
Client priority	
Development priority	3
Effort estimation	10

References

[1] *Softlets: Embrace the future*, thesoftlets.com/quality-assurance.php.