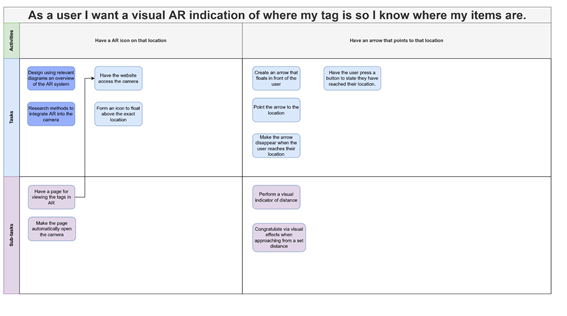
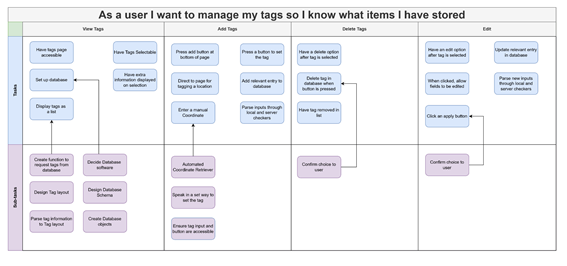
**Changing User Stories after sponsor meeting 02/11/2022**

As an initial set of user stories, we opted to have an arrow point to a location in AR:



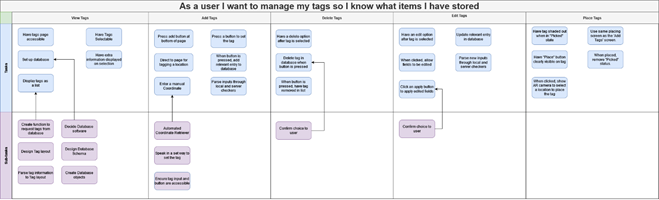
This is with having a tag at a location. In addition to this, we determined the method of managing these tags as a list of them in another page:



Where, we determined ‘edit’ as the only method to change the tags’ location. Moreso, we failed to include the idea of ‘Picking up’ and ‘Placing down’ tags. Thus, if the user were to reach their tag and pick up that object, there would be no explicit status of ‘Picked up’, and instead would be up to implementation, maybe deleting the tag outright.

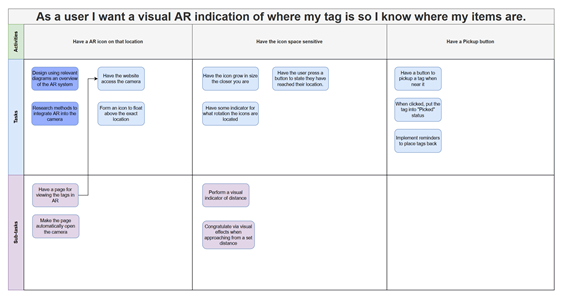
This also removes the idea of Placing down.

After the meeting with our sponsor, the idea of placing and picking was brought up, so we decided to overhaul some of our user stories to reflect this:



In the page where you view tags, we opted to have a new status for the tags – them being ‘Picked up’. In this state, the tag would be shaded out, and the only option you’d have would be to place the tag back down.

The edit tags are still here, but it will be relegated to more rare situations.

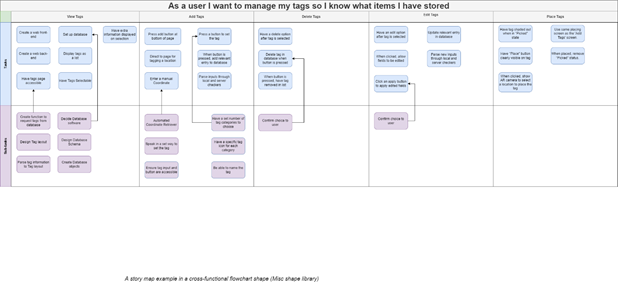


In AR mode, we have also added the user stories for having a pickup button. This would be activated when the user is close to a tag, and thus when they pick up the item, the system can reflect that with the ‘Picked up’ state.

**Changing User Stories after meeting 09/11/2022**

We had a meeting deciding what our first sprint should focus on, and we decided on a short 1 week sprint to research the most pivotal AR implementation, and also create the foundation of the website and database.

With this, we found that we had no explicit user story to create the website, so we edited the story map to reflect this change:

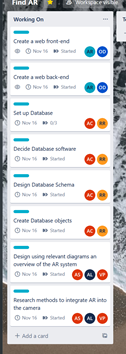


In view tags, two new user stories were added to reflect our process.

**Sprint 1 (09/11/2022 -> 16/11/2022)**

In this sprint, we decided to first create the foundation of our project. Thus, it was made to be shorter than normal.

The user stories assigned were:

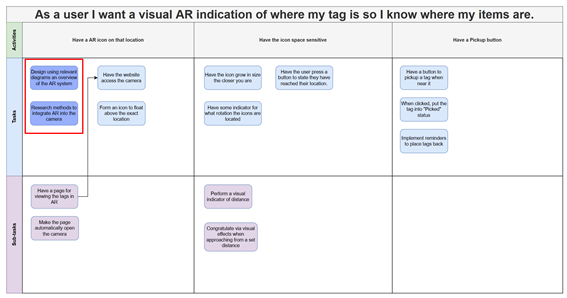


And we split the team into 3 subteams, with one working on designing/researching how the use AR in websites. Another team was set on setting up a website that everyone can develop on in the future, and the last was assigned the task of designing some extensible database that reflects our current goal of a viewable list of tags and a user login system.

Most of the user stories were in the ‘View Tags’ Epic:



And the ‘Have an AR icon on that location” Epic:



We have also set up the sub-teams to reflect the skillset of everyone. The website sub-team includes Alfie, who has moderate experience in web technologies, and Oliver, whose skillset leans more on data interpretation.

Our AR team is the largest, as no one in our team has any substantial experience in AR. This is the primary reason we have dedicated a week to just research.

The database team consists of Alan and Rodion, and both of their experience stems from first year modules. No one in our team has more extensive experience in database design, so there was no calculated choice here.

**Sub-Team Website Creation user stories:**

For this subteam, with Alfie and Olly, we were unable to progress much due to being unable to access IBM services. During this we with the team lead set up a meeting with our sponsor and got everyone to sign up to IBM services as the pre-requisite to access the services.

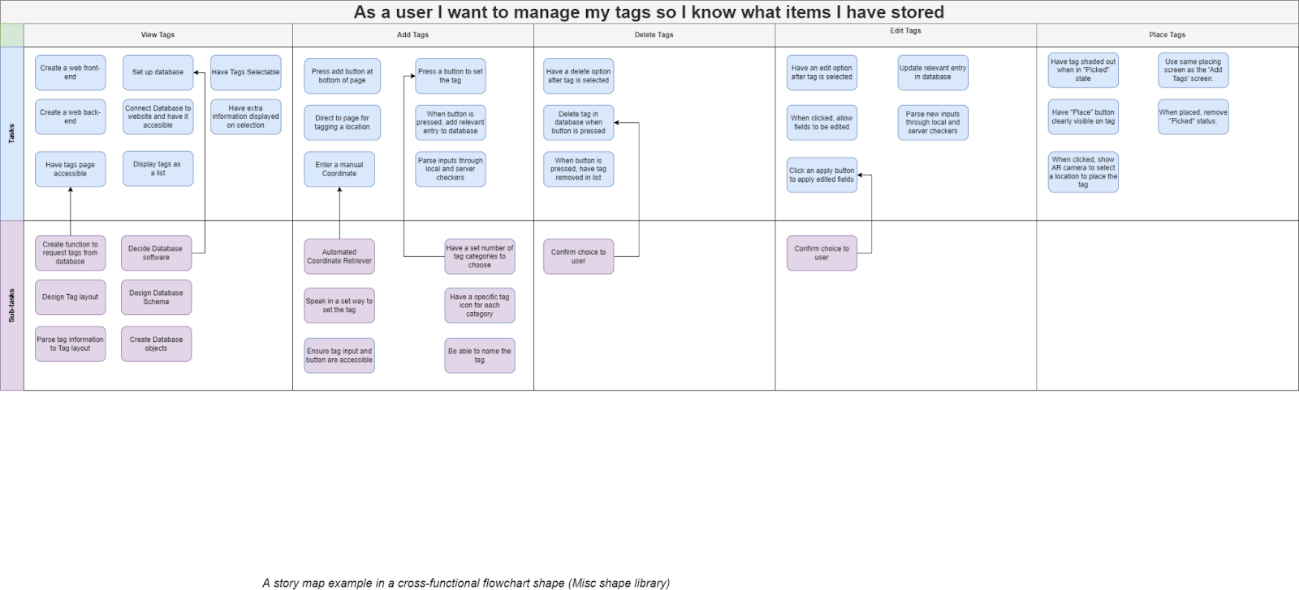
Thus, these user stories have been moved to the next sprint to do.

**Sprint 1 Retrospective/ Sprint 2 (17/11/2022 -> 1/12/2022)**

We held a retrospective on Thursday 17/11/2022 to go over what everyone achieved, what was difficult, and what we need to change going forward.

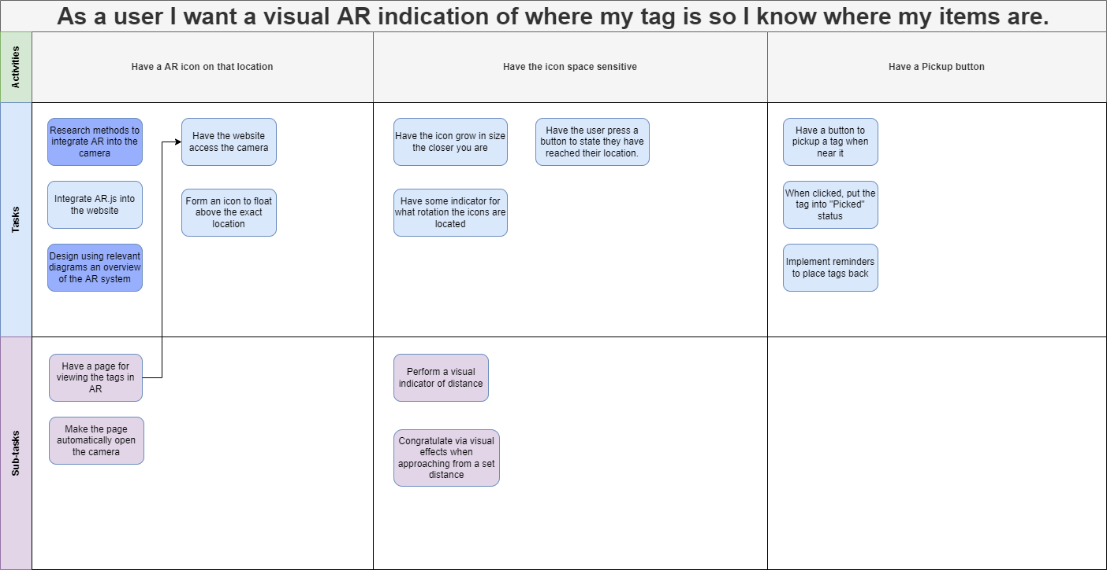
The “Set up a database” sub-team with Rodion and Aidan managed to set up and create a schema, achieving all of their user stories. They done this using IBM’s services which we were allowed to use.

However, with this, we found that we needed to change our ‘View Tags’ Epic to accommodate for the next step, integrating and connecting that database to a web-server:



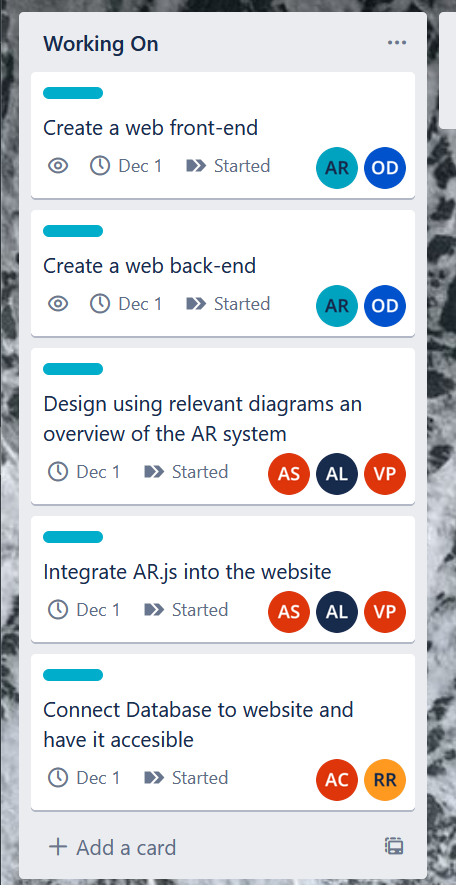
We assigned “Connect database to website and have it accessible” to the story map, as it makes more sense in the context of this retrospective.

The AR side of the project was also researched, and the sub-team of Alan, Vishal and Alex found that a lot of the work has already been done in AR.js. However, as there was no server to actively test it on, it was difficult to create concrete diagrams to outline the system, so the sub-team could only finish half the sprint user stories.

Through this we discussed to include a new user-story to ‘integrate AR.JS’ into the soon-to-be webserver, as a more specific variation of the problem:

For the website creation, none of the user stories were able to be completed, but this was due to areas outside the project, so nothing could be done to rectify it.

With this, we assigned new user-stories to be completed:



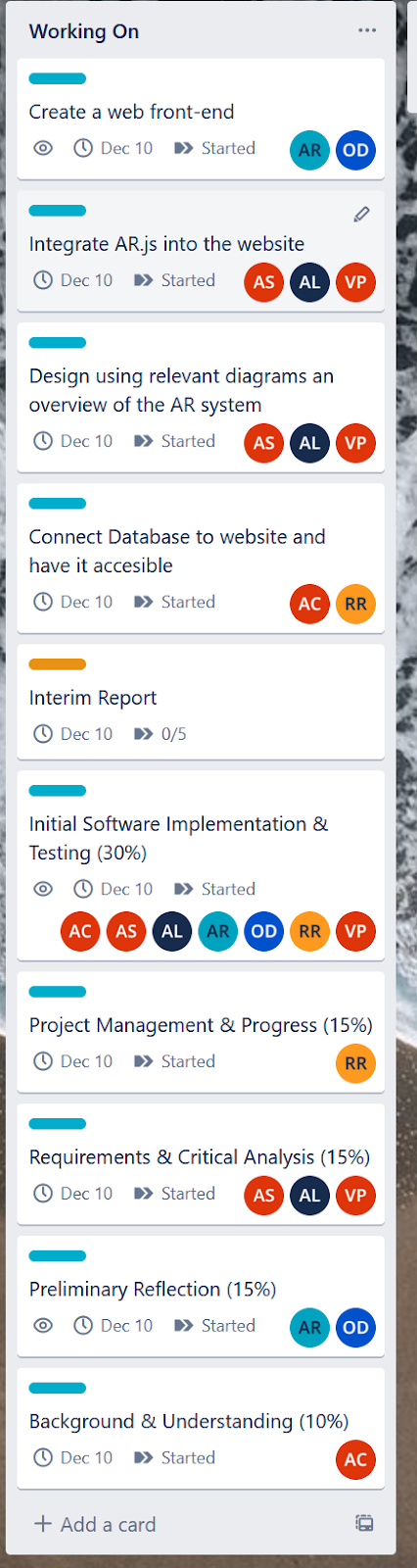
Sprint 3 (01/12/2022-10/12/2022) (Sprint 1 Retrospective)

We had a retrospective on 01/12/2022 to discuss Sprint 2.

In the Sprint 2 retrospective we discussed the difficulties in server creation. Due to delays in access to IBM’s server, half of the sprint was in a deadlock, and eventually the Website Creation SubTeam found a Serverless implementation of Node.JS in IBM Cloud that could function as a stop-gap before getting full access to IBMs resources.

However, Severless has its one challenges, the most prevalent being the requirement of local copies to properly develop, due to the CI deployment taking more than 3 minutes. In any case, this causes a week delay in being able to start, so we decided to move over the remaining user stories to a week +2 day sprint.

We also discussed the Interim Report, and thus assigned parts of it to everyone to be done in the same sprint, from which we will send the draft to our supervisor for advice:

The SubTeams will remain the same, and the only completed user story was the “Create a web back-end”, which was the Node.JS server creation using a Serverless implementation on IBM Cloud.

We also discussed difficulties for the Database Creation Sub-Team, as IBM only allowed proprietary Database solutions to be created on our limited accounts, which even after hours of attempts bore fruitless results in integrating them in Node.JS, or even connecting to them in a traditional way.

Thus, they had to move to another hosting solution for MongoDB, which is a more traditional, and open source implementation of MYSQL which doesn’t require absurd drivers to access.

So, they stated they are most likely able to implement a proof of concept connection to this MongoDB database in the Node.JS server quickly.

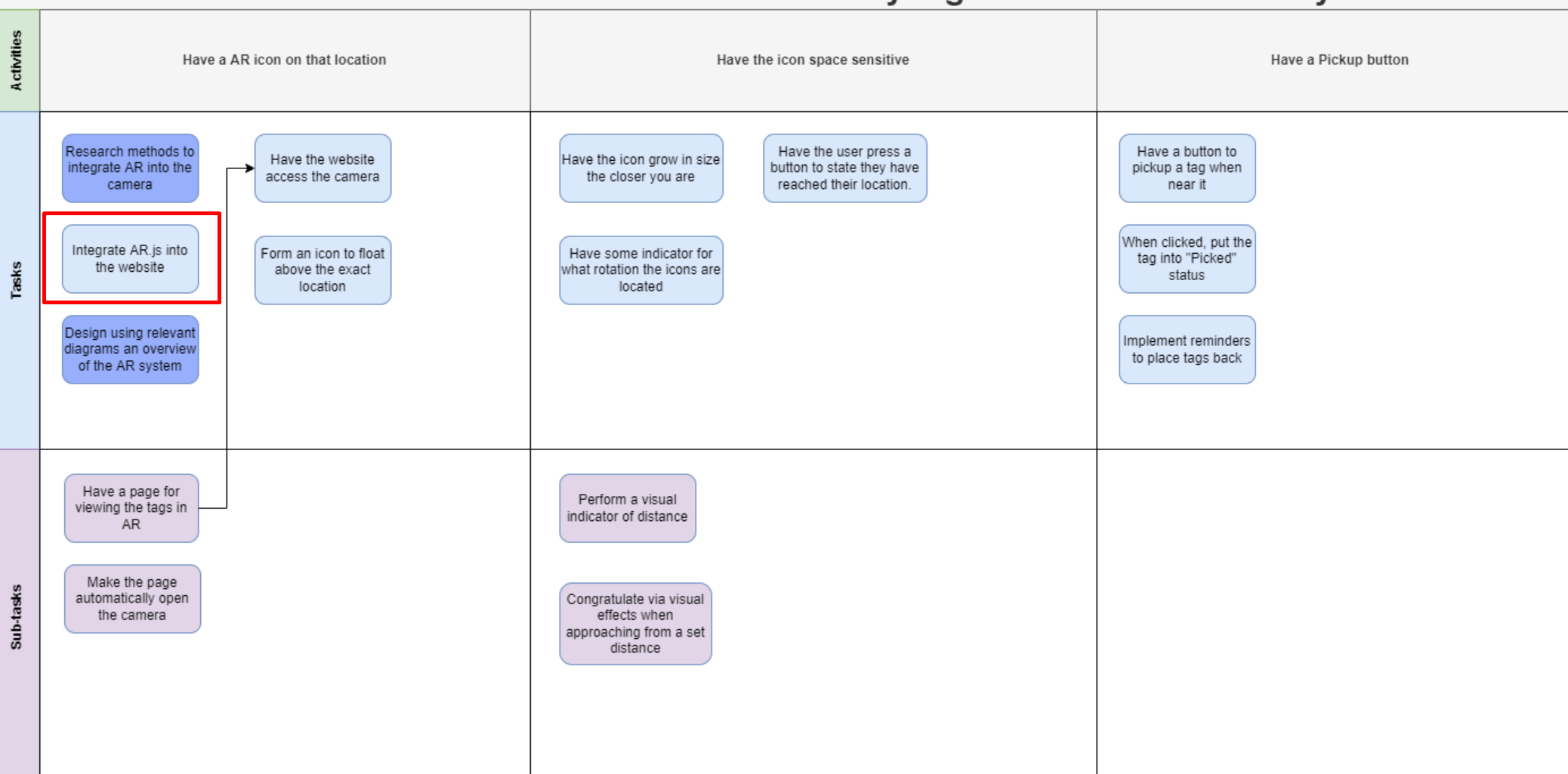
The AR Sub-Team has had more trouble, as the week delay, coinciding with the difficulty in setting up a local repo Docker container to develop in, made progress difficult. This is also ignoring the debugging nightmare of not having an easy way to test the website on your phone, because it is a local server all the way until deployment via a merge to master.

However, their task is to just integrate AR.JS into the front-end, so it should be plausible to achieve, which we all agreed on.

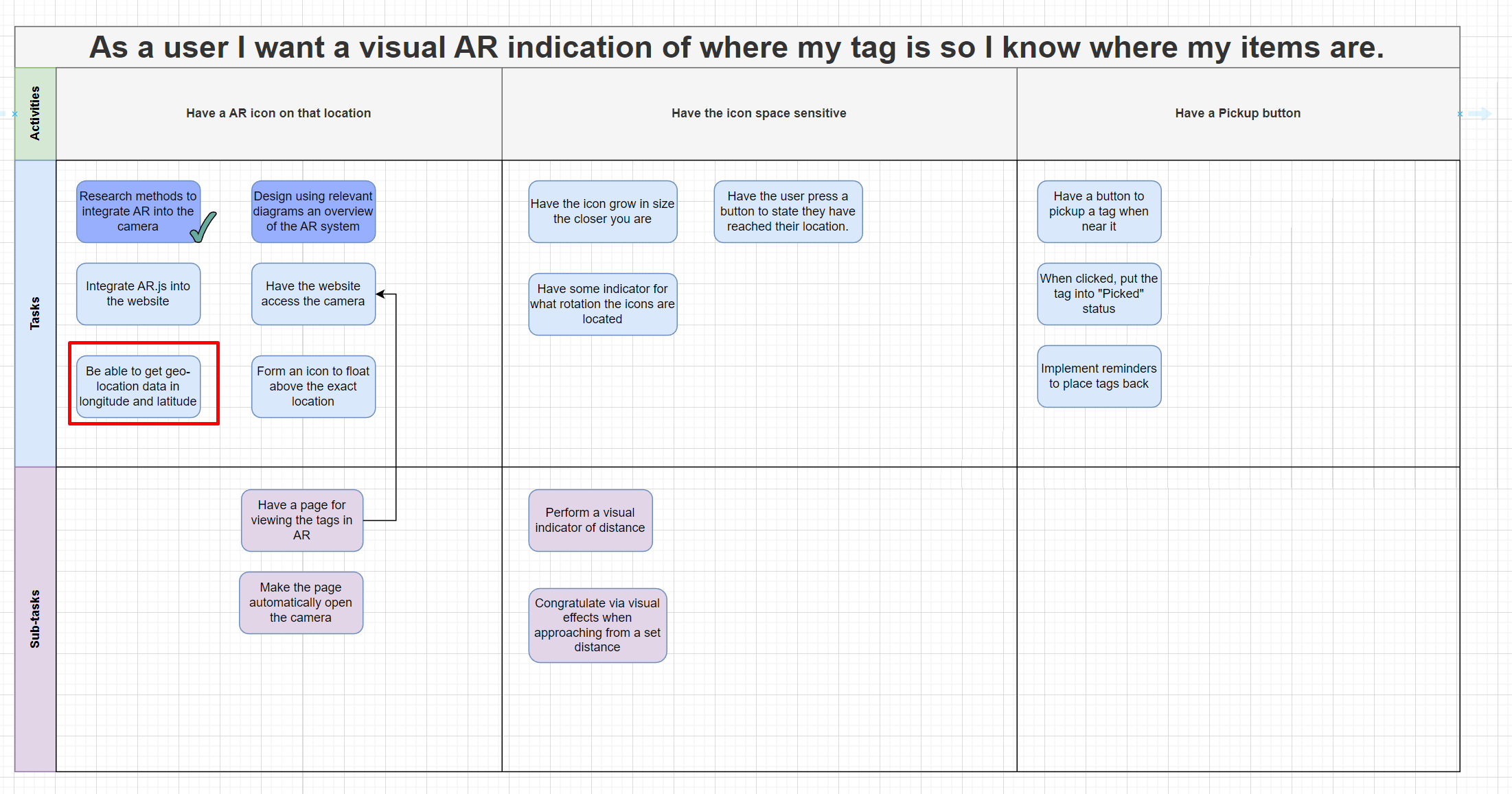
**Sprint 4 (31/01/2023-07/02/2023)**

Here we discussed the general method of development. This involved setting up everyone's local docker instance to develop on the backend and front end. After this, we discussed what user stories to create.

From this, we found that certain user stories were missing. One, was that the AR icon was missing a follow-up from integrating AR.js into the website

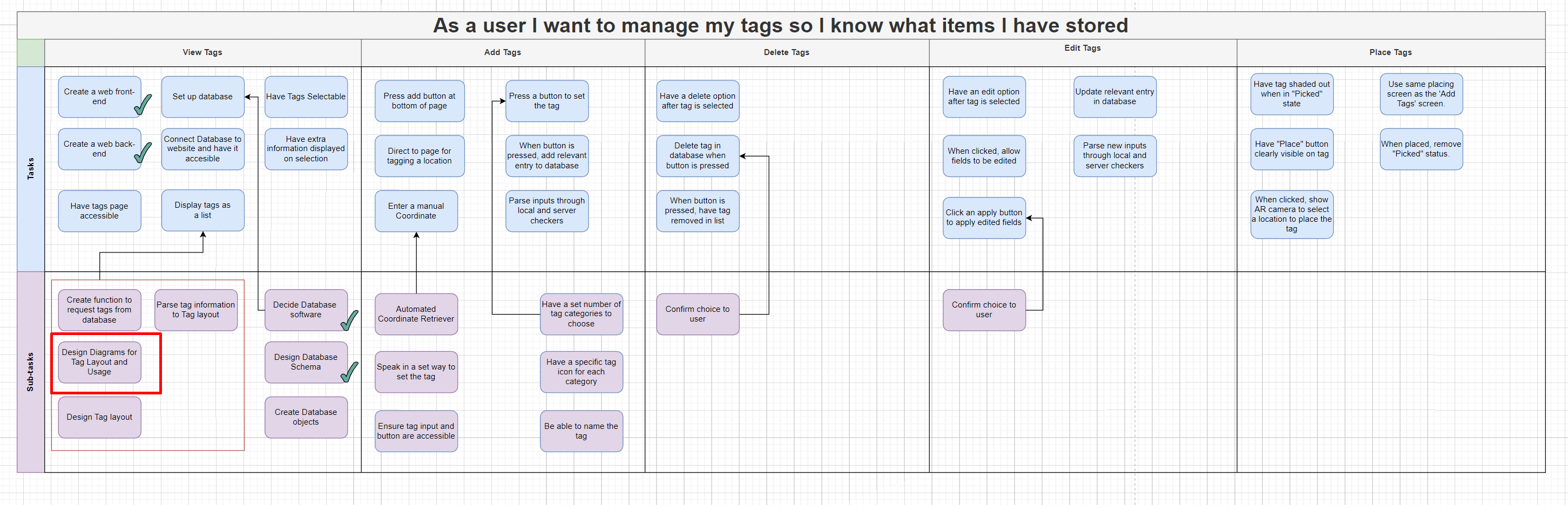


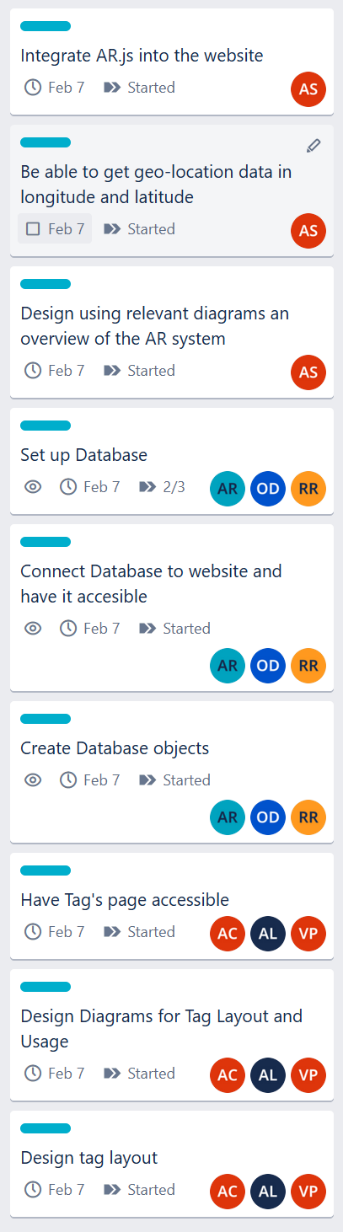
Moreso, “Integrate AR.js into the website” is a general integration, but to then use the AR for our purpose we then need to have the facility to get geo-location from the user. Otherwise, this task would be broadly involved in that single user story, and from the context of the other user stories it was thus too large.



This made it so that integrating AR.js involved just adding the AR.js template code and not also needing to add location tracking in the same user story.

After this we also decided to add an explicit design user story for the tag layout. On the tag layout page that will show the tags the user has, we have yet to properly decided how it will function, so it needs to be designed first before implementing a template on the front-end:



On that note, assigning user stories went into three teams. Alfie, Rodion, and Oliver were tasked with migrating the existing MySQL schema to a NoSQL implementation due to technical constraints, these being the user stories: “Connect Database to website and have it accessible”, “Create Database Objects” and “Set up database”. We assigned Alfie and Oliver as they were previously working on the server, and so haven’t had any experience with the database software, but still have backend knowledge to help with eventual int.

After this, follow the user story we needed to create the tags page which will display the users’ tags that they have saved. This tags page needs to be designed with how it will function, and how the tags will look and behave, and we also need a route to get to this page that isn’t the root directory. So, we assigned Aidan, Vishal and Alex. Aidan and Vishal are both doing Human Computer Interactions, so we felt that they would be best tasked to designing an interface. All of them need to gather experience working with Svelte. The user stories assigned are “Have Tag’s page accessible”, “Design Diagrams for Tag Layout and Usage” and “Design Tag layout”.

The last assignment was for the AR theme, and generally Alan has been working on integrating the AR.js library on and off during the holiday. He stated that it would be finished quite easily, and so didn’t need anyone else to help him and waste time. He aims to integrate the AR.js code so that you can view an item in AR that spawns on a specific location and keeps track of your location relative to it. This is all done via AR.js and so isn’t a major hurdle. The user stories assigned are, “Integrate AR.js into the website”, “Be able to get geo-location data in longitude and latitude” and “Design using relevant diagrams an overview of the AR system”.