**2.Overall Description**

**2.1. Product Perspective**

Due to COVID-19, most of students are taking class with i-campus these days. This function is designed to help students study more efficiently: by reducing time spent to find the exact time they want and taking notes linked to lecture. Also, sharing bookmark function will be helpful for instructors’ who want their lectures to be understanded easier.

**2.1.1. System Interfaces**

Function is based on Canvas LMS, which is a web-based platform. Canvas LMS consists of web-application framework, implemented with Rubi on Rails and is hosted by native cloud and AWS.

The template uses most-recent web technology based on HTML5.

All API access is over HTTPS and all API responses are in JSON format.

**2.1.2. User Interfaces**

Bookmark interface is added under the i-campus lecture page. There will be “Make Bookmark” button during the lecture. Once the bookmark is made, it can be edited or deleted.

Users can choose either hide or show the bookmark tab.

If the user type is instructor, there will be additional “Share” button, which avails the instructor to share their bookmarks and notes with learners. If the user type is learner, there will be one more bookmark tab, which is shared by instructor.

The administrator can generate and organize bookmark database and manage the interface of bookmark.

**2.1.3. Software Interfaces**

The function is based on Canvas LMS. The server must have at least 4GB of storage. To access function with Android, it needs Android OS version at least Android 6.0.

**2.1.4. Communications Interfaces**

User device and server communicate with HTTP protocol in JSON format.

**2.1.5. Memory Constraints**

The function needs at least 27MB of memory.

**2.1.6. Operations**

**2.1.6.1. System Administrator**

- Administrator can manage and organize the databas.

- Administrator can update the interface of bookmark function.

**2.1.6.2. User**

Make Bookmark

* User can make a new bookmark by clicking “Make Bookmark” button.

Jump to Bookmark

* Generated bookmarks will appear on both the bookmark tab and the lecture timeline.
* To study the specific part of lecture again, user can jump to the exact time by clicking the bookmark.

Edit Bookmark

* After the bookmark is made, user can edit the bookmark.
* In the bookmark tab, user can change the time and note of the bookmark.

Delete Bookmark

* If the user clicks the “delete” tab, x button will be shown beside the bookmarks in the bookmark tab.

Show/Hide Bookmark

- User can choose to show or hide the bookmark tab.

**2.1.6.2.1. Instructor**

Share Bookmark

- Instructor will have additional “Share Bookmark” button. Instructor can click this button to show the bookmarks and notes to learners.

**2.1.6.2.2. Learner**

Show/Hide Instructor Bookmark

- There are two separate bookmark tabs for the learners: instructor bookmark and their own bookmark.

**2.2 Product Functions**

**2.2.1. Make Bookmark**

There is a “Make Bookmark” button in the lecture. User can make new bookmark by clicking it. Then the bookmark is added to the bookmark tab with the time user clicked it and in the lecture timeline with flag mark.

**2.2.2. Jump to Bookmark**

After the user make bookmarks, the bookmarks’ list is shown in bookmark tab. To return to the exact time in the lecture, user can click one of the bookmarks.

**2.2.3. Edit Bookmark**

User can change both the time and note of the bookmark. In the bookmark tab, there is an edit button. By clicking it, the bookmark tab will change to edit-available mode. User can click where they want to change and save it.

**2.2.4. Delete Bookmark**

There is a delete button in the bookmark tab. Once the user clicks it, ‘x’ button will appear beside each of the bookmarks in bookmark tab. User can delete the specific bookmark by clicking the ‘x’ button.

**2.2.5. Share Bookmark**

This function is only available to instructor. After the instructor made bookmarks for their lecture, they can choose to share it or not. If they choose to share, learners can see the bookmarks of their instructor. There will be separate bookmark tab and flag marks with different color.

**2.2.6. Bookmark tab show/hide**

User will have an option to show or hide the bookmark tab. If they choose to see it, the bookmark tab will be shown, and they can use the functions. If they do not want to see it, they can click hide button and then, bookmark tab will be invisible.

**2.2.7. Instructor Bookmark tab show/ hide**

There is another separate bookmark tab for learner, which is Instructor Bookmark Tab. This tab has same function with their own bookmark tab, but they cannot make/edit/delete the bookmarks in here.

**2.2.8. Clean Bookmark**

Administrator can clean the bookmark data in certain period. Bookmark data that has been over 1 year will be gone.