TodoTxt NFC

Travis Bybee

Declaration

I'll be expanding an existing open-source todo list application to include features that make a "mobile" application, primarily adding NFC support to filter, sort and manage the todo list.

Project Definition

My project, adding NFC to the open source Android application of Todo.txt (http://todotxt.com/). The addition of NFC will allow users to filter and add items to their todo lists based on a project or a context. The benefit for the user is a quicker way to manage their todo list. This could be put to use many ways, but my vision of functionality is as follows.

For a student, each class is tagged with a specific identifier in the todo list (for CSCI498, my identifier is +mmdroid). A NFC tag is put on the textbook for the course, and when the user swipes their phone over the book they are asked if the list should be filtered according the data on the tag (the identifier) or if a task should be added with the identifier appended.

A new activity window will be added to the application as well to handle writing these identifiers to the tags. An option will be available to choose an existing identifier to be written to the tag, as well as the option to write a new string to be used on the tag.

User Story

Enrique already has an existing todo list manager that he really enjoys using on his computer, and up until recently he had to spend a little bit more time on his mobile devices to add or even sort todo items. This required typing one the mobile keyboard, which doesn't always accurately auto-correct his special class and project names. It takes more time to enter in the special characters that allow him to sort and filter the todo-list.

Lucky his todo list application was recently updated to use NFC, a sweet way to transfer data and utilize an under used feature on his new phone. Now instead of using only the keyboard to

interact with the application, he can quickly do certain tasks with NFC tags he sets up, and use the keyboard when it is only really necessary. Enrique is pumped, now he can make better use of the mobile todo list application!

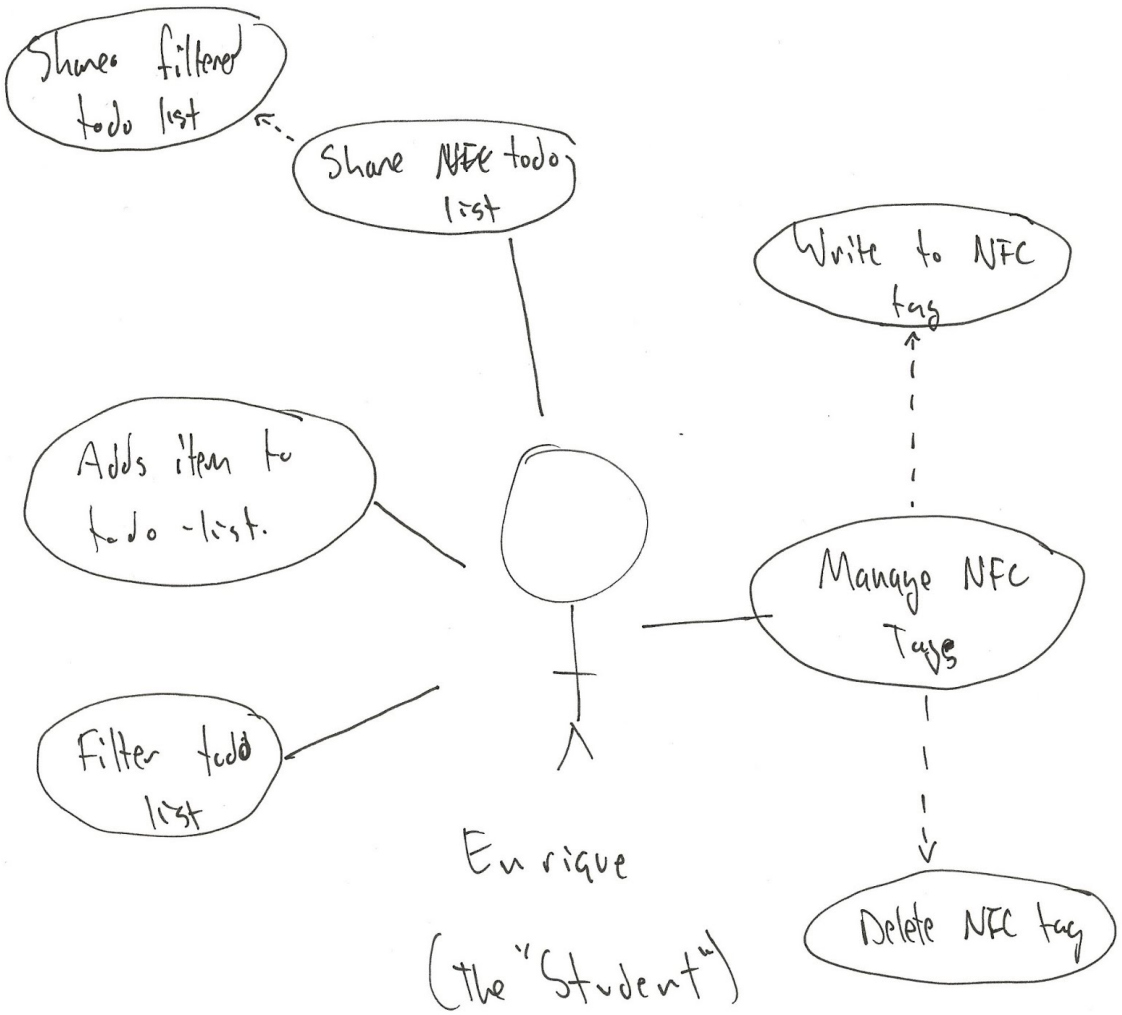
First Enrique will need to add an identifier to the NFC tag. Through the new NFC menu in the application he selects either an existing identifier or a new one that he types out to be written to the NFC tag. He taps his device to the tag and it's written.

Then he'll place the NFC tag on the inside cover of his Effective Java book. Enrique knows that he has things to do for his Mobile Development class, so he grabs the book, opens up the cover, and places his phone on the tag. This bring up an option for Enrique, either add a task to this classes context or project or filter the todo list based the class. He selects "Filter" and all the tasks that he has added for the class show up. Using NFC removes four clicks standing between Enrique and his goal.

Now Enrique wants to add a task for this class. He taps on the NFC tag again, then selects the "Add" option. His custom class identifier "+mmdroid" is automatically added at the beginning of the task. He is glad that he doesn't have to find the plus sign on the mobile keyboard, or type out the unique class name that isn't in the device dictionary.

Use Cases

Student creates new NFC tag.
Student adds an item to the todo list.
Student filters the todo list.
Student deletes a NFC tag info.
Student shares todo list.
Student shares filtered items from todo list.



Student creates new NFC tag

Title
As a student I want to create an NFC tag so that I can more easily manage my todo list.
Primary Actor
Student
Stakeholders & Interest
Student wants to set up NFC tags.
Preconditions
Student has opened the application and navigated to the menu screen for NFC tags. Student has entered in the project and context that they would like for the NFC tag to contain and pressed the “Write to tag” button.
Postconditions
A NFC tag contains the information for a specific context or project.
Main Success Scenario
Student is provided with feedback that it was successful.
Extensions
1.1 There was an error writing to the NFC tag.
1.1.1 The message “An error occurred writing to the NFC tag. Try again” is shown and the program returns to a state to write to the tag.
1.2 The data being written to the NFC tag is too large to be stored.
1.2.1 The message “The data to be written to the NFC tag is too large. Try again with a shorter input string.” is shown.
Special Requirements
This is the most important use case because it enables the other use cases.
Technology & Variation List
The amount of data that can be stored on the NFC tag is limited, so the information held on the tag needs to be as small as can be useful.
Frequency
Every time Student adds a major context or project to the todo list and creating a new NFC tag will help them save time. This will vary on how busy Student is.
Open Issues
Feedback on how much was written to the tag compared to how much data the tag has available should be shown in an easy to understand way?

Student adds item to todo list

Main Success Scenario
In order to add an item to the todo list categorized under a specific project/context, Student using TodoTxtNFC should be able to touch their device to a NFC tag and be presented with an option to between adding and filtering. The student will select add, to add an item to the todo list. The screen will be the same as the one used to add an item without the use of NFC, but the project/context on the NFC tag will already be present so Student doesn’t have to type out

the custom name for their context. The Student then saves this items and it becomes part of the todo list.

Student filters todo list

Main Success Scenario

To filter the entire todo list to only show one context/project, the Student using the TodoTxtNFC will tap their device on a NFC tag they have set up. The student will be presented with a menu to choose between adding an item or filtering the list. On selecting filtering the list, a screen showing only the items in the todo list that are part of the context/project scanned from the NFC tag.

Alternate Scenarios

No Items that match the context/project tag

If no items in the todo list match the tag that was scanned by the user, then a message will be displayed for the student letting them know that no items fit that filter.

The student accidently selected the add option

If the students goal was to filter the todo list and they accidently select the add an item option, then they can rescan the tag to return the menu and select filter.

Domain Classes

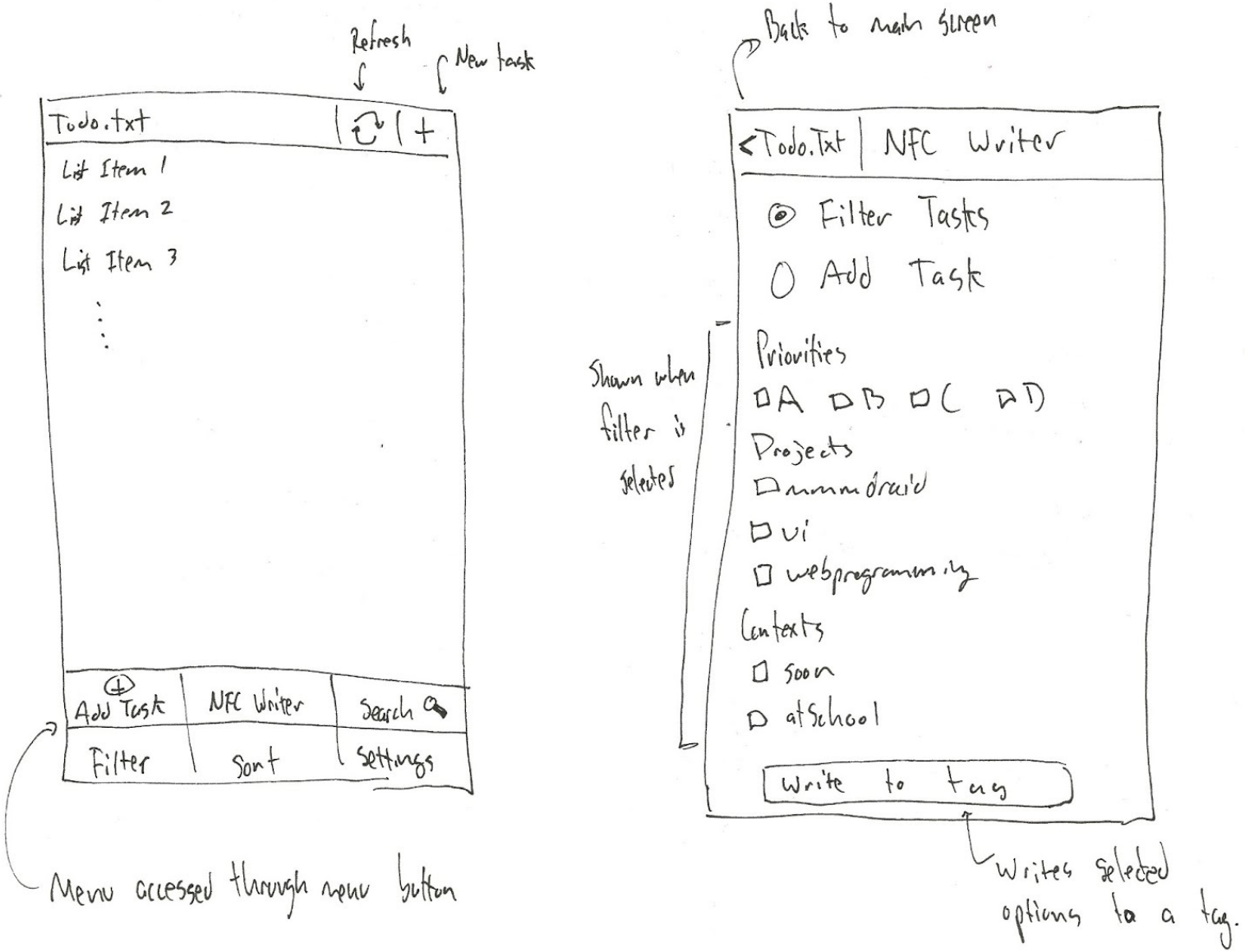
NFC_Manager: Contains methods needed to access android NFC features, writes data to NFC tags.

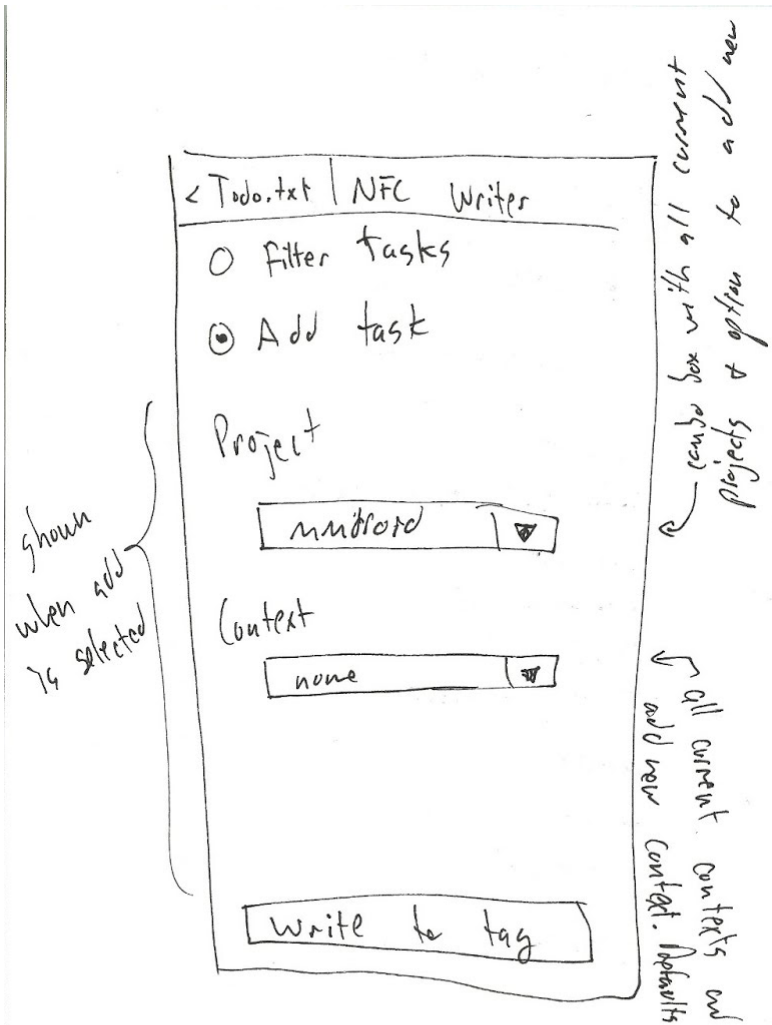
TodoList: Collection of todo items.

TodoItem: Contains todo string, context and project of the item.

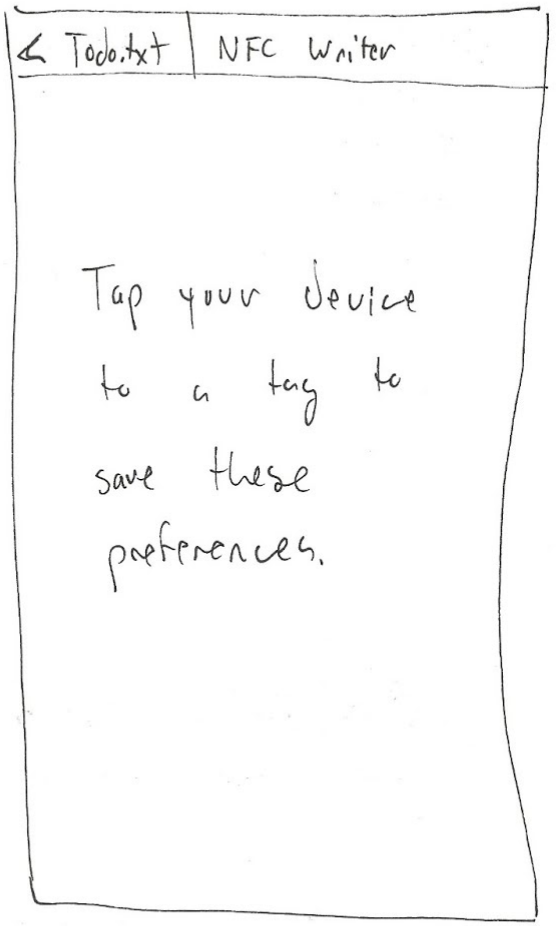
Screen Specification

The following images are drawings representing the screens for the first three use cases.

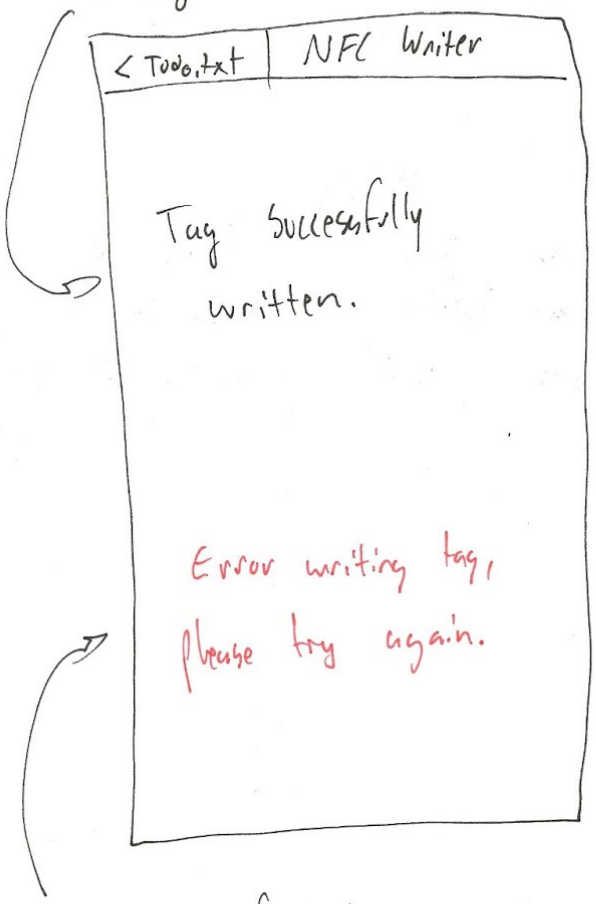

Refresh
New task
Todo.txt
List Item 1
List Item 2
List Item 3
Add Task
NFC Writer
Search
Filter
Sort
Settings
Menu accessed through menu button
Back to main screen
<Todo.txt | NFC Writer
Filter Tasks
Add Task
Shown when filter is selected
Priorities
A B C D
Projects
mmmdroid
ui
webprogramming
Contexts
soon
atSchool
Write to tag
Writes selected options to a tag.



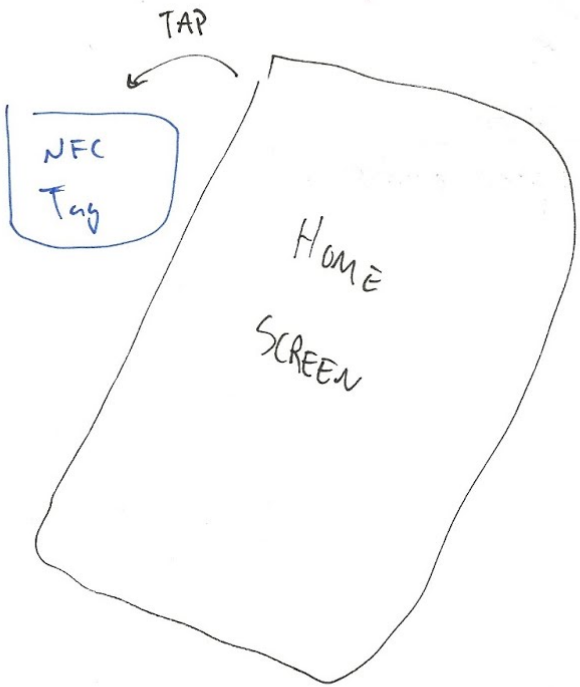
After pressing "Write to tag" button.



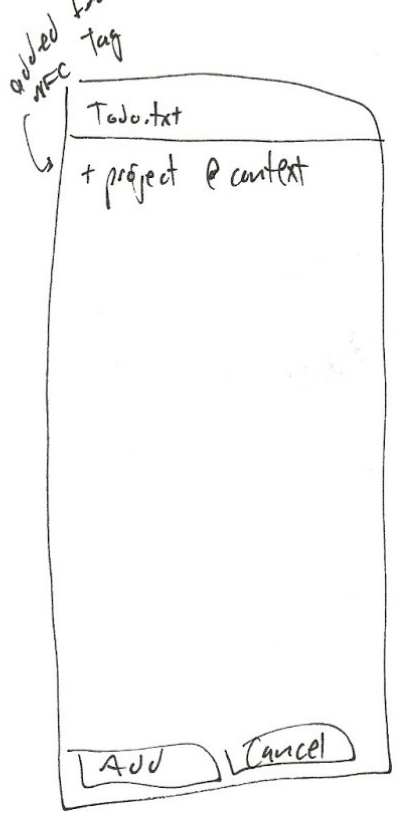
After tapping and successfully writing



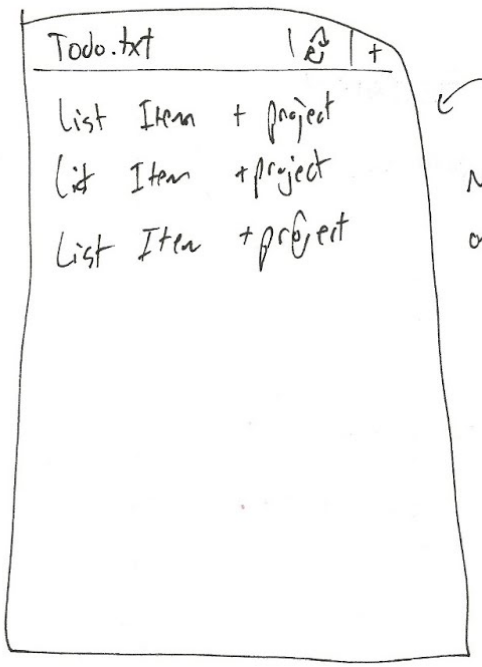
After a failed write to tag



After tapping an "Add" tag



After tapping a "Filter" tag



Items that match the filter on the NFC tag.