NewsMap Tells What Happening Nearby

1 Introduction

There are many information media in the world. And in this ubiquitous network society, all of the media have their own mobile applications. Like ABC, BBC and VOA. They are very famous and keeping broadcasting the news to all of the world in every second.

However, a lot of news happened far away to the ordinary citizens, even in other country. Generally, ordinary people not only cares the news over the world, but also focus on things happened nearby, which are always disdained to be reported by the giant news platforms. For example, you are going to sell your old sofa, or you want to check the traffic information nearby. All of those events happening around everyone's daily life. People want to be a news publisher

In order to meet the needs of users, we developed an application called NewMap, this app can satisfy users with the feature of precise positioning and directed spread.

NewsMap is an Instant News Sharing Application which allows users to create news items based on location with or without pictures. And those news will be spread to other users who are located within 1000 meters. In some cases, when someone lost his/her wallet, they can put this information on our NewMap with a precise positioning of people within 1km, finding the wallet in a sufficient way.

Considering about the Long Tail Theory, there is still a large market in the instant and nearby news sharing. Customers who are not satisfied with the exist news app will be interested in NewsMap. Our technical solution and more detail.

2 Problems

Nowadays, the news industry is a monopolized industry. The discourse power is controlled by minority giant company and government. The ordinary people have to listen and watch the news that after screening. Sometime, the news is even fake at all. Even the president of America, Trump, he is often attacked by fake news. We ordinary people also have our right to publish our own news.

Besides, present social networks are majority based on the relationship. The information spreads along the relationship network. What if I need a doctor right here and right now? How can I find a doctor or someone to do first-aid to save a life with

my phone and the cellar network? They are probably strangers. People need an instant way to share information based on the location.

3 Solution

With a great ambition to make information can be spread freely and avoid fake news as far as possible, we design the two mechanisms.

One is make everyone have the chance to publish their own news. We allow every registered user to create and release their own news except those who break the rule over and over again, like spreading fake news, abusing others and so on.

The other is let users to judge with administrators. There are two buttons on the detailed news page, one is for approval, and the other is for disapproval. We encourage the users who know the truth to judge the news by click the two buttons. If the news is fake or not correct, press disapproval button. Or, press the approval button. Also, our administrators will check the news after released.

For the emergency situation, we let the news flooding to close-by devices from near to far based on the location.

4 Implementation

4.1 General introduction

The whole project is implemented as a three-layer architecture. The first layer is Android application, the second layer is server backend, and the third layer is database. The UI and data are separated with MVC architecture.

Each request is created on Android side and sent to the server side. The server side will handle requests and route them into corresponding controller for further processing. In the controller, all database operations need to invoke the methods encapsulated in the model. When the controller received data from database and finished processing, responses will be sent back to Android application and be displayed on the screen.

4.2 Android application implementation

The android application uses the MVC (Model-View-Controller) architecture.

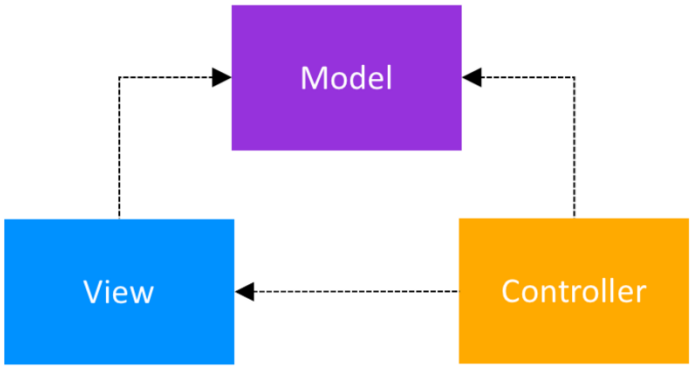


Figure 1 MVC architecture

The views are defined in various of XML files which adapt different devices. In addition, the icon, string and pre-defined resources are stored. The model defines the data structures used in business logic. In this project, there are three models: user, news item and bookmark item. Each of them represents a data structure in database server. The controller controls the App's business logic, for example, log in & out, post news, browse news list, my post list, bookmark list. The controller sends data request via model and represents the data to view. The packages used in android application development are list in following table:

Table 1 Important Android Packages

Package name	Functionality
Okhttp3	A high-performance HTTP request library to send and receive data with server
Retrofit2	A RESTful library to encode and decode RESTful requests with server. It depends on Okhttp3 library
Gson	A json serialization / deserialization library.
Retrofit2-converter-gson	This library converts between POJO and json objects.
PersistentCookieJar	This library can persist cookie into android shared preference folder. It can hold user's credentials in a certain time period to prevent them logging in freqently.

4.3 Server implementation

Figure 2 is the server index structure. MVC architecture is implemented in the project. All components related to the view is stored in the *public* filter.

In the root directory, there are three JavaScript files. *App.js* is the entrance of the project which assigns the invoking order of other functions. *Common.js* specifies all global configurations. *Rest.js* is the component to handle and reassign RESTful requests.

Figure 2 the index structure of server

In the controller, *api.js* is in charge of processing all RESTful API requests. While, *router.js* oversees processing the normal HTTP requests.

In the filter *model*, all files are designed to do the corresponding database access operations except *model.js*. it is design for connecting database.

The *public* filter contains the static files and the libraries for display detailed news pages.

4.4 Database implementation

The database we selected is MongoDB which is a document-based, open-source. According to our user requirements, we designed five collections to store data. They are user, news, comment, bookmark, category. In addition,

we also use “session” collection to persist server sessions. This is configured in server side. Hence in total, we used six collections. As for geography location storage, the coordinates are stored as an array. Also, MongoDB can calculate distance between two locations.

5 Product

5.1 General introductions

NewsMap provides several functions to users including: looking through news by distance and by category, voting for news to show users’ approval and disapproval, making comment to news, saving news as a bookmark and creating news items with and without pictures.

For security and supervision, NewsMap requires users to login for using all functions. The following two figures show the difference with and without login.

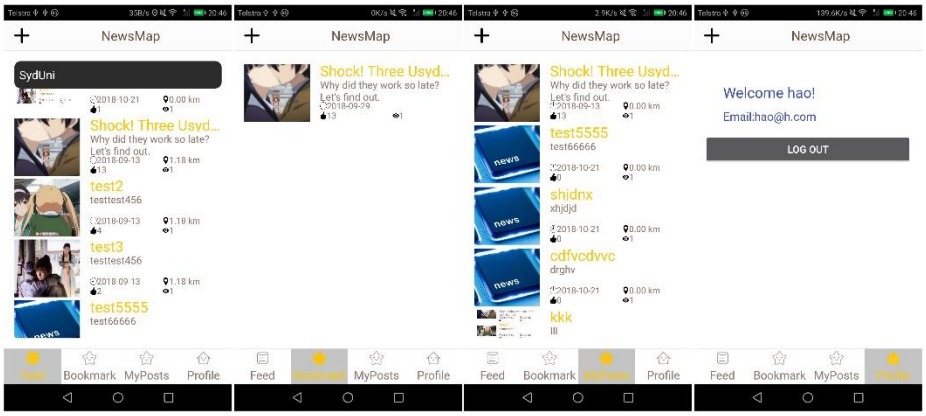


Figure 3 frames with login

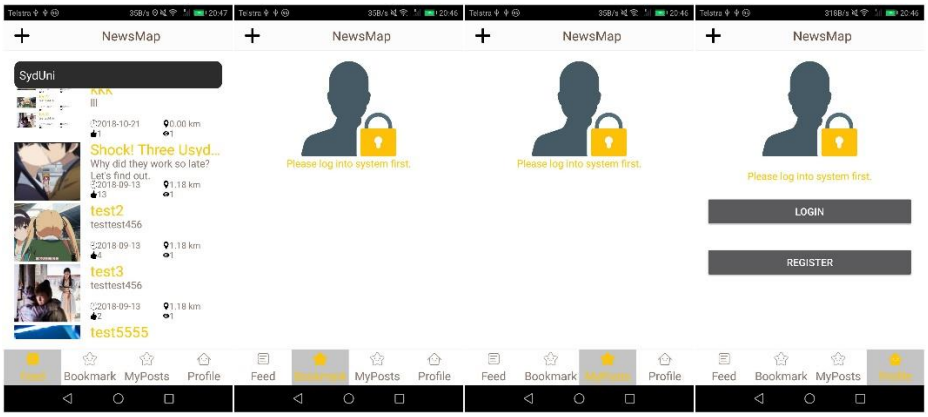


Figure 4 frames without login

The details of all functions will be introduced as follow.

5.2 Functions

5.2.1 Look through news

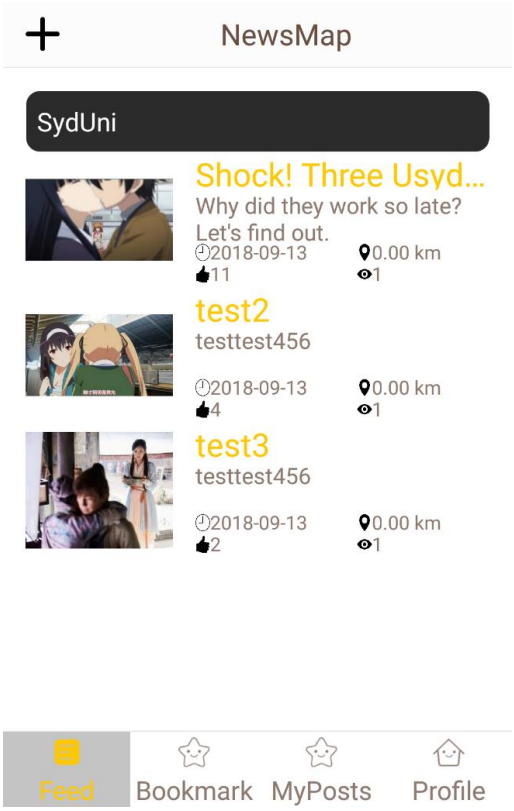


Figure 5 news list frame

When the user entering the NewsMap, the app will get and upload the location of the device automatically. Soon, a list of news ranked by the distance from near to far will be shown on the screen. also, we provide several categories for users to choose, like health, transport and entertainment. As users selected a category using the pull-down list at the top of list, only the news under that category will be shown in the list. In the list, only some of the information will be shown, including title, description, date of creating, page-view numbers, vote and the first picture of the news.

Each news in the list can be clicked for all information about it. NewsMap requires users to login or register before looking all information of a piece of news. If the user doesn't login, the detailed news page won't be shown.

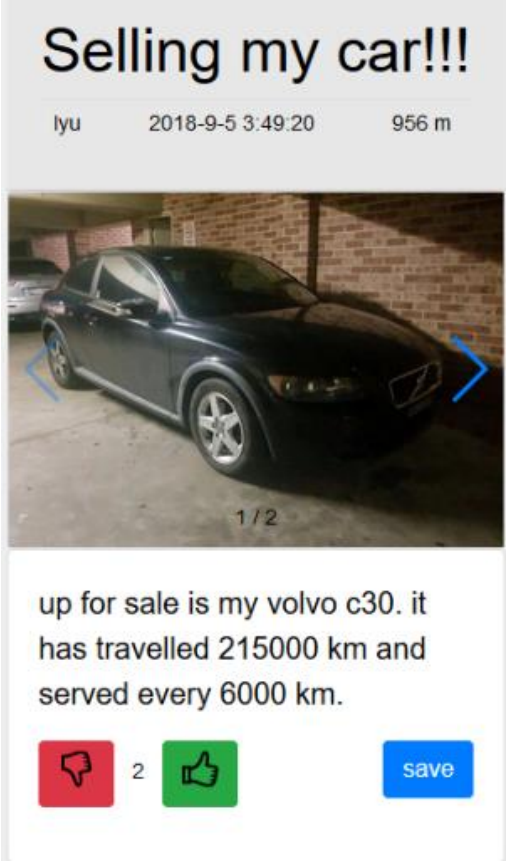


Figure 6 detailed news page

There are 3 sections in the detailed news page, including header section, content section, comment section. Header section of the page shows user the title, author name, date and distance between user and author. The upper side of the content section contains a picture display frame which allows users to look and swipe to change pictures. The lower side is a

text display area for the main content of the news. Figure 6 is the screenshot of header section and content section. There are three functional buttons below content. the left two buttons are designed for voting, which the right one is designed to save news as a bookmark. They are going to be introduced in following parts.

Figure 7 comments section

The comment section shows users all of the comments of this news. Each comment record in the comment list shows the name of reviewer, the date of making this comment and the comment content. Below the comment list, there is an area for editing comment. After editing, just click the button, the latest comments will be displayed in the comment list.

5.2.2 Vote

Voting is a quite important part in our project. It is an indicator to show the reliability of a piece of news. At the moment of creating, the vote number of each news is starting at 0. Each click of green button will add 1 to the voting number, while each click of red button will take away 1 from the voting number. Each user can vote only once in a period time. The voting number will be displayed on the screen to show the attitude of the users who have read this news.

There are two buttons for voting. One is the approval button (green one), the other is disapproval button (red one). If users find this news is fake or not correct or not good for spreading, we encourage them to click the red button to reduce the vote number of this news. If users want more people to see this news, it is a good choice to click the green button.

5.2.3 Comment

At the bottom of the page, there is an input box which allow uses to make some comments. As long as users click the submit button, the latest comment will be displayed on the screen immediately.

5.2.4 Bookmark

The Save button locates in the right of voting buttons. Users can click this button to save this news into their own bookmark list or delete it from the bookmark list.

5.2.5 Create news items

There is a plus at the left top of all frames. With click this button, users can enter the page for creating news.

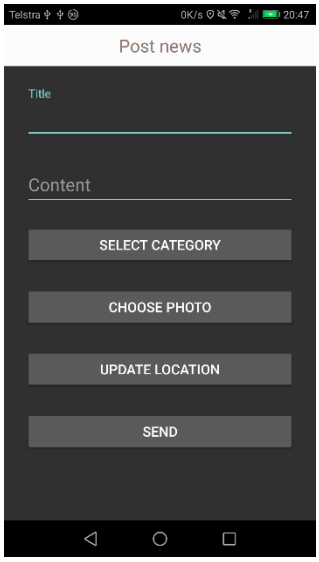


Figure 8 add news page

Users need to input the title and content of the news. After that, users can select a category and choose a photo from the album for uploading.

When users are prepared to upload news, all information will be sent to the server with clicking the send button

5.2.6 Personal profile

Users are required to login and the login entrance is in the profile frame.

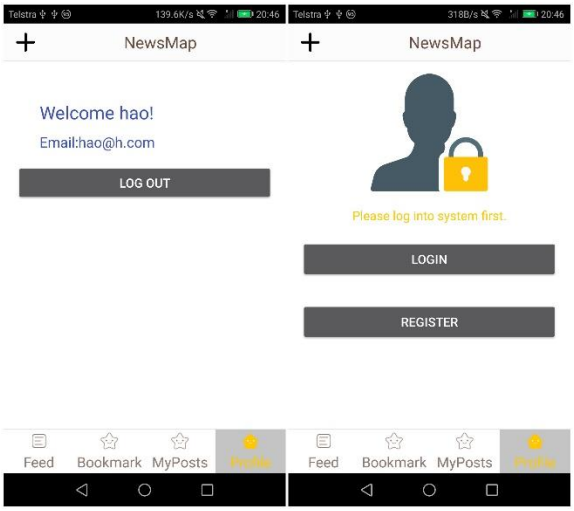


Figure 9 profile frame

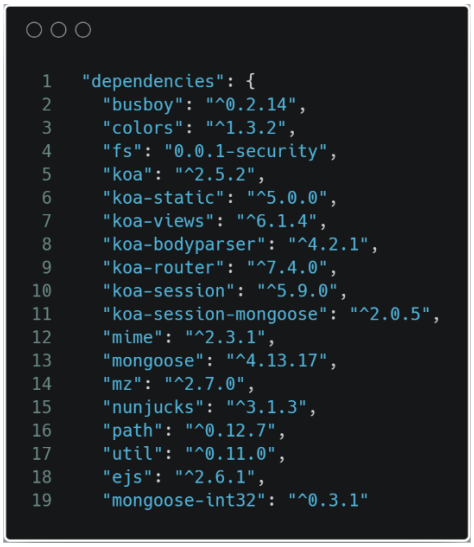
If the user has an account, he/she can login directly. If not, he/she can click the register button to create a new account in NewsMap.

After login, a welcome page will be shown on the screen.

6 Third-party resource

- Android application
  - Okhttp3
  - Retrofit2
  - Gson
  - Retrofit2-converter-gson
  - PersistentCookieJar
- Server

  The Figure 10 is the dependencies of *pachage.json*. besides, we also use some libraries for dynamic effects, like swiper.js and jQeury.js.



```
"dependencies": {
  "busboy": "^0.2.14",
  "colors": "^1.3.2",
  "fs": "0.0.1-security",
  "koa": "^2.5.2",
  "koa-static": "^5.0.0",
  "koa-views": "^6.1.4",
  "koa-bodyparser": "^4.2.1",
  "koa-router": "^7.4.0",
  "koa-session": "^5.9.0",
  "koa-session-mongoose": "^2.0.5",
  "mime": "^2.3.1",
  "mongoose": "^4.13.17",
  "mz": "^2.7.0",
  "nunjucks": "^3.1.3",
  "path": "^0.12.7",
  "util": "^0.11.0",
  "ejs": "^2.6.1",
  "mongoose-int32": "^0.3.1"
```

Figure 10 the dependency in package.json

7 Reflection on preparing presentation

After reading *Oral presentations*. (2018). *The University of Sydney. [1] and Planning an effective presentation — University of Leicester. (2018). [2]*, we have some ideas about making a good presentation.

We choose the bottom-up method to design our presentation. First and the most importance, list what are we going to delivery. When we have some isolated points of the project, we need to reorder them and allocate the time consumption. The important part should take more time for introducing. With the string of points and timetable, we can decide what are we going to talk during the presentation in detail. Naturally, a draft of presentation is generated.

With the draft, the slides for presentation can be made soon. It is unnecessary to includes many words in the slides, several pictures are enough. We are going to tall our project by speaking and with body languages.

After that, we can practice with timing. It is a good way to make sure that we can complete our presentation in time. Also, it can help us to find the potential problems.

8 Reference

[1] Oral presentations. (2018). *The University of Sydney*. Retrieved 21 October 2018, from https://sydney.edu.au/students/oral-presentations.html

[2] Planning an effective presentation — University of Leicester. (2018). Www2.le.ac.uk. Retrieved 21 October 2018, from: https://www2.le.ac.uk/offices/ld/resources/presentations/planning-presentation