

# NFC TRACKER

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## About This Guide

'NFC TRACKER' developed by **HackD Production**, This guide is used to guide the end-user for understanding the concept and usage of this software. Anything you need to know are available in this documentation, installation, usage, functionality, etc.

## Introduction

NFC TRACKER is a useful software for a company to keep track on their on-site worker at all time during working hours. Very convenience to have, cost less than other products available. Not to mention, it's fast installation.

A system that does not use any wiring, bulky gadgets, etc. everything processes in a software level rather than hardware. No scratching head on how to do installation and everything, this system is very simple like a click of a button.

With this end-user documentation, you can get everything you need from the introduction to installation process until the how-to on the usage of system in overall.

## Purpose

Purpose of this system is for mobile worker who mostly works on-site, far away from the office, with this, you can track down where and when they went while they on duty, it's functions is quite the same as the Guard Tour System (GTS), what makes this different is that your company no longer need to get the high cost gadget just to track them down, with this, we use what nowadays every people has, mobile phone.

We use the capability of mobile phone that most people used it for granted, for keeping track on them while they on-site, it's an attendance taking system but instead of using like a punch card machine to doing so, you can replace it with this app. You just required to install the app to the phone of the worker and set up the NFC Tag and you done.

## Installation Process (NFC Tag & Android App)

### ❖ Required Materials

- NFC Tag
- Mobile Phone (Android API 10 and above)

### ❖ NFC Tag

- Any type of NFC tag can be used for implementation.
- Get a better quality NFC Tag if possible, in-hole type is recommended.
- Program the tag as instructed on the next section before installing it on-site.

### ❖ Mobile Phone (Android API 10 and above)

- Android devices need to be API 10 and above (GINGERBREAD & ABOVE)
  - Reason: In order to use this system, the android devices need to have NFC capability.
- NFC Tracker app is not available in the 'Google Play' Store
  - Reason: To restrict from outsider download and installing the app.
- You can get the app from the link provided



- [NFC TRACKER](#) (outsourced download manager)

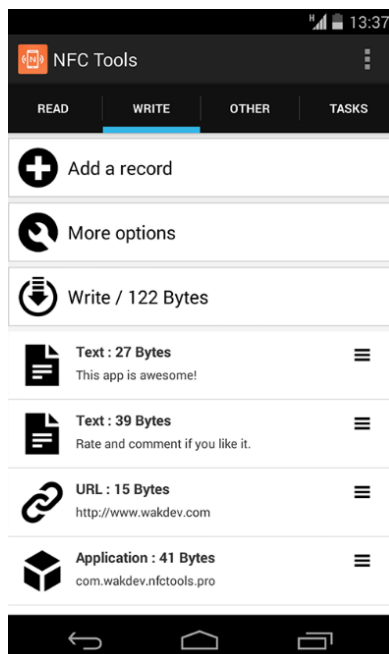
## NFC Tag Installation

### ❖ Tag Installation

- NFC Tag need to be program before installing it on-site
- Program with android mobile phone
  - Program using 'NFC Tools' - [Available here](#) (Google Play)

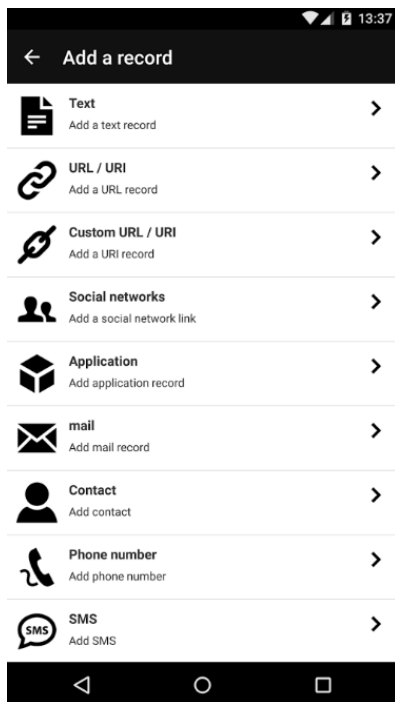


- Once installed, click on the app.

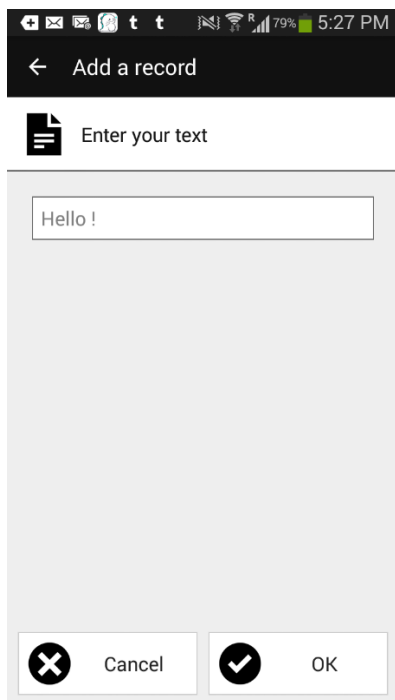


- Make sure NFC is enable, tap on the 'write' tab and to add record tap on the 'Add a record' in the list.

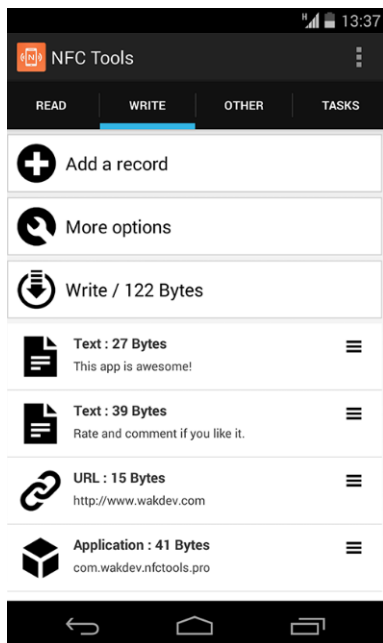




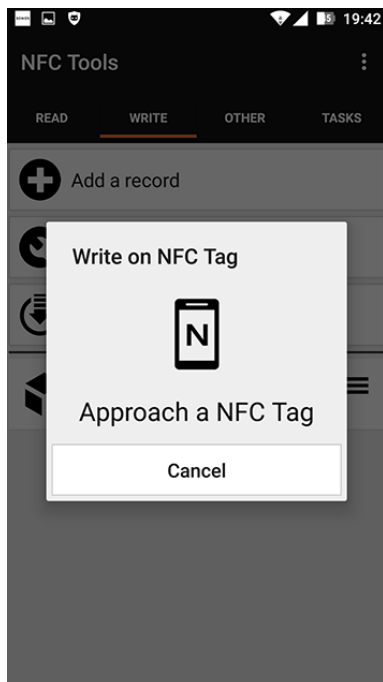
- Choose text to add record in a form of plain text.



- Type in what you want to store inside the tag.

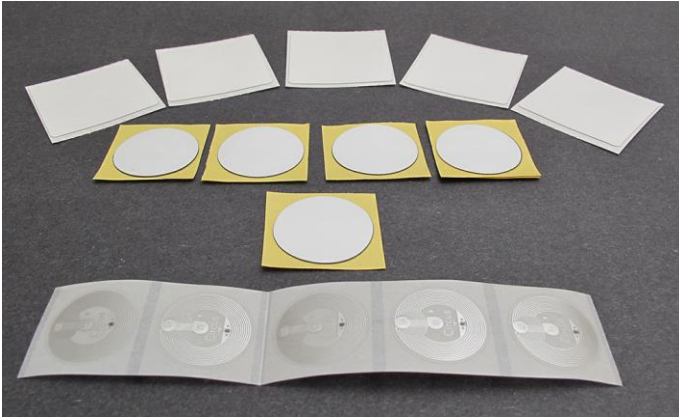


- Tap on 'Write / 122 Bytes'.



- Tap your NFC Tag to complete the writing process (NOTE: Make sure there is only 1 record available under the list, else it will writes multiple data into your tag).
- Once done, you are good to go.

## ❖ On-site Installation

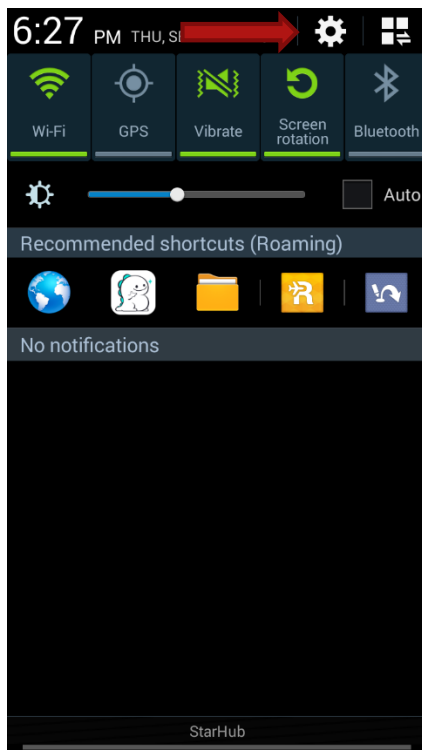


- On-site Installation of NFC tag is up to you, it can be in-hole, keychain, card, or even sticker. (Picture above is only an example).

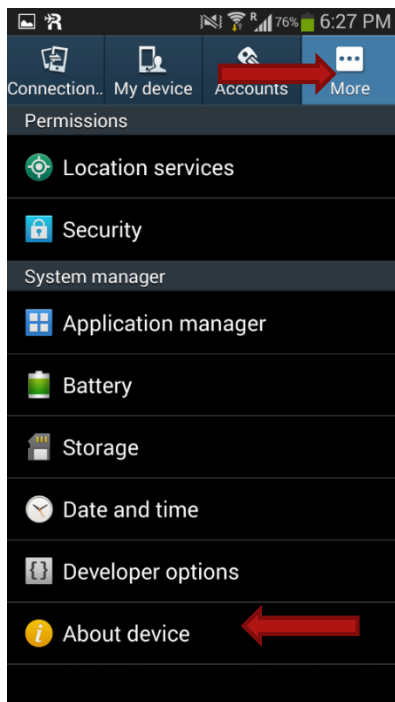
## App Installation

### ❖ NFC TRACKER APP installation procedure

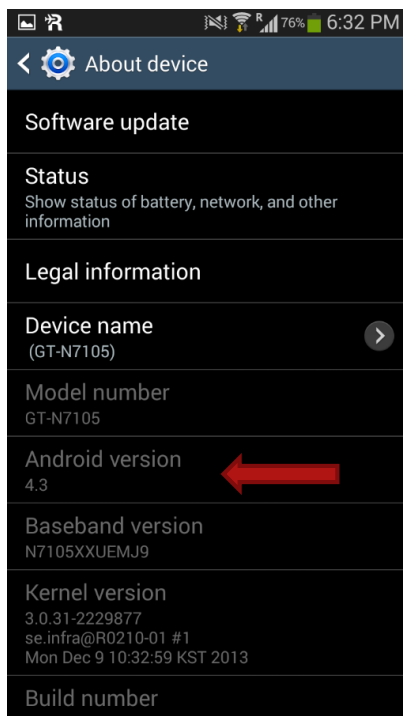
- NFC TRACKER uses 3 permission
  - Internet – for accessing the database
  - NFC – for storing user details, date-time, etc. to the database
  - Read phone contact – for mapping user's mobile devices to 1 account only
- Refer to [Table 3.1](#) for the flow chart of NFC 'TRACKER' app.
- Make sure you have android with API 10 and above (GINGERBREAD & ABOVE)
  - To check whether your android is compatible or not, follow these step (Example used based on Samsung Galaxy Note 2 GT-N7105)



- Go to Setting (Gear icon).



- Tap on 'more' tab -> and tap on 'About device'.

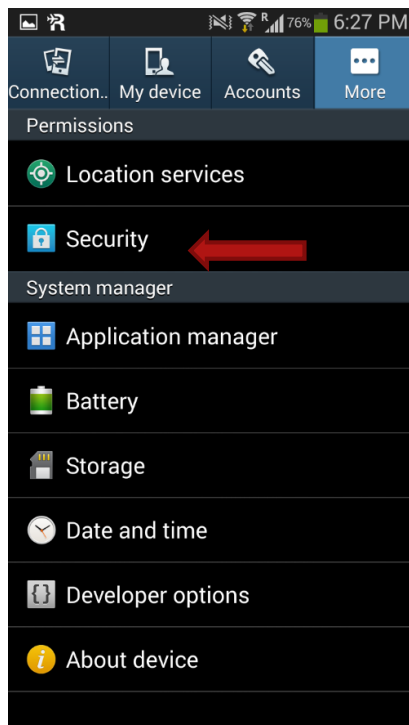


- Under 'Android version' section, it should display number above 2.3.3.
- If it's above '2.3.3', meaning that your android is compatible with the app.

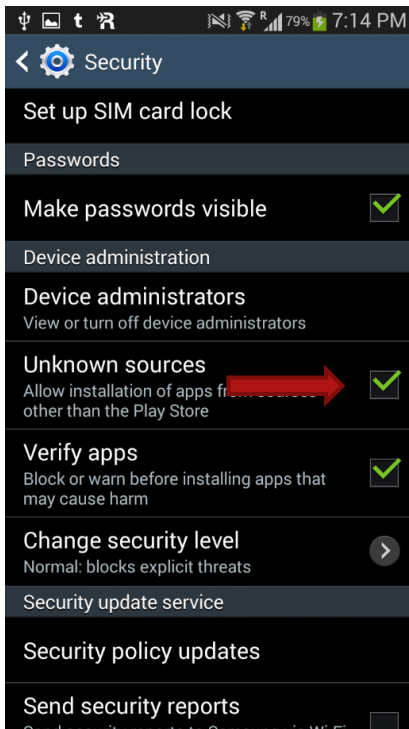
- Reference to Android version

SDK_INT value	BUILD.VERSION_CODES	Human Version Name
1	BASE	Android 1.0 (no codename)
2	BASE_1_1	Android 1.1 Petit Four
3	CUPCAKE	Android 1.5 Cupcake
4	DONUT	Android 1.6 Donut
5	ECLAIR	Android 2.0 Eclair
6	ECLAIR_0_1	Android 2.0.1 Eclair
7	ECLAIR_MR1	Android 2.1 Eclair
8	FROYO	Android 2.2 Froyo
9	GINGERBREAD	Android 2.3 Gingerbread
10	GINGERBREAD_MR1	Android 2.3.3 Gingerbread
11	HONEYCOMB	Android 3.0 Honeycomb
12	HONEYCOMB_MR1	Android 3.1 Honeycomb
13	HONEYCOMB_MR2	Android 3.2 Honeycomb
14	ICE_CREAM_SANDWICH	Android 4.0 Ice Cream Sandwich
15	ICE_CREAM_SANDWICH_MR1	Android 4.0.3 Ice Cream Sandwich
16	JELLY_BEAN	Android 4.1 Jellybean
17	JELLY_BEAN_MR1	Android 4.2 Jellybean
18	JELLY_BEAN_MR2	Android 4.3 Jellybean
19	KITKAT	Android 4.4 KitKat
20	KITKAT_WATCH	Android 4.4 KitKat Watch
21	LOLLIPOP	Android 5.0 Lollipop
22	LOLLIPOP_MR1	Android 5.1 Lollipop
23	M	Android 6.0 Marshmallow
24	N	Android 7.0 Nougat
10000	CUR_DEVELOPMENT	Current Development Build

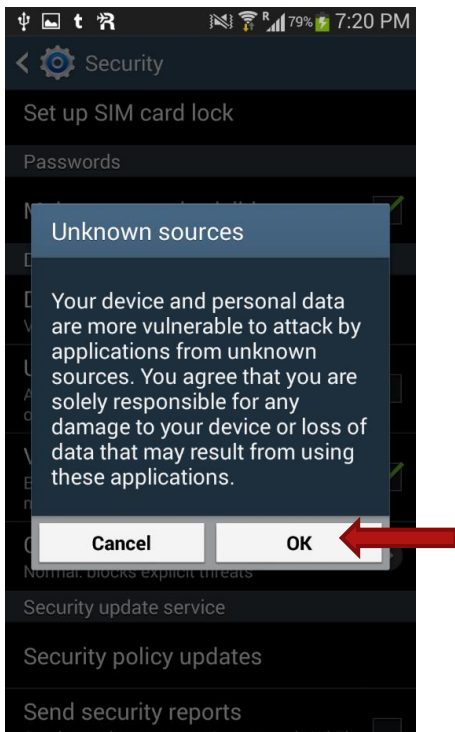
- Since this app does not published to the Google Play store, you need to allow installation of apps from sources other than the Play Store.
  - Follow these steps enable it.



- Go to 'Setting' and tap on 'Security'



- Scroll down under Device administration, and check the box on 'Unknown sources'.



- This warning might appear when you checked the box, just tap 'OK' to proceed.

- Now you can proceed to install the app from the link below

Click Logo to Download





## Web Application

### ❖ Introduction

- Web Application are only available to the 'Admin' and 'Officer', provide both admin and officer to manage their worker and update the database when necessary.

### ❖ Usage

- This web is used to display worker's daily activities and also able to track down their latest location.
- All important usage such as view worker date-time on real-time in any browser, check for any untapped tag(s) with table view, easy date selection with a dynamic calendar which shows which date the worker has tapped and lastly, fast and easy filtering on table view for easy identifying individual officer's worker on duty.

## Web View

Welcome officer

This is Officer account

Navigation

Create New Account

Reset User

Logout

Calendar

<	September, 2016						>
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
				1	2	3	
4	5	6	7	8	9	10	
11	12	13	14	15	16	17	
18	19	20	21	22	23	24	
25	26	27	28	29	30		

Today's date:

2016-09-08

To view specific company, Please Select Company ▾

To view specific officer, Please Select Officer ▾

OK

Block	co	user	datetime	co	user	datetime	co	user	datetime	co	user	datetime
111												
112												
113												
114												
115												
116												
117												
118												
119												
120												
121												
122												
123												
124												
125												
126												
127												
128												

❖ Dashboard

## Registration

Select Company CV ▾

Select Account Type Worker ▾

Register

Return to [dashboard](#)

❖ Registration

## Reset User

Please Select User and Company

User ▼

Co ▼

Reset

**return to [dashboard](#)**

❖ Reset User

## Update Database

**Update Block**

**Update Officer Name**

**return to [dashboard](#)**

❖ Update Database

# Update Officer

Please Select Officer and Company

User ▼

Co ▼

Please type in Officer name and/or select company

Officer name

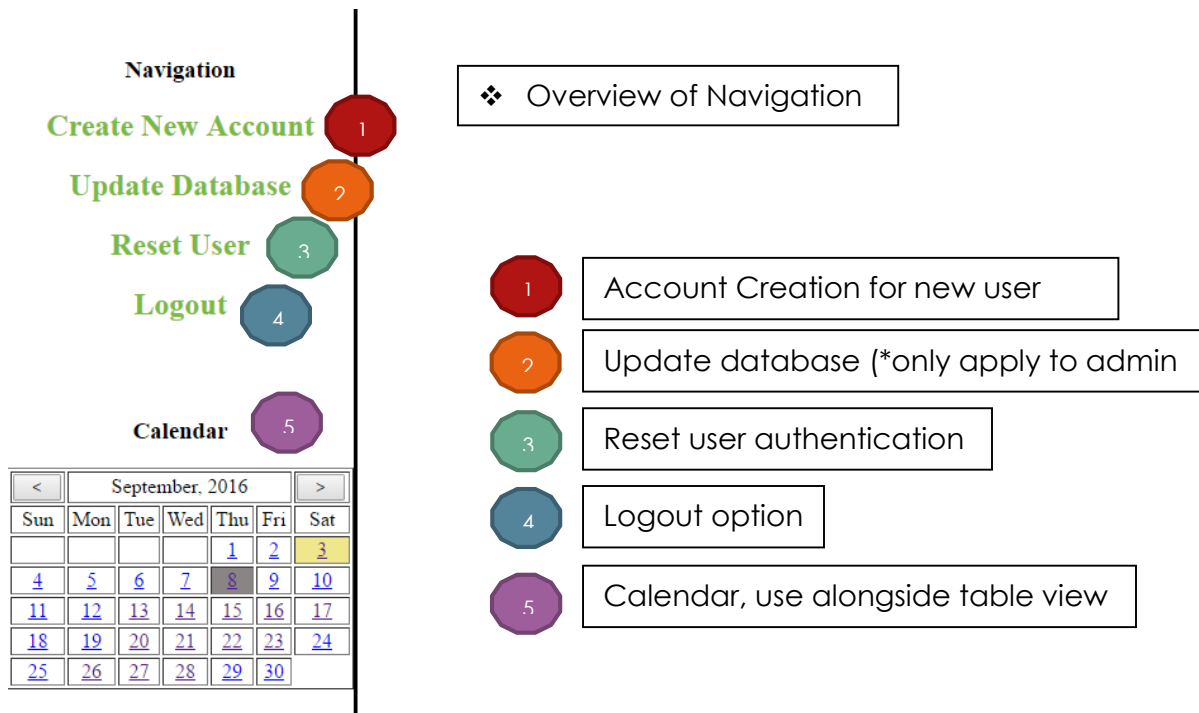
Co ▼

Add Update






**return to dashboard**

❖ Update Officer

## Navigation



Detailed explanation of every components

-  Use for creating new worker's account to be use with NFC Tracker app. Only officer and admin are able to create a user for them.
-  User will be able to update the database, capable of adding and updating data such as block, officer, worker, etc. (apply only to admin)
-  User will be able to reset worker's authentication. (Use usually when the user change their mobile devices)
-  Simply explain as a logout function, to end the current session when not in use.
-  Calendar use alongside table view for viewing user details such as which block, company, name and date-time the worker tap to.

# Registration

Username



Password



Select Company CV ▾



Select Account Type Worker ▾



Register



Return to **dashboard**



Username field



Password field



Company selection menu



Account type selection menu




Submission button



Return link to dashboard

## Registration


Select Company  

Select Account Type

[Return to dashboard](#)

## Registration

Select Company

Select Account Type  

[Return to dashboard](#)



On creation, officer able to set the user's company as shown above.



On creation, officer able to set the user's account type as shown above. (NOTE: only admin are able to set 'officer' as account type)

## Update Database (\*only apply to Admin\*)

### Block Update

Please Select Block to to update

Block ▾



Please type in Block no. and/or address to add



New block no.



New block address



Add

Update



return to **dashboard**

### Block Update

Please Select Block to to update

Block ▾



Please type in Block no. and/or address to add

New block no.

New block address

Add

Update

return to **dashboard**



Block Selection



Select block from the list that has already been added into database for updating.



Type in new block no. for adding into database.



Type in block address for adding into database.



Add Button for new block submission.



Update button for updating the selected block no.



## Update Officer Name


### Update Officer

Please Select Officer and Company





Please type in Officer name and/or select company





return to **dashboard**



Officer name selection



Company Selection



Type in officer name in the field



Company selection for  
adding/updating officer account.

## Update Officer

Please Select Officer and Company

Please type in Officer name and/or select company

User ▼  
User  
Adam  
John  
Micheal

Officer name

Co ▼

Add Update

return to **dashboard**

## Update Officer

Please Select Officer and Company

Please type in Officer name and/or select company

User ▼

Co ▼  
Co  
CV  
MC

Officer name

Co ▼

Add Update

return to **dashboard**

1

Select officer's name from the list in the database.

2

Select the company of the officer from the database.

# Reset User

Please Select User and Company

User ▼

1

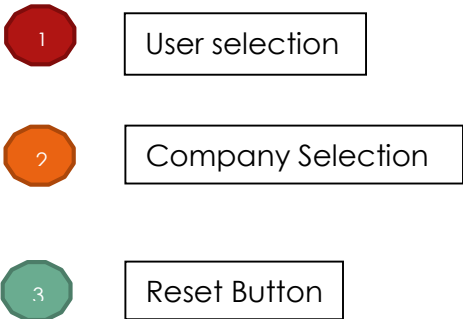
Co ▼

2

Reset

3

return to **dashboard**



## Reset User

Please Select User and Company

User ▼  
User  
Adam  
John  
Micheal



return to **dashboard**

## Reset User

Please Select User and Company

User ▼

Co ▼  
Co  
CV  
MC



return to **dashboard**



Select user to reset in the list from the database.



Select company to assign to user from the list in the database.

Logout

Reset User

1 Logout



Safely logout when not in use  
to end the current session.

## Calendar

### Calendar

<	September, 2016						>
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
				<u>1</u>	<u>2</u>	<u>3</u>	1
<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	
<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	2
<u>18</u>	<u>19</u>	<u>20</u>	<u>21</u>	<u>22</u>	<u>23</u>	<u>24</u>	
<u>25</u>	<u>26</u>	<u>27</u>	<u>28</u>	<u>29</u>	<u>30</u>		

1

With event available, it will be highlighted with color coding named Khaki



2

With today's date, it will be highlighted with color coding named Grey



## Table View

To view specific company, Please Select

To view specific officer, Please Select

Date: 2016-08-30, Co: ?, Oic: YBH

Block	co	user	datetime	co	user	datetime	co	user	datetime	co	user	datetime	co	user	datetime
111															
112	MC	worker1	2016-08-30 20:09:51	CV	worker1	2016-08-30 20:09:51	CV	worker1	2016-08-30 20:09:51	MC	worker1	2016-08-30 20:09:51	MC	worker1	2016-08-30 12:53:34
113															
114															
115															
116	CV	worker1	2016-08-30 20:09:51												
117															
118															
119															
120															
321															
322															
323															
324															
325															
326															
327															
328															



Select company to view from the list in the database.



Select officer name to view from the list in the database.



Ok button for filtering the table view



Information about what is beina filtered



Worker's on-site detailed information displayed.



List of block no. displayed from the database.

## Android App



- ❖ NFC TRACKER, an app use by the on-site worker to track down their location and time when they reach the site.

## Requirement

- ❖ *Android Version: 2.3.3 & above.*
- ❖ *NFC Enabled devices.*



## Functionality

- ❖ Uses NFC services of the mobile devices to tap on the NFC Tag as like taking their attendance when on-site so their respective officer are able to monitor every workers to prevent from lazy workers who like to escape from doing work.

## Advantages

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1. *Easy monitoring system.*
  2. *Restrict user login duplication.*
  3. *Easy navigation.*
  4. *Easy to use.*
- 

## Disadvantages

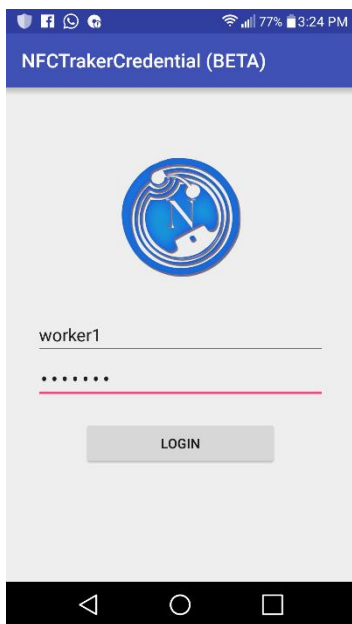
---

1. *Unavailable in Google Play Store.*
  2. *Difficult to update*
-

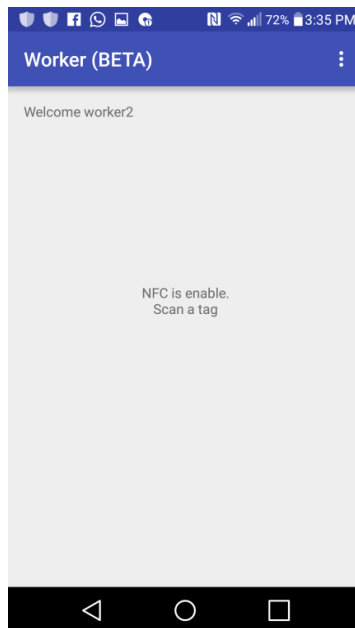
## Usage

- ❖ With NFC enabled, user can tap on the tag 1 times/per for a single company in the same location. Meaning only 1 person from the same company can tap once on the same tag, this to prevent from multiple entry to the database.

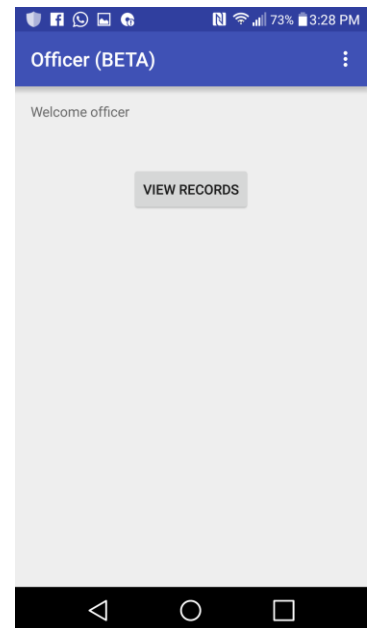
## Activities



❖ Login Screen

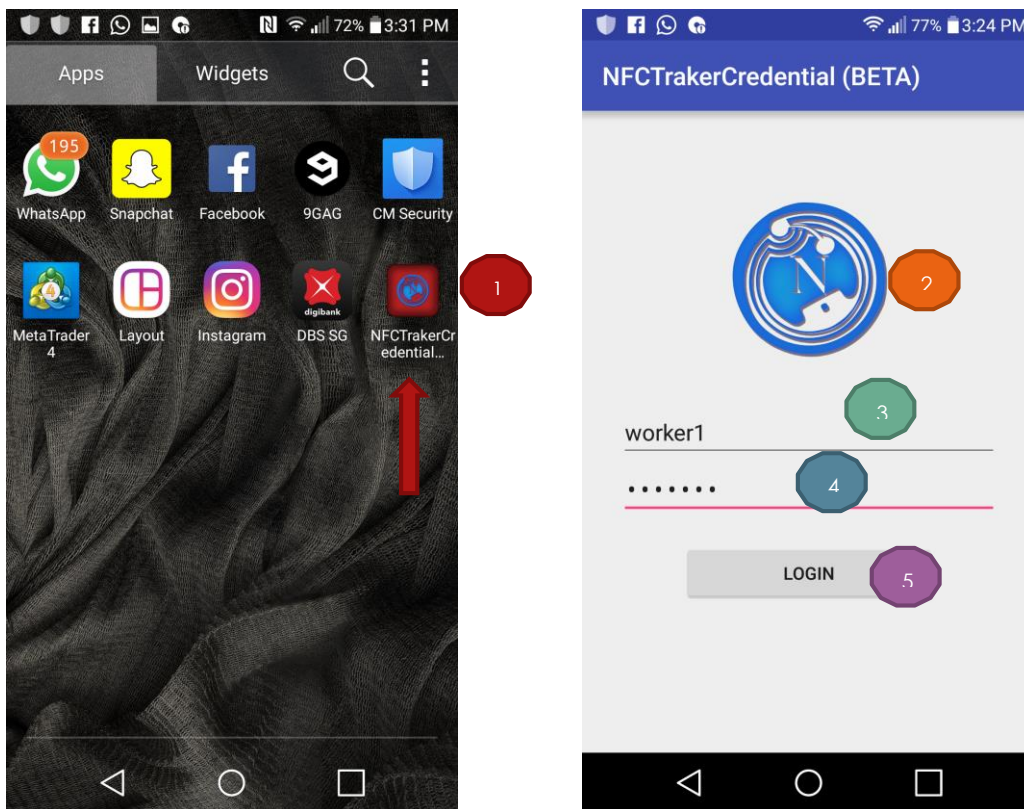






❖ Worker's UI



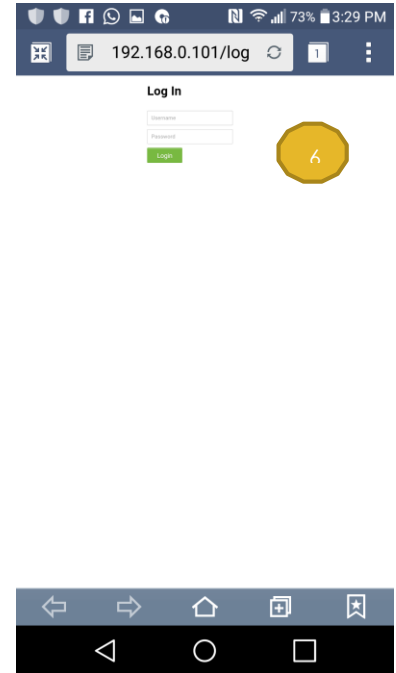
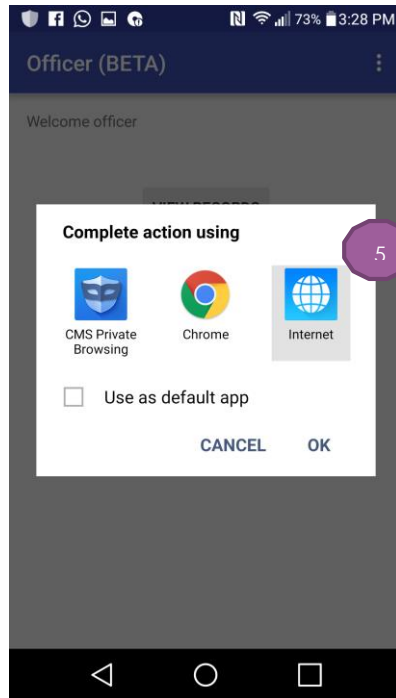
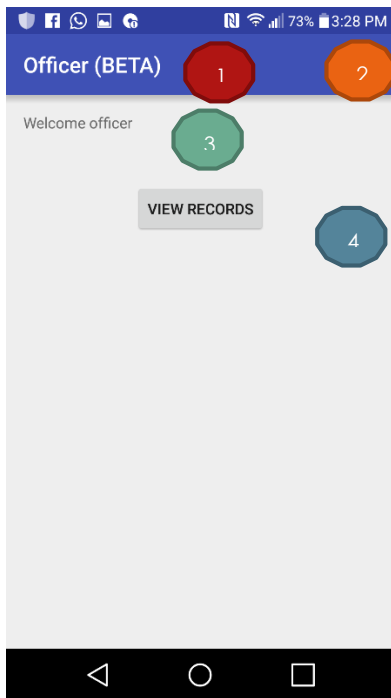
❖ Officer's & Admin's UI

## Login Screen



-  App Logo
-  App's login logo
-  Username field
-  Password field
-  Login button

## Admin & Officer Activity



App's label for identifying user which activity is running.



Option menu, use for logging out and other features available in future.



Welcome message for the current user.



Button for viewing worker's records using internet browser.



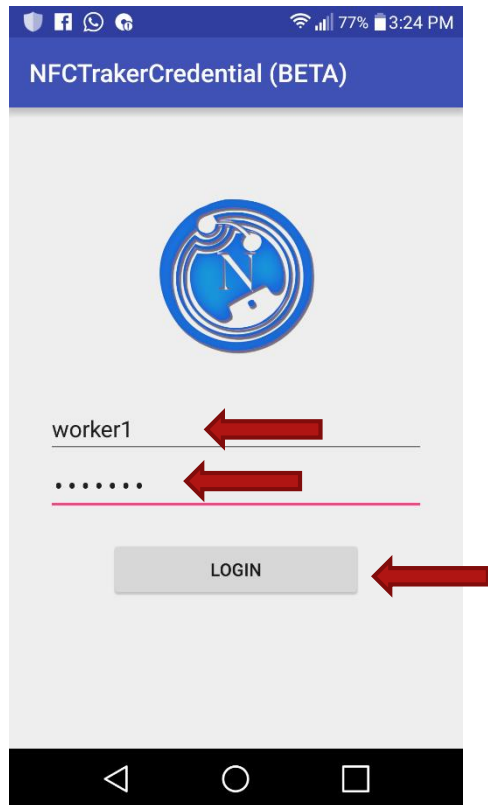
Upon tapping on 'VIEW RECORDS' button, browser selection option is displayed, select any browser will do.



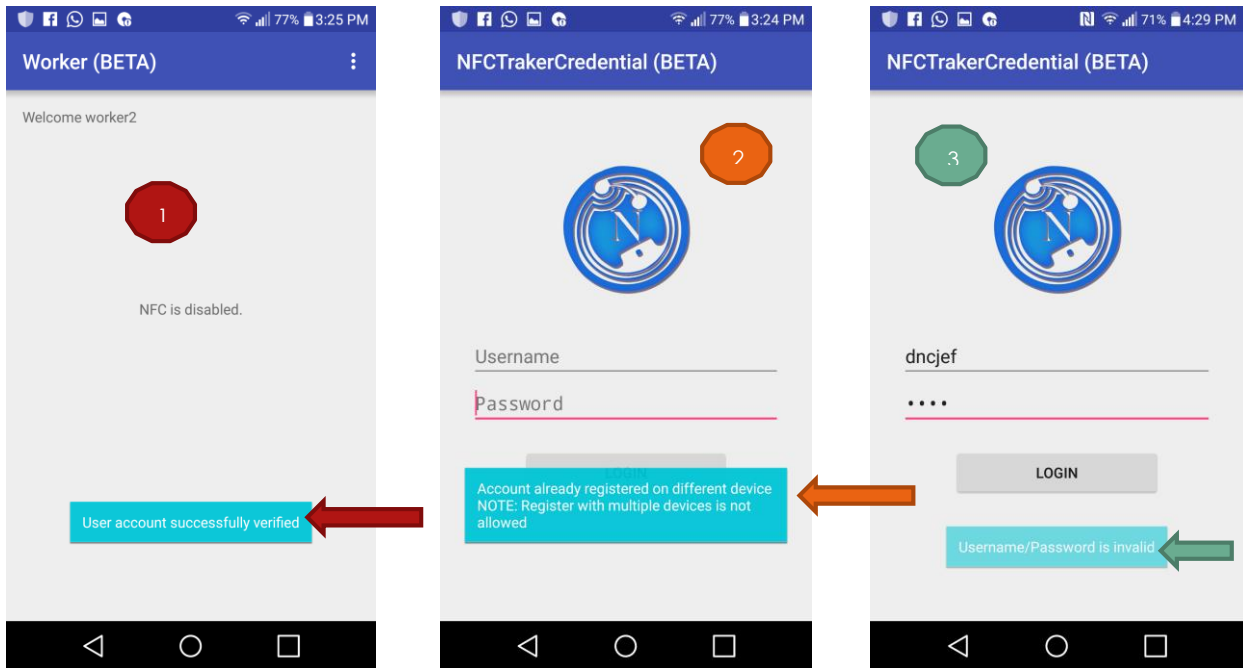
You are required to re-login to be able to view the records.

## Worker Activity

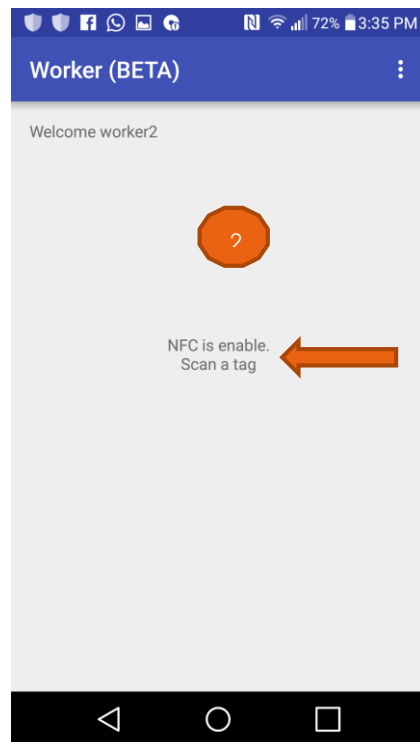
- ❖ Follow these steps to login properly without having any issues in the future.





- Type in the username and password in the field and tap on login to proceed.

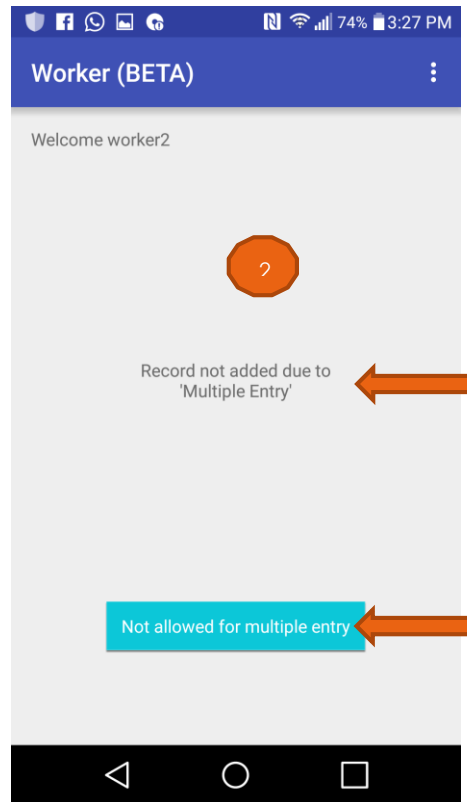
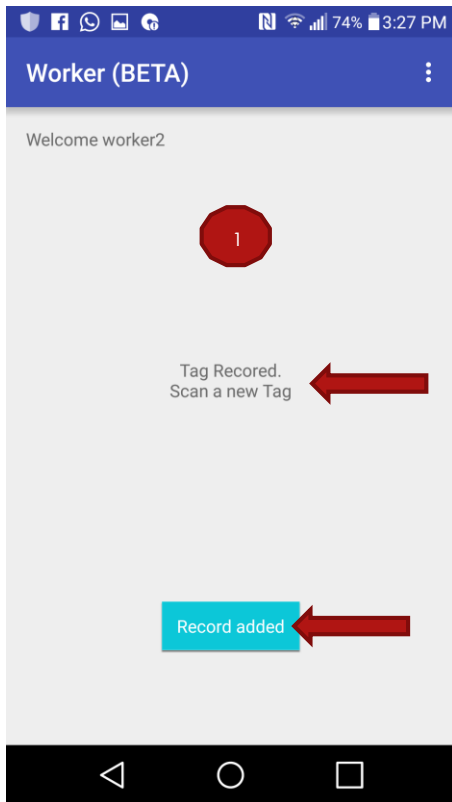




- Once logged in, a pop-up message will appear like in the **1** image, it means that this is the first time the user has logged in on the device.
- If the pop-up message shows like in the **2** image, means that the user you trying to log in has already been authenticate with other devices.
- If you unable to log in to your own account, please seek help from your officer or admin to reset your account.
- If pop-up shown in the **3** image, means the user is not registered, please request to your officer or admin to create for you an account.



- If your display shown in the  image, means your NFC is disable, so please enable your NFC in order to use the app.
- If your display shown in the  image, means you has already enable your NFC, you can start using the app as per normal.

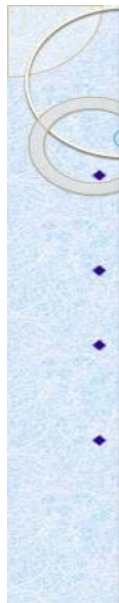




- Once you tapped on the NFC Tag, if the display shown in the  image, means it's record has successfully added to the database.
- If you tap on the NFC Tag and it shown like the  image, means other user from the same company as you has already tapped on the same tag on the same day.


## Appendices

What is NFC? (Table 1.1)



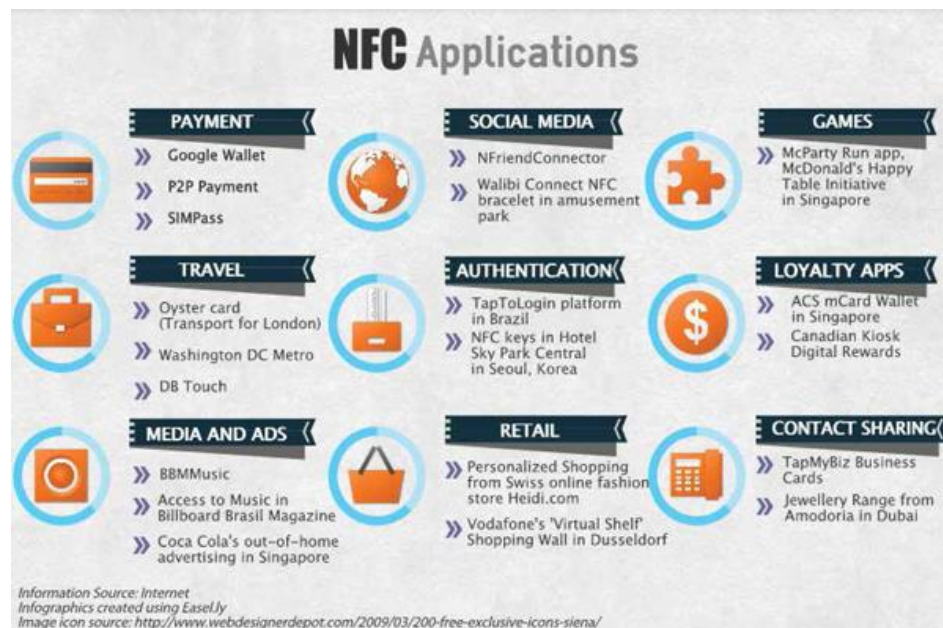
### What Is NFC ?

- ◆ NFC or **Near Field Communication** is a short range high frequency wireless communication technology.
- ◆ NFC is mainly aimed for **mobile** or **handheld devices**.
- ◆ A **radio communication** is established by touching the two phones or keeping them in a proximity of a few centimeters (up to **10 cm**) .
- ◆ It allows for simplified transactions, data exchange, and wireless connections between two devices.
  - ◆ Allows communication between
    - Two powered (**active**) devices
    - Powered and non self-powered (**passive**) devices

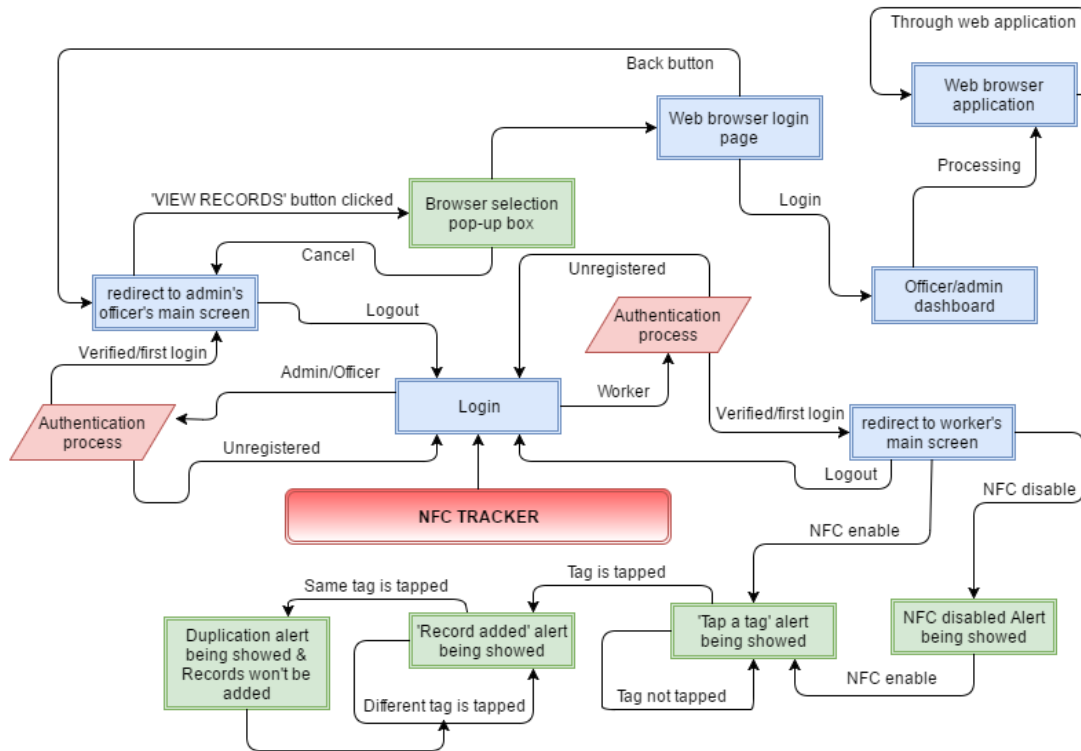


NFC trademark logo

NFC Applications (Table 2.1)



Flow Chart of 'NFC TRACKER' app system (**Table 3.1**)



Android Version Reference (**Table 4.1**)

SDK_INT value	Build.VERSION_CODES	Human Version Name
1	BASE	Android 1.0 (no codename)
2	BASE_1_1	Android 1.1 Petit Four
3	CUPCAKE	Android 1.5 Cupcake
4	DONUT	Android 1.6 Donut
5	ECLAIR	Android 2.0 Eclair
6	ECLAIR_0_1	Android 2.0.1 Eclair
7	ECLAIR_MR1	Android 2.1 Eclair
8	FROYO	Android 2.2 Froyo
9	GINGERBREAD	Android 2.3 Gingerbread
10	GINGERBREAD_MR1	Android 2.3.3 Gingerbread
11	HONEYCOMB	Android 3.0 Honeycomb
12	HONEYCOMB_MR1	Android 3.1 Honeycomb
13	HONEYCOMB_MR2	Android 3.2 Honeycomb
14	ICE_CREAM_SANDWICH	Android 4.0 Ice Cream Sandwich
15	ICE_CREAM_SANDWICH_MR1	Android 4.0.3 Ice Cream Sandwich
16	JELLY_BEAN	Android 4.1 Jellybean
17	JELLY_BEAN_MR1	Android 4.2 Jellybean
18	JELLY_BEAN_MR2	Android 4.3 Jellybean
19	KITKAT	Android 4.4 KitKat
20	KITKAT_WATCH	Android 4.4 KitKat Watch
21	LOLLIPOP	Android 5.0 Lollipop
22	LOLLIPOP_MR1	Android 5.1 Lollipop
23	M	Android 6.0 Marshmallow
24	N	Android 7.0 Nougat
10000	CUR_DEVELOPMENT	Current Development Build

## References (External Resources)

- ❖ NFC Tools (Logo & related images)
  - <https://play.google.com/store/apps/details?id=com.wakdev.wdnfc>
- ❖ What is NFC? (Image (Table 1.1 – references section))
  - <http://www.slideshare.net/akshatrohatgi/nfc-technical-presentation>
- ❖ NFC Applications (Image (Table 2.1 – references section))
  - <http://uxpamagazine.org/near-field-communications/>
- ❖ Flow Chart of 'NFC TRACKER' app system (Table 3.1 – references section))
  - Flow Chart created by HackD Production using online flowchart creation tool
    - <https://www.draw.io/>
- ❖ Android Version Reference (Image (Table 4.1 – references section))
  - <http://stackoverflow.com/questions/3993924/get-android-api-level-of-phone-currently-running-my-application>