User Manual

Version V1.0-20181224

User Manual
For Tersus TC20 Controller

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Revision History

Version	Revision Date	Change summary
1.0	20181224	Initial Release

1. Introduction

This chapter mainly introduces the overview and specification of the Tersus TC20 Controller.

1.1 Overview

The Tersus TC20 Controller is a rugged smart phone with design of 4.3" touch screen and an alphanumerical keypad. Equipped with powerful processor, it is perfect to adapt with Tersus Survey software. With professional IP67 rating, it is robust and reliable for harsh operating conditions.

Figure 1.1 The overlook of TC20 Controller – Yellow

Figure 1.2 The overlook of TC20 Controller – Red

1.2 Specification

Table 1 TC20 technical specification

System	
Operating System	Android 6.0
CPU	MTK MT6735 Quad-Core 1.3GHz
Memory	2GB RAM + 16GB ROM
External Flash	T-Flash , up to 64GB
Keypad Backlight	White
LCD	4.3"
Touch Screen	Capacitive Touch Screen
Camera	8M pixel, Auto Focus
Flash Light	High light Flash LED
Language	47 languages including Chinese, English, Filipino, French, Italian, Japanese, Korean, Malay, Portuguese, Romanian, Russian, Spanish, Turkish, etc.
GNSS	
Signals supported	A-GPS
Communication	
Wi-Fi	IEEE 802.11b/g/n
Cellular Mode	Dual SIM Dual Standby
SIM1 & SIM2	FDD-LTE 2500MHz to 2570MHz TDD-LTE 2555MHz to 2655MHz WCDMA 850 / 1900 MHz GSM 850 / 1900MHz
Bluetooth	V4.1
USB	Micro USB for charging and data (OTG)
Audio Jack	3.5mm Audio Jack for Audio
NFC	Standard
Sensors	G-Sensor, Compass, Barometer, Light-Sensor, Gyro
Electrical	
Power	5V DC, 1.0A
Battery	6500 mAh
Battery Life	10 hours call, 720 hours standby
Charging Time	4.5 hours (5V 2A input), 8 hours (5V 1A input)
Physical	
Dustproof & Waterproof	IP-67
Shock	0.8m drop onto concrete
Dimension	210mmx87mmx31mm
Weight	495g (include battery)
Operating Temperature	-30 ℃ ~ +55 ℃
Storage Temperature	-30 ℃ ~ +65 ℃

2. General Operation

This chapter introduces how to use Tersus TC20 Controller.

2.1 Starting to use TC20 Controller

Power on: Press and hold the power button for 3 seconds

Power off: Press and hold the power button for 3 seconds, select 'power off' in the menu option.

Figure 2.1 Four sides of TC20 controller

Menu Key: Select to show the available menu in current screen.

Home Key: Return to home screen. To view recent application, press and hold the home key.

Back Key: Return to previous screen.

Volume Key: Adjust the volume of the ringtone.

Reset Key: Shut down the phone when phone is abnormal.

Camera key: Short press to enter camera in home screen. Long press the key to open torch

2.2 Insert the SIM card and T-Flash card

1. **Remove the back cover**: Loosen the screws on the back side – to rotate the screws anti-clockwise until open the bake cover as shown in Figure 2.2.

Figure 2.2 Remove the back cover

2. **Take off the back cover**: Remove the back cover by lifting it up from the bottom part as shown in Figure 2.3.

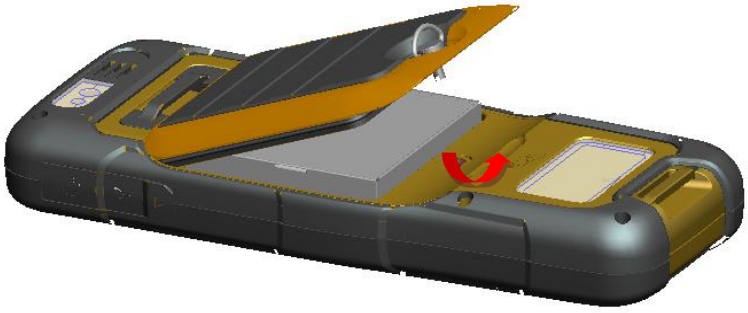

Figure 2.3 Take off the back cover

3. **Put the SIM Card in the holder**: Put the SIM card into the slot touching the SIM contacts of the phone as shown in Figure 2.4.

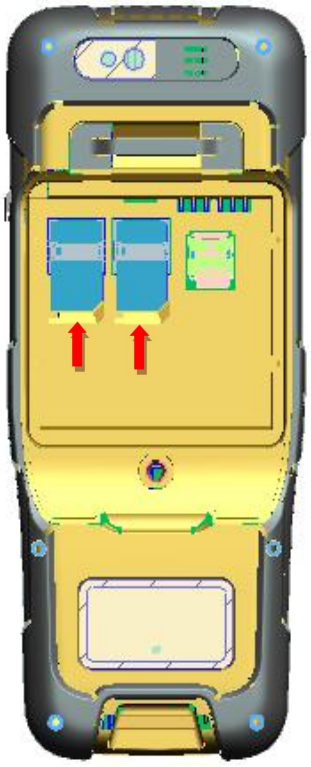

Figure 2.4 Put the SIM card in the holder

4. **Insert T-Flash card**: Open T-Flash card holder and insert T-Flash card into the slot, then close T-Flash card holder as shown in Figure 2.5.

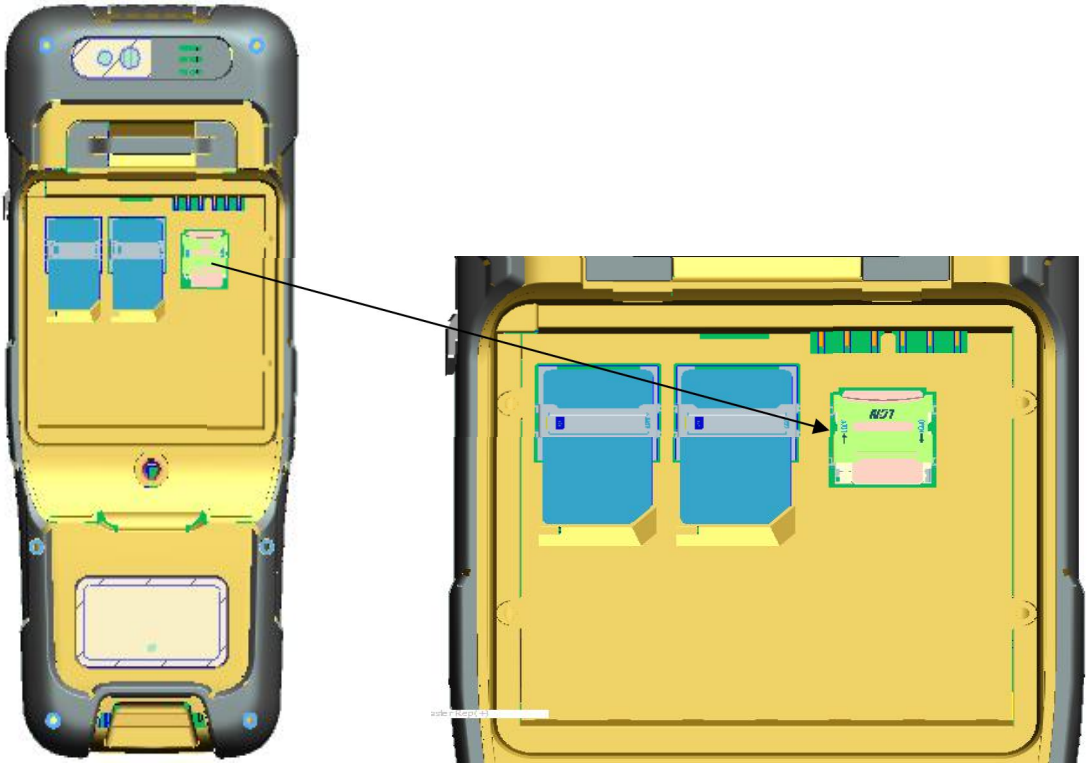

Figure 2.5 Insert T-Flash card

5. **Insert the back cover**: Insert the back cover and rotate screws clockwise to lock the back cover as shown in Figure 2.6.

Figure 2.6 Insert the back cover

Note: Please power off the phone before plug in or pull out the SIM card.

2.3 T-Flash card

1. Connect USB, turn on USB storage.
   It automatically pops up USB connected interface after connecting USB, and then click Turn on USB storage to use the T-Flash as USB storage.

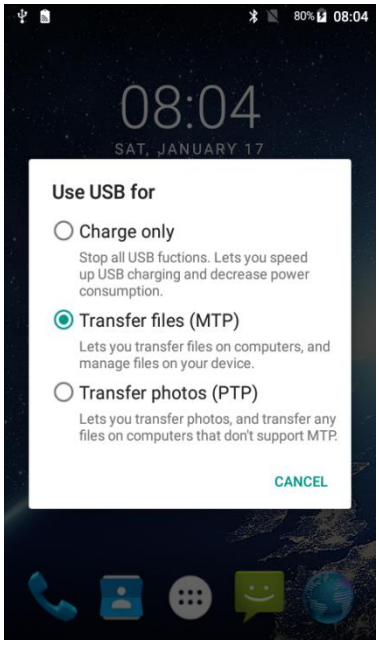

Figure 2.7 Select USB function

2.4 Using of Touch Screen

Single Click: To select an icon. For example, click dial to open the keypad which will be displayed on the screen.

Double Click: To zoom-in or zoom-out. For example, to zoom-in or out of a photo, click twice when viewing a photo or browsing on the internet.

Hold: Click and hold the screen, icon or input box to get more operation options.

1） Long-Time Click a picture in the gallery list interface, the status bar prompts to select a picture, you select to share or delete.

2） Long-Time Click the blanks of home screen to add home screen shortcut.

3） Long-Time Click the blanks of home screen wallpaper sources can be selected.

Drag the screen: You can drag the screen to view more applications which are not displayed in one screen.

Scratch the screen: A screen of information cannot be displayed scratch scrolling display hidden information.

2.5 Home Screen operations

You can use various functions of the phone screen through the touch screen. Click the icons to

open the applications. View all applications by clicking an application tab.

The phone has a default screen. You can add multiple screens. After adding multiple screens, about scratching the screen to switch the screen between each other, and at any point of a long blank screen to add widgets, wallpaper settings, enter the settings.

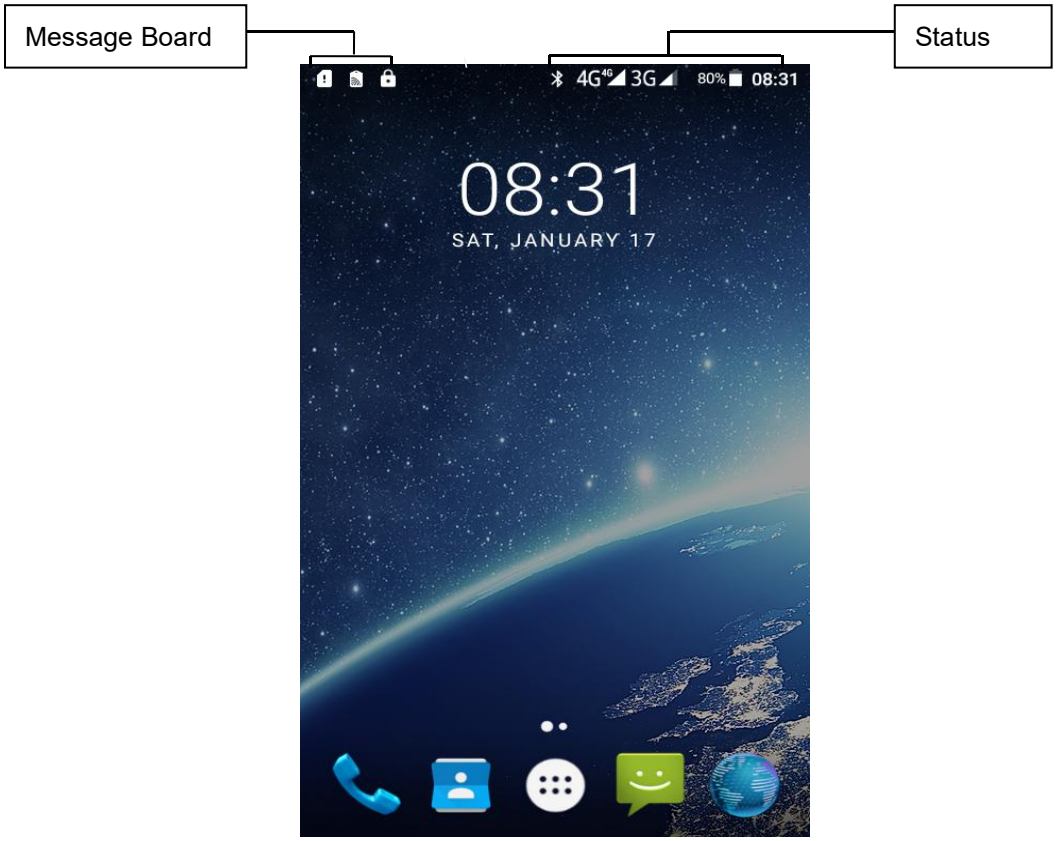

Figure 2.8 Home screen

◆ **Create shortcuts and widgets**

Click the main screen and then Pop-up list of application. Hold and click the application icon which you want to add a shortcut. Interface blue transparent box will pop up analog screen area. Drag the application icon to the area you want to place, release the hand that add. To add widgets the same way as add a shortcut. Applications and widgets interface switching mode, you can click application and widget or slide the screen. As shown the following figure:

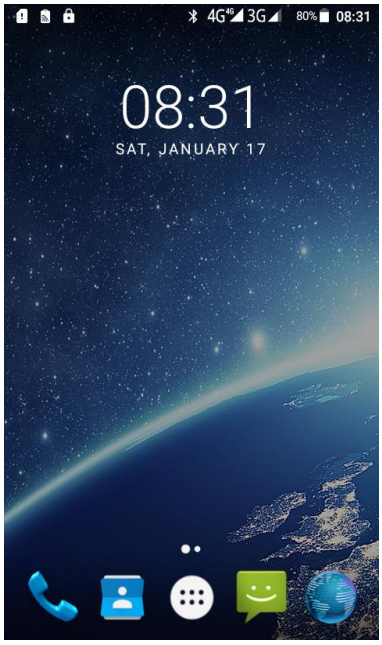

Figure 2.9 Main screen

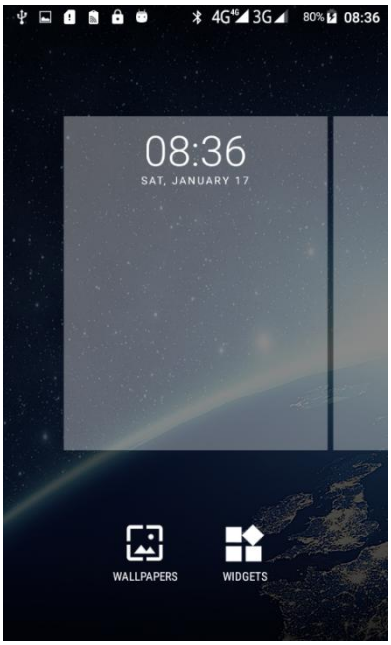

Figure 2.10 List of applications

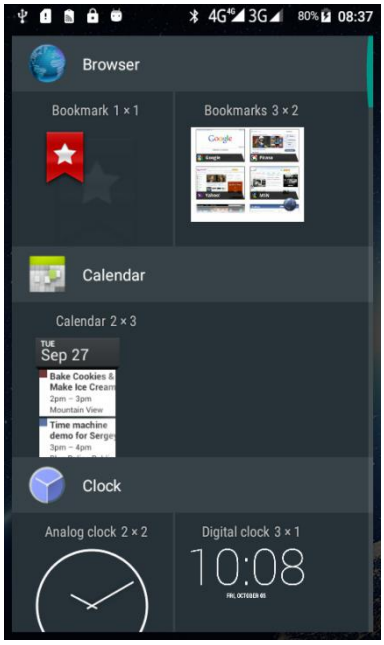

Figure 2.11 Choose the application to be dragged

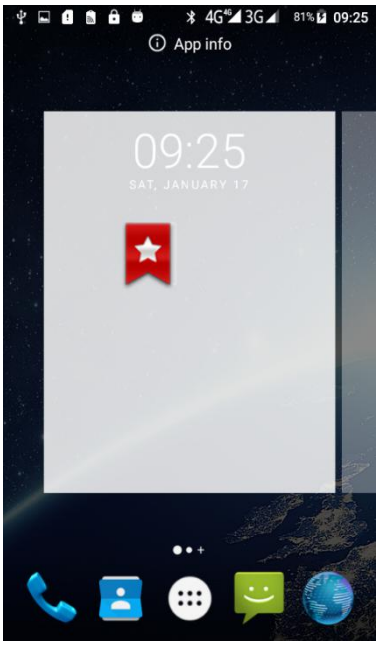

Figure 2.12 Drag the icon to the area

Figure 2.13 Release hand and icon is added

◆ **Delete the shortcuts and widgets**

To delete an object, tap and hold the object, then drag it towards the top of the screen Remove. When the object become gray let go of it and the selected object will be deleted.

Figure 2.14 Tap the icon to be deleted

Figure 2.15 Hold and drag the icon

Figure 2.16 The object becomes gray

Figure 2.17 The shortcut is deleted

◆ **Lock the screen**

Lock the phone in order to avoid useless operation and to save the battery by press the power button.

The phone will automatically lock when it is not being used for some time.

- **Set wallpaper**
- Long press Home screen pop-up "wallpaper" and "widgets" button. Click the "wallpaper" button to enter the setup screen wallpaper. Slide the bottom of the screen wallpaper zoom view can be switched wallpaper. After Select to set wallpaper, Click "Set wallpaper" that wallpaper setting is completed. As shown the following figure:

Figure 2.18 Home screen

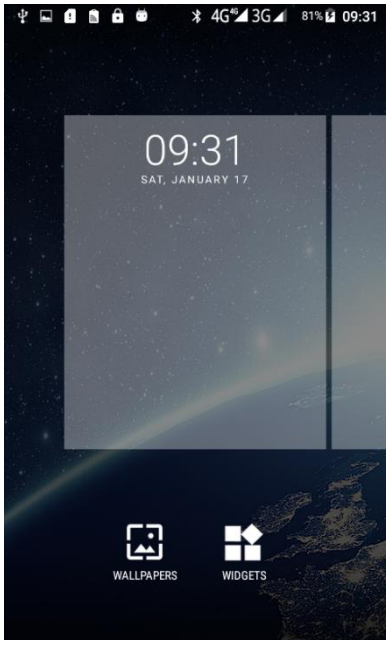

Figure 2.19 WALLPAPER & WIDGETS

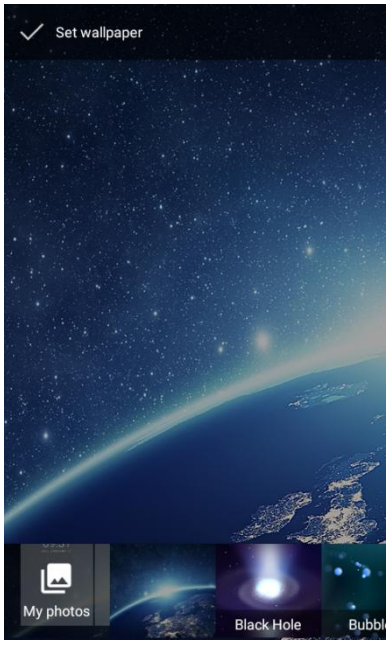

Figure 2.20 Select wallpaper

Figure 2.21 Set wallpaper

Figure 2.22 Home screen with new wallpaper

- **Unlock the phone**

Press the power button to enter the unlocking interface, then slide up and unlock.

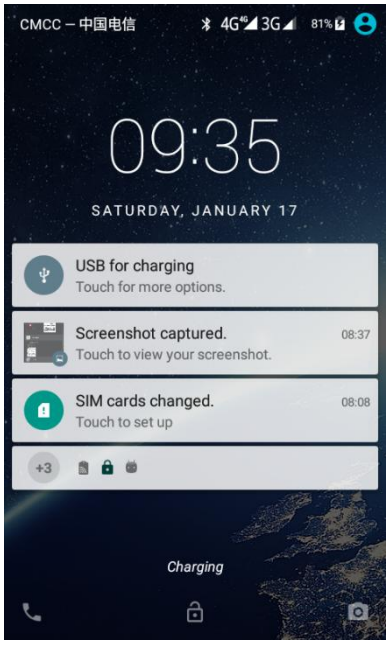

Figure 2.23 Locked home screen

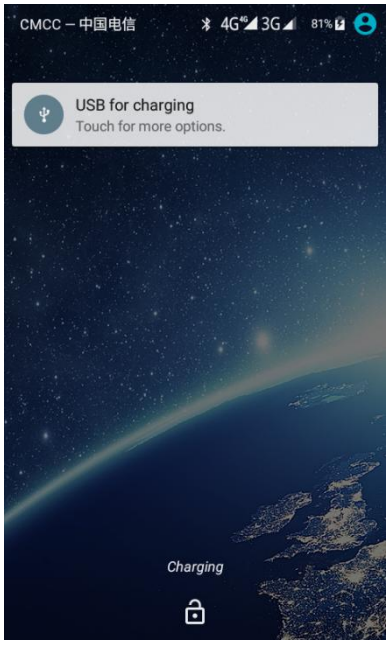

Figure 2.24 Slide up

Figure 2.25 Unlocked home screen

◆ **Message board**

Drag the status bar of any screen can open the message board. Click the icon in the upper right corner to bring up the settings interface and various parameters setting interface. As shown the following figure:

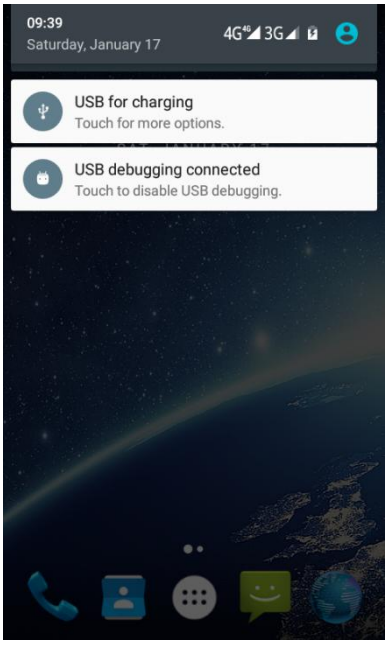

Figure 2.26 Status bar on the screen

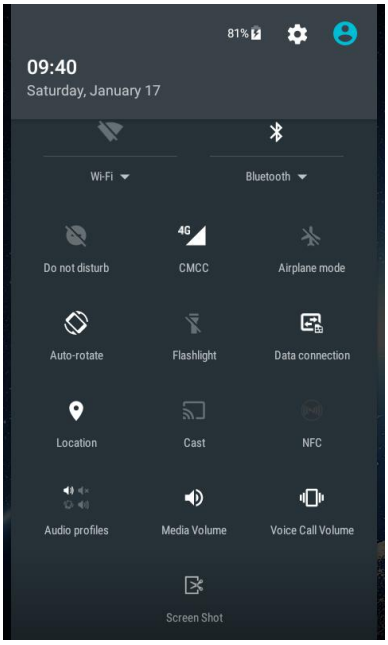

Figure 2.27 Message board

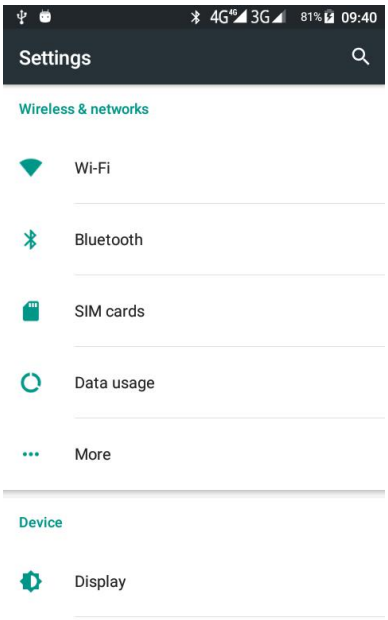

Figure 2.28 Settings interface

- **Manage applications**

Install applications: Found in the file manager to install the software (. APK), then follow the prompts step by step installation

Uninstall application: Enter **Settings->Apps->Downloaded**, then will be able manage and remove installed applications.

- **Recently used applications**

Press and hold the home key, the screen will display a window which shows your recently used applications. Click the icon to open the application.

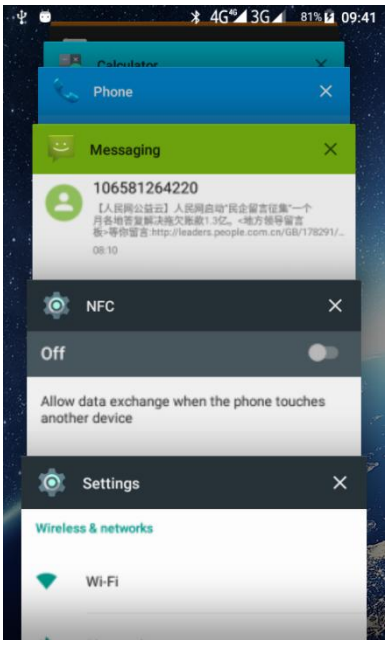

Figure 2.29 Recently used applications

2.6 Extend the battery life

Some functions may use up more power, which eventually shorten the battery life. You could:

Close all the wireless connection when not in use Bluetooth, Wi-Fi or GPS.

Reduce the brightness and shorten the screen timeout to save battery, or press power key to shut down the screen when the phone is not in use.

Close any automatically synchronized applications such as Email, calendar, contacts and other.

Some applications which are downloaded could also shorten the battery life.

3. Terminology

DC	Direct Current
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
LED	Light Emitting Diode
SIM	Subscriber Identification Module
USB	Universal Serial BUS

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FCC Statement

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.
RF warning for Portable device:
The device has been evaluated to meet general RF exposure requirment. The device can be used in portable exposure condition without restriction.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

RF Exposure Information (SAR) :

FCC RF Exposure Information and Statement The SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types: TC20 Controller (FCC ID: 2AMDJ-TC20) has also been tested against this SAR limit. The device was test for typical body-worn operations and head face up operations . keep the decice at least 10mm from the face and 5mm from the body,The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.

For handheld operating condition, SAR meets with FCC limit 4.0W/kg.