Bike Tracker

autocom
MOVING COMMUNICATION

Designed as a motorcycle tracker and security system using the existing GSM/GPRS network and GPS satellites, this product can locate and monitor any remote target by text.

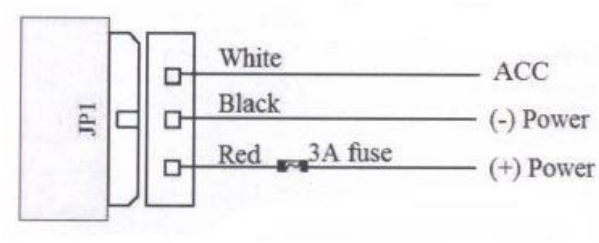
Functions:

- User Authorisation - fit your own SIM card and authorise your own number(s).
- No subscriptions, text message gives location for direct use of Google Maps.
- Powered from motorcycle or internal battery (can be used as a portable device).
- Single locating, auto track continuously, automatic update positions of vehicle turns.
- Absolute street address by text, Location Based Service (LBS).
- Forward to third parties' texts.
- Alarm Functions; movement alarm, over speed alarm, switched ignition/ACC accessories alarm, shock sensor alarm, low battery alarm, external power off alarm.
- GPS blind spot alert.
- Geo-fence, multi-area management.
- Alarm without GSM network service.
- Check the Vehicle State.
- Voice Monitor - Data logging (Data logging functions with SD card fitted)
- Sleep Mode, Sleep by time, Sleep by shock sensor
- Set up Terminal (local) time
- Modes Switch between "SMS" and "GPRS"

Small Size: **8.9 x 5.0 x 1.6cm, 65g**
Network: **GSM, GPRS - Quad Band 850/900/1800/1900MHz**
Power Supply: **12 to 24V**
Battery Backup: **Chargeable 500mAH Li-ion Battery**
Waterproof level: **IP66**

Simple to install and setup, Low Cost, No Subcription, Portable

1.0 Hardware Description and Setup



Electrical Connections.
Connect Red and Black wire to a +12V (or +24V) battery connection.
If an ignition Switch-On alarm is required connect the White ACC (Accessory or Switched Ignition) wire to a switched ignition feed.

GSM/GPS/Power LED Indicators.
Red LED: LED ON –charging. LED OFF- fully charged. LED fast flashing – low power.

Green LED: LED quick flash each second- In GSM Mode. LED flash every 3 seconds- in GPRS mode. LED ON- no GSM reception.

Blue LED: LED quick flash per second- Good GPS reception. LED OFF- No GPS reception.

Six screws access:

1. The standard SIM card holder.
2. Internal Battery Switch (ON/OFF).
3. Internal SD card for data logging.

SIM CARD Installation
Use the screwdriver supplied with the system to open the case and insert the SIM card.

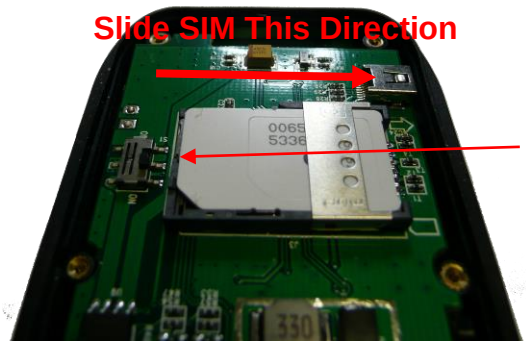
If data logging function required, please insert micro SD card.

Note: The standard size SIM card is for GSM network. Any standard “pay as you go” or contract SIM is suitable. (Except ‘3’ Network) To check credit balance, it should have an online account setup and switch off voice mail.

1.1 SIM card and Set Up

If possible put the SIM card in a mobile phone to aid activation and setup. Once the SIM is activated turn off the voicemail service either via dialling the voice mail service or ring customer services. This will prevent voicemail answering the call before your Tracker does. Either the Tracker or user will hang up, no charges will be incurred for the call.

Ensure that Caller ID is turned on. It is useful to activate an online account to check the balance on the SIM if using PayAsYouGo.



Turning the Device On
Note: Ensure the correct direction of the SIM card is used when inserted into the Tracker.

Battery ON/OFF switch.

Connect the power and wait one minute, check the tracker functions then turn on the backup battery switch. The battery will begin to charge, once the battery has charged the unit can be removed from the vehicle and used as a portable device. Replace the back cover.

Turn the Tracker on, it is recommended to do this outside and that the Tracker has a good line of sight to the sky in order to obtain its first GPS satellite fix. Once the Tracker has found both a GSM (mobile) signal and a GPS (satellite) signal, the LEDs will flash steadily every second (unless in sleep mode).

1.2 Fitting to the Motorcycle

The Tracker needs a good line of sight to the sky to ensure GPS accuracy. Plastic coverings are no problem to this view of the sky.
Fit and hide the Tracker. I.e. behind the clocks, behind a fairing panel, in the tail end seat cowling, locked top box lids.

The Tracker is rated to IP66 -

6	Dust tight	No ingress of dust; complete protection against contact (dust tight)
6	Powerful water jets	Water projected in powerful jets (12.5 mm nozzle) against the enclosure from any direction shall have no harmful effects.

1.3 Power Supply

It should be noted that the Tracker draws power from the motorcycle battery whilst switched on and active i.e. it is monitoring the GPS satellites and GSM phone network. This current draw can be equated to that of any mobile phone.

Therefore, if the motorcycle is not used regularly or garaged and the Tracker remains active, the user must utilise the sleep mode to receive a text alarm if the motorcycle is moved. It is also advisable to enable the power alarms so a warning text is sent if the battery power fails and then when the Tracker internal battery is low. The Tracker has an internal battery that will continue to provide power if the external power is lost.

If the Tracker is in sleep mode, the motorcycle must still be started or the battery recharged every 30 days to prevent a flat motorcycle battery.

If the motorcycle is stored and will not be used for periods greater than 30 days it is recommended that a secret switch is fitted in line so the Tracker can be permanently switched off (or remove the Tracker from the motorcycle)

If sleep modes are not used and the Tracker is permanently in a fully active mode, the user should be aware of the power consumption and the bike should be used every 10 days.

**The above recommendations are based upon a standard 12Ah, 12V motorcycle battery. Motorcycles with smaller capacity batteries as found in; scooters, 125cc, classic motorcycles should be aware of the power usage of the Tracker.

2.0 Initialisation and Password Change

(**Tracker default password is: 123456**).
Ensure that you have a signal from the mobile phone and GPS networks when setting up.

Send text "begin+password" to the Tracker, it will reply "begin ok" and initialise all the settings.

Example: send text - **begin123456** to the Tracker.

If OK, it will reply "begin ok".

Note: The '+' sign is used only in these instructions to signify different words in texts DO NOT USE WHEN TEXTING THE TRACKER. No spaces are required in texts between words, unless specified in the instructions with this symbol SPC

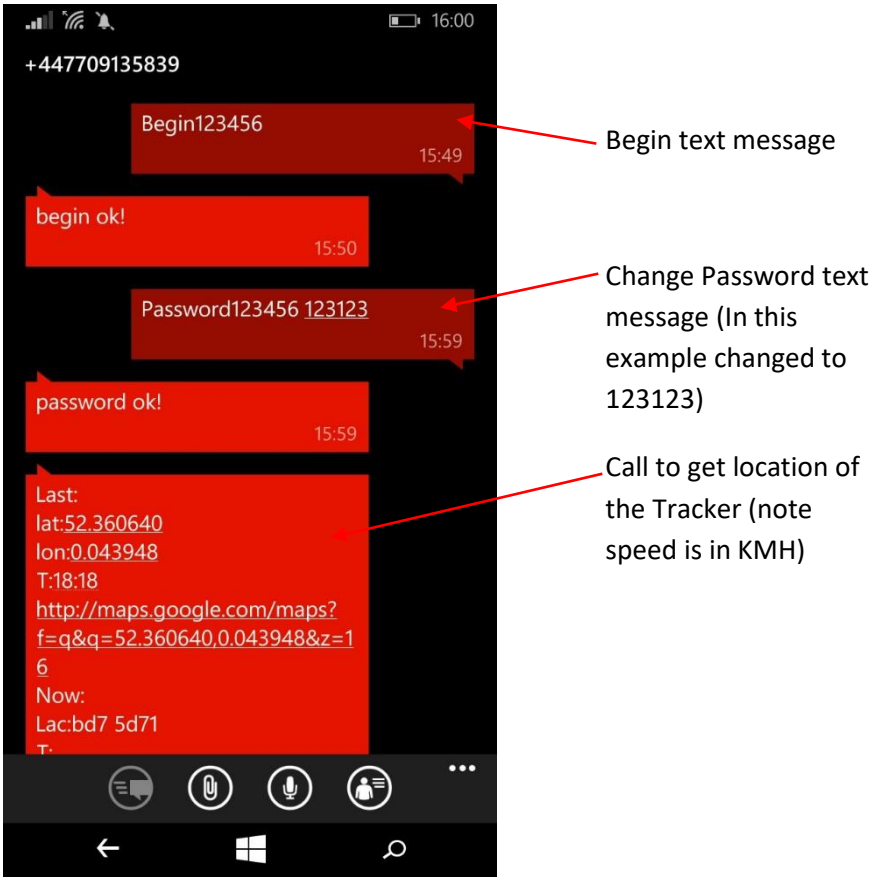


Figure 1 – Example text messages to the Tracker

Send text "password+oldpasswordSPCnewpassword" to the Tracker to change the password.

Example: send text – **password123456 123123** to the Tracker via a mobile phone

If OK it will reply "password ok". Above is an example password which will be used during these instructions.

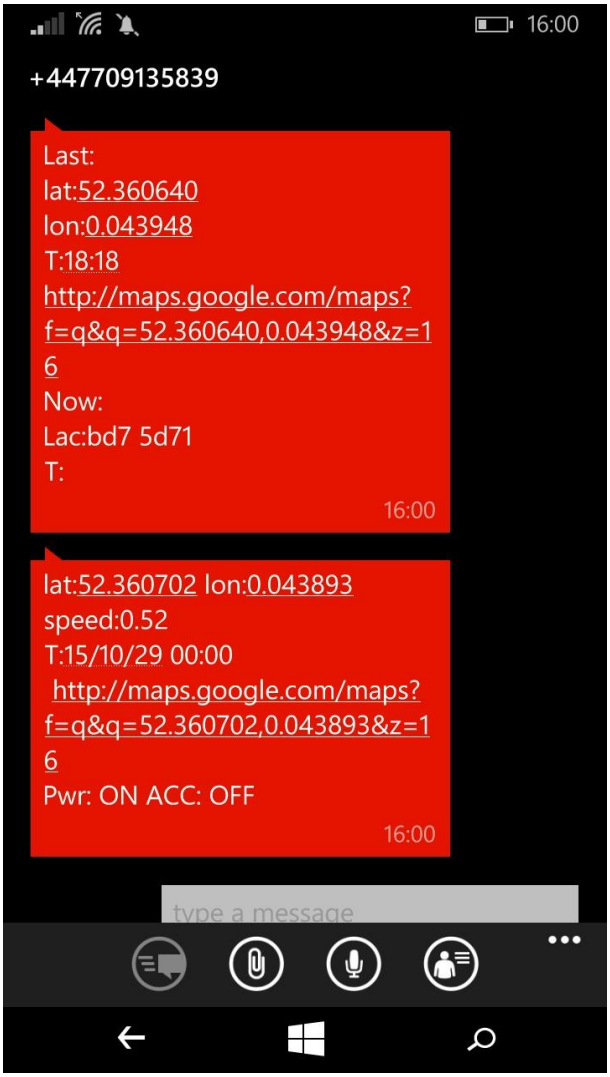


Figure 2 - Example text, location text message returned from the Tracker after calling.

Now call the Tracker and hang up, it will send a text detailing the location of the Tracker. See Figure 2, this can be opened via the link on your screen (If your mobile device has Google Maps and access to data via wi-fi or 3G/4G type data).

2.1 Set Up Time (local)

Every country has a specific GPS time zone code (some countries share the same code.) To set up Tracker local time, research the country GPS time zone code for accurate Tracker information. Send text "timeSPCzone+passwordSPCtimezone" to the Tracker. If successful, it will reply "time OK".

Example UK GMT time zone: send text – **time zone123123 0** to the Tracker.

USA Pacific	USA Eastern	UK/France/ Spain	Italy/Germany/ Sweden	Central Australia
-8	-5	0	1	9

Table shows example of some GPS time zone codes

Ensure to use the minus in the text if indicated in the country GPS time zone code. Example USA Pacific time zone: send text – **time zone123123 -8**

3.0 Single Location of Bike Tracker

When dialling the Tracker from the authorised number(s) (as described in 4.0), it will hang up to your call and respond with real-time latitude and longitude, it will include the information as detailed in Figure 2. If no numbers have been identified as the authorised, then any mobile can be used to text and receive information from the Tracker.

4.0 Authorisation

Up to five mobile phone numbers can be authorised. It is best to set the authorised phone number(s) before use.

To set authorisation via text: "admin+passwordSPCmobile phone number"
Note that other authorised numbers should be set by the first authorised number. If the number is successfully authorised, the unit will reply "admin ok!"

To set authorisation via call: Call the Tracker 10 times continuously to receive the current position. This will then authorise this number automatically.

To delete authorisation, send text: "noadmin+passwordSPCauthorised number"

For roaming purpose, you should add your country code ahead of the mobile phone number.

Example: send SMS – **admin123123 +44..authorisedNo..** to the Tracker via a mobile phone (+44 is the UK country code for roaming purposes)

The first authorised number is now +44..authorisedNo.. this number should then be used to set up other numbers that require authorisation.

5.0 Absolute street address by Text

You must set up the APN (Access Point Name) of your GSM network for the SIM card in the Tracker first before using this function. The APN is unique to the network operator of your SIM and the tariff type you have chosen. Examples are shown in table below - refer to your operator/vendor for your code.

Operator / Tariff	APN
o2 UK (Contract SIM)	mobile.o2.co.uk
o2 UK (Pay As You Go SIM from a prepaid PHONE)	payandgo.o2.co.uk
Orange UK (Any SIM)	Orangeinternet
T-mobile UK (Any SIM)	general.t-mobile.uk
Vodafone UK (PayAsYouGo SIM from any prepay phone)	pp.vodafone.co.uk

6.0 Setting up APN (Access Point Name)

The APN may be setup as a part of the activation process of your SIM. Send text "address+password" to test this first before manually setting up the APN.

Send text "APN+password SPCyour local APN". If the setup is successful, the Tracker will return the message "APN OK".

Example: send text – **apn123123 payandgo.o2.co.uk** to the Tracker.

After configuring the APN, send "address+password" to Tracker and it will reply with a text that includes street name and address.

Example: send text – **address123123** to the Tracker.

Figure 3 - Example text messages to set APN to obtain the street address

7.0 Check the Vehicle State

Send text "check+password" to the Tracker while it is connected to the vehicle. It will reply with the status of the power, battery, GPS, ACC, GSM signal and GPRS status to the authorised number(s).

Example: send text – **check123123** to the Tracker.

It will reply with the following text detailing the state of the Tracker.

Power: ON/OFF
Battery: 100%
GPRS: ON/OFF
GPS: OK/NOGPS
ACC: OFF/NO
GSM Signal: 1-32 (A higher figure indicates stronger GSM signal)

8.0 Alarms

8.1 Movement alarm

Set up when the unit has been immobile for 10 minutes with GPS signal reception. Send text "move+passwordSPC0200" to the Bike Tracker. (Distance is measured in metres and requires 4 digits. E.g. 200 metre radius - 0200) It will reply "move OK". If the Tracker detects such a movement (the default distance is 200m), it will reply "Move+ latitude and longitude" to the authorised number(s) at intervals of 3 minutes.

To deactivate, send text "nomove+password"

8.2 ACC (Switched Accessories/Ignition) Alarm

This function is disabled as default. To activate this function text "ACC+password", Tracker will reply "ACC ok".

The Tracker will text "ACC on+latitude and longitude" to authorised number(s) when ignition action is detected. This means that the vehicle has been started or an attempt has been made.
The Tracker will text "ACC off+latitude and longitude" to authorised number(s), this means ACC has changed state to the off position.

To deactivate, send text "noACC+password"

8.3 Arm Alarm – Bike Tracker as a Vehicle Alarm

The Tracker will function as an alarm for your vehicle. It will inform you via text if the ignition is switched on, by detecting the ACC line and if the vehicle is moved, shaken or touched via the built-in shock sensor.

8.3.1 Alarm ARM

Vehicle ignition must be off. Text "arm+password" to the Tracker, this will make the vehicle enter ARM state and will reply "Tracker is activated". (If the vehicle ignition is on when arming, then the Tracker cannot enter ARM state and will reply "set up fail! pls turn off ACC")

8.3.2 Alarm DISARM

Send text "disarm+password" to the Tracker. The Tracker will disarm and reply "Tracker is deactivated", then it will turn off the alarm, no alarm texts will be sent if triggered by shock sensor or ignition.

8.3.3 Alarms under Arm State Messages

8.3.3.1 ACC alarm

When the Tracker is alerted that the ignition of the vehicle is turned on,(the key is rotated to ACC ON) it will text “ACC alarm+ latitude and longitude” to the authorised number(s) at intervals of 3 minutes.

Send "disarm+password" to stop.

8.3.3.2 Shock Sensor alarm

The Tracker will send text "Sensor alarm+ latitude/longitude" to the authorised number(s) when the sensor is triggered in arm status.

Text "disarm+password" to stop.

8.3.3.2.1 Shock sensor sensitivity configuration

The sensitivity of the built-in shock sensor has three different levels:

First level: Alarm will be triggered after it detects slight vibration.
Send text "sensitivity+passwordSPC1".

Second level: Alarm will be triggered after detecting 8 vibrations during a two second interval.
Send text "sensitivity+passwordSPC2".

Third level: Alarm will be triggered after detecting 25 vibrations during a five second interval.
Send text "sensitivity+passwordSPC3”

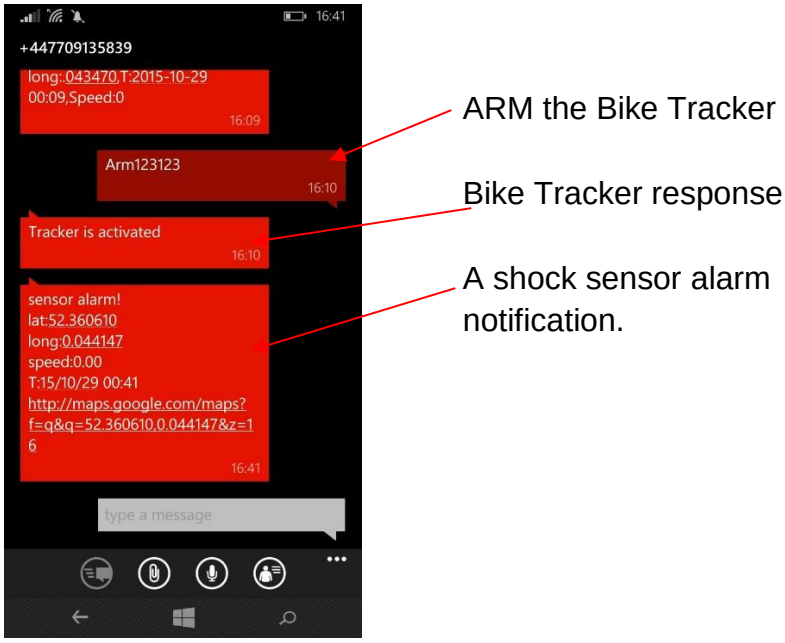


Figure 4 - Example text messages setting up Alarm function

8.4 Overspeed alarm

Send text "speed+passwordSPC080" to the unit (example speed notification of 80kmh), Tracker will reply "speed OK!". When the vehicle exceeds 80kmh, the unit will send text "speed+080!+latitude and longitude" to the authorised number(s) at intervals of 3 minutes.

To deactivate, send text "nospeed+password"

Note: The recommended speed should be not less than 30kmh as below this, it will be affected by the accuracy of GPS signals drift etc.

8.5 Low Battery Alarm

Send text "lowbattery+passwordSPCon", the tracker will then text "low battery+latitude and longitude" to authorised number(s) twice in a 15 minute interval only when voltage of the battery is below 3.55V. This function is activated as default.

To deactivate, send text "lowbattery+passwordSPCoff"

8.6 External Power off Alarm

Send text "extpower+passwordSPCon" to activate, the Tracker will send text "power alarm+latitudeand longtitude" to authorised number(s) every 3 minutes when external power is cut off. This function is default.

To deactivate, send text "extpower+passwordSPCoff".

8.7 GPS Blind Spot Alert
This function is off by default.
To be warned of a GPS blind spot, send text “gpssignal+passwordSPCon”, Tracker will send an alert reading “nogps last valid latitude/longitude before lost signal” identifying the last location the Tracker had an active GPS link.

To deactivate, send text “gpssignal+passwordSPCoff”

9.0 Sleep Modes
The Tracker can be sent to sleep in various modes. This is a useful function for when vehicles are garaged or stored, it will save battery power.

9.1 Sleep by Time
Send text "sleep+passwordSPCtime", the Tracker will reply "sleep time ok" if none of the alarms have been set and no operations scheduled, the tracker will sleep in 5 minutes. The GPS module shuts down, LEDs will be off. Calling or texting will wake the Tracker. If these alarms have been set, the Tracker will wake by detecting shock sensor. (This mode only works under text mode)

9.2 Sleep by Shock Sensor
Send text "sleep+passwordSPCshock" to the Tracker, it will reply "sleep shock ok", it will enter sleep mode if no shake is detected or if ACC is off. The GPS module shuts down, LEDs will be off. Shake or any operation can wake the Tracker.

9.3 No Sleep Mode
Send text "sleep+passwordSPCoff" to Tracker, it will reply "sleep off ok". The GSM, GPS, LED modules will all be active and the Tracker will not enter sleep mode. This is the default mode.

9.4 Scheduled Wake-up
Send text "schedule+passwordSPC1h" to wake the Tracker each hour, and location information will automatically be sent after wake up (m: minute, h: hour, d: day). The maximum time interval is 3 digits, and can't exceed 30 days. GSM and GPS modules will shut down and the Tracker runs in lowest power consumption. Calling or texting cannot wake the Tracker. Alarms can be triggered normally, after wakeup and alarm cancelled.
To deactivate send text after wake up "noschedule+password"

10.0 Reset Hardware
Send text "reset+password" to the Tracker, it will reply "reset ok". The GSM module and GPS module in the Tracker will be reset.

11.0 Forward the Text Message to Third Parties
Send text "forward+passwordSPCthird party phone number" from an authorised phone number, the Tracker will reply "forward ok". This system supports only one third party mobile phone number.
This can be used for example where your phone operator sends a top up reminder to the SIM and you wish it forwarded to yourself as a reminder.

To cancel, send text "noforward+password".

12.0 Advanced Tracking Functions

12.1 Auto Track Continuously / limited times upon time interval

Send text "fix030s005n+password" to the Tracker. It will report the latitude and longitude at intervals of 30 seconds for 5 times. (s:second, m:minute, h:hour) This command set must be in 3 figures and the maximum value is 255.

Example: send text – **fix002m010 123123** to the Tracker via a mobile.

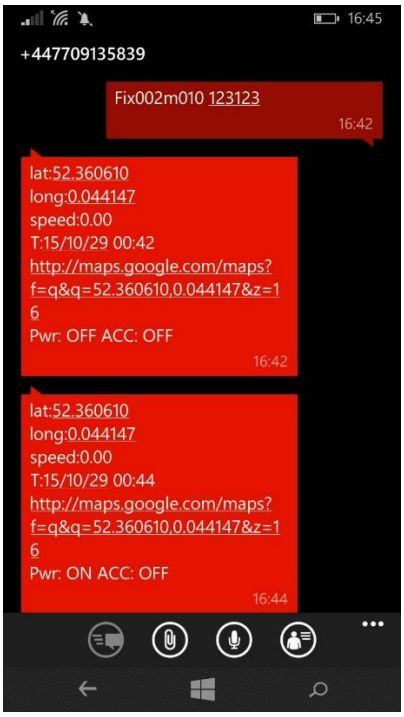


Figure 5 shows Auto Track. Text message sent to track every 2 minutes 10 times using fix

12.1.2 Track with Unlimited Times Upon Time Interval - Send text "fix030s***n+password" to the Tracker. It will reply the latitude and longitude continuously at interval of 30 seconds. Note: The interval must not be less than 20 seconds.

To deactivate, send text "nofix+password"

12.2 Geo-fence

Set up a geo-fence for the Tracker to restrict it's movements within a specified area. The Tracker will send text to the authorised number(s) when it goes out of this specified area.
Set up when the unit has been immobile for 10 minutes, send text "stockade+passwordSPClatitude,longitude;latitude,longitude" to the Tracker to set the restricted area. In case of breach, it will send text "stockade!+latitude and longitude" to the authorised number(s) at interval of 3 minutes.

Note: The first latitude and longitude is coordinate of the top left corner of the Geo-fence, while the second latitude and longitude is the coordinate of the bottom right corner, it will alarm at intervals of 3 minutes.
To deactivate, send text "nostockade+password"