en/MK-TT

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Inhaltsverzeichnis

1 MikroKopter-Tablet Tool - Info

The MikroKopter-Tablet Tool (short: MK-TT) is an Android-APP which sets WayPoints and/or POI pretty easy into a map and can be transferred to the Kopter.
During the flight you can follow the Kopter on this map. And - you are able to transfer additional new WayPoints to the Kopter during the flight.

1.1 Conditions

To use this program you need to have an Android-Tablet with:

- Android with Version 3.0
- Bluetooth
- WLAN and/or 3G (to load online maps and to adjust the license of the RangeExtender)
- Minimum of a 7" display (smaller displays are not supported)

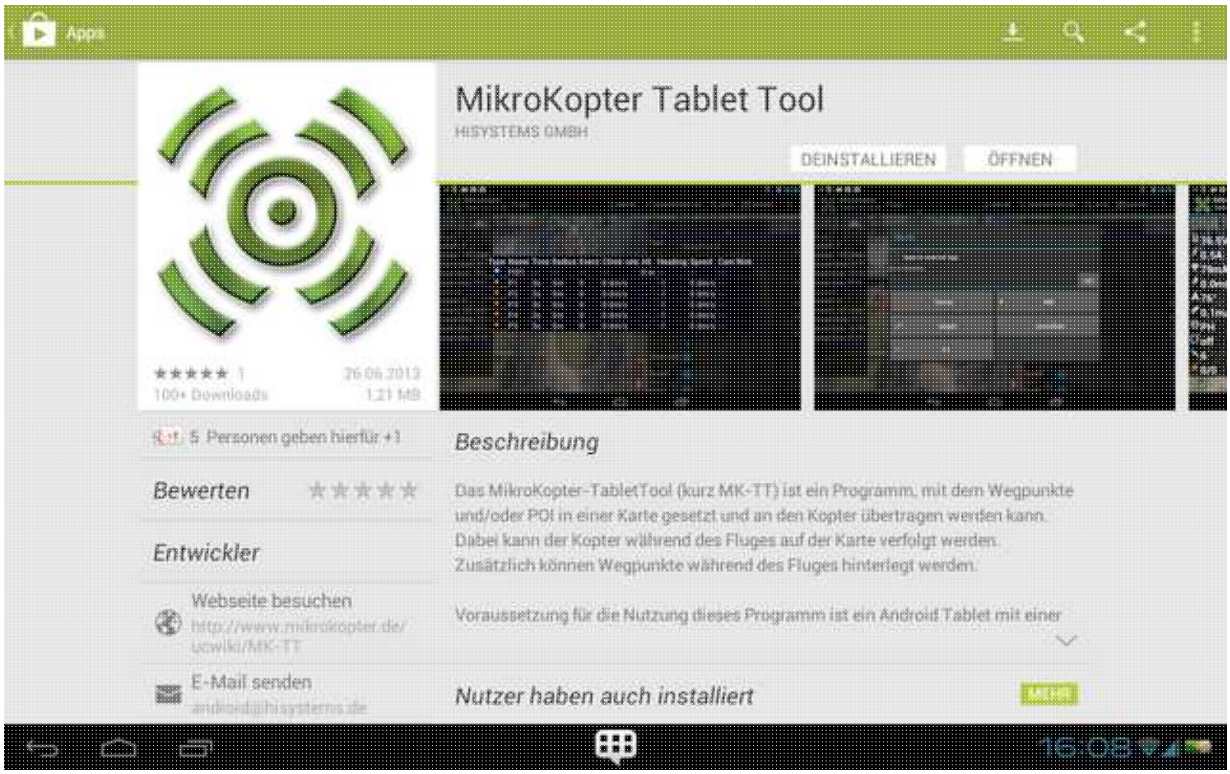
The MikroKopter itself need to have a GPS-System.

A list with tested tablets you will find further down #WB.

1.2 Example video

2 Download APP

You can download and install the APP ***MikroKopter Tablet Tool*** with the tablet via the Google Play-Store.
To find the APP quick you can enter *"MikroKopter"* into the search bar.
Here now the direct Link



3 First start

INFO

To establish a connection between the MK-TabletTool and the MikroKopter, an RangeExtender (Link), PKT or another wireless Bluetooth connection plus an appropriate RE-ID are necessary.

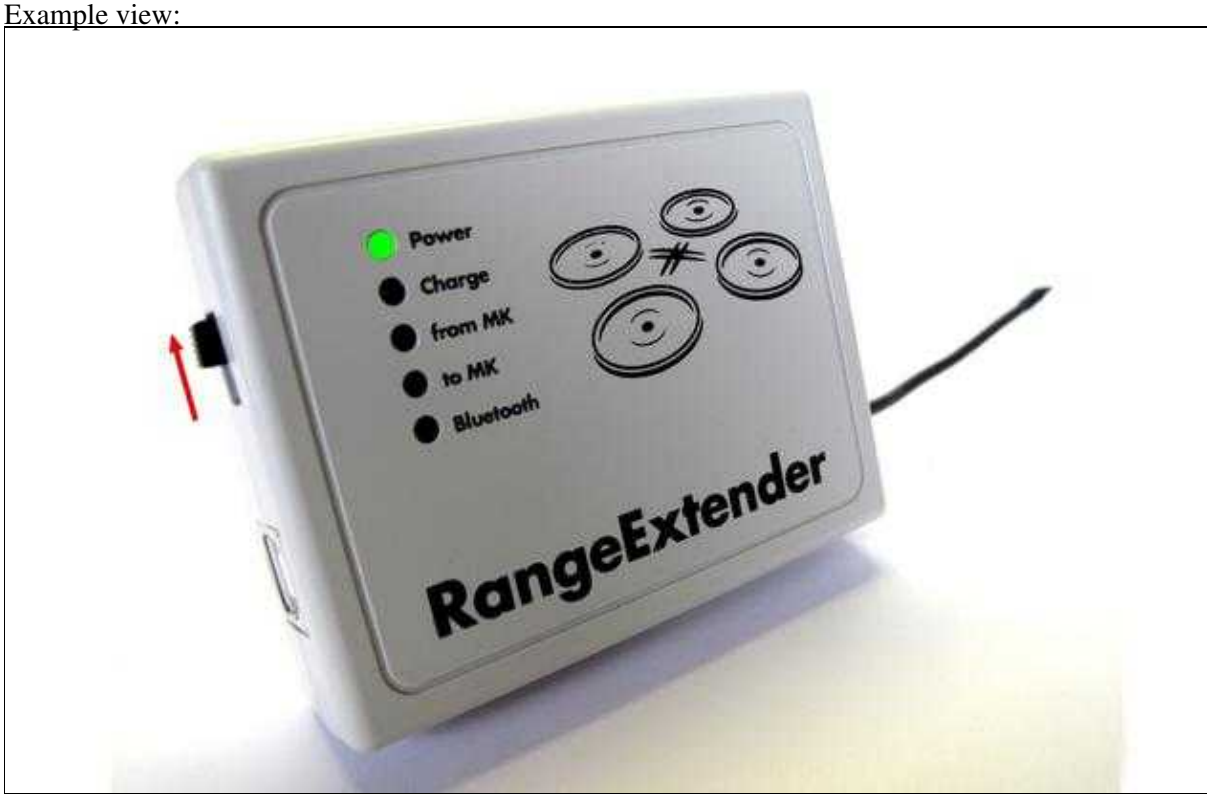
(The RangeExtender already has this RE-ID. For all other used devices you can order the RE_ID in our online shop (Link). Without the appropriate RE-ID you are not able to establish a connection to the Kopter.)

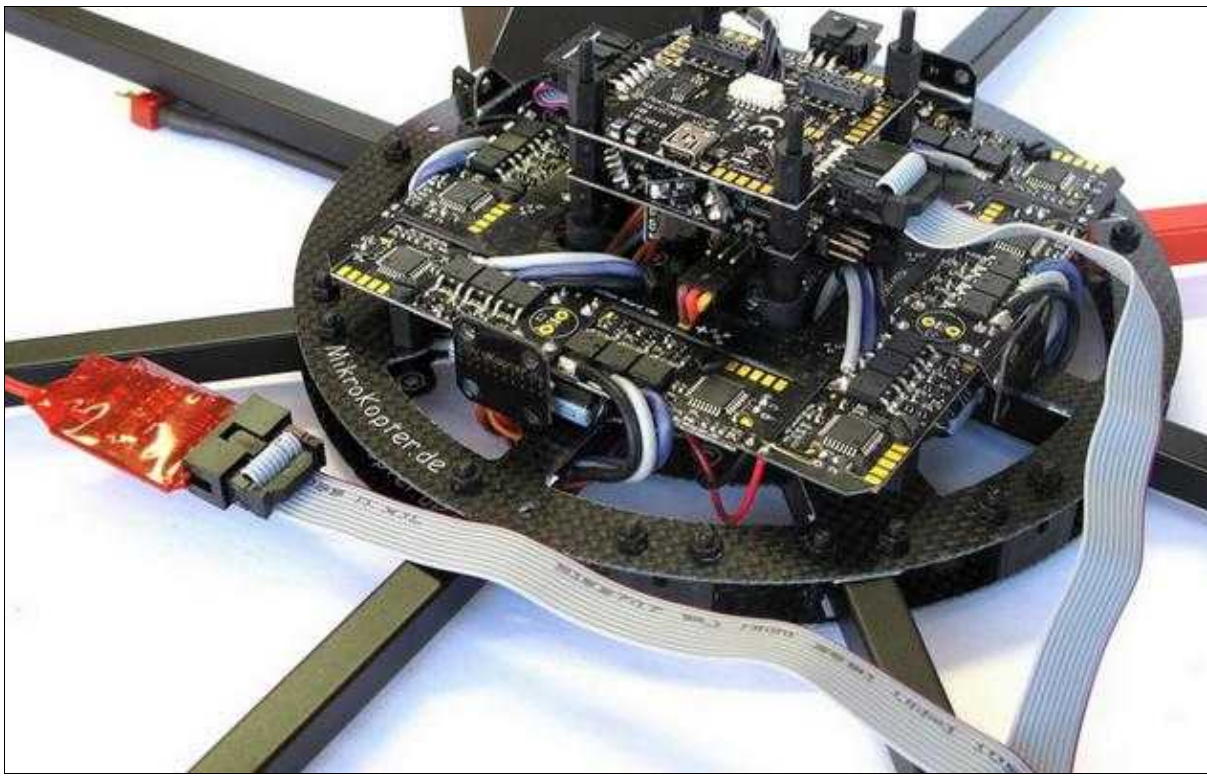
To prepare the MK-!Tablet Tool for your use you need to enter the RE-ID into the tablet tool:

1. **Preparation**

   - The RangeExtender is switched ON, the green LED *Power* is ON.
   - The Wi.232 module is connected to the MikroKopter and the Kopter is switched ON with a LiPo.
     (Don't forget to switch ON the transmitter!)
   - The MikroKopter tablet tool is already downloaded (see above *Download APP*).

   Example view:



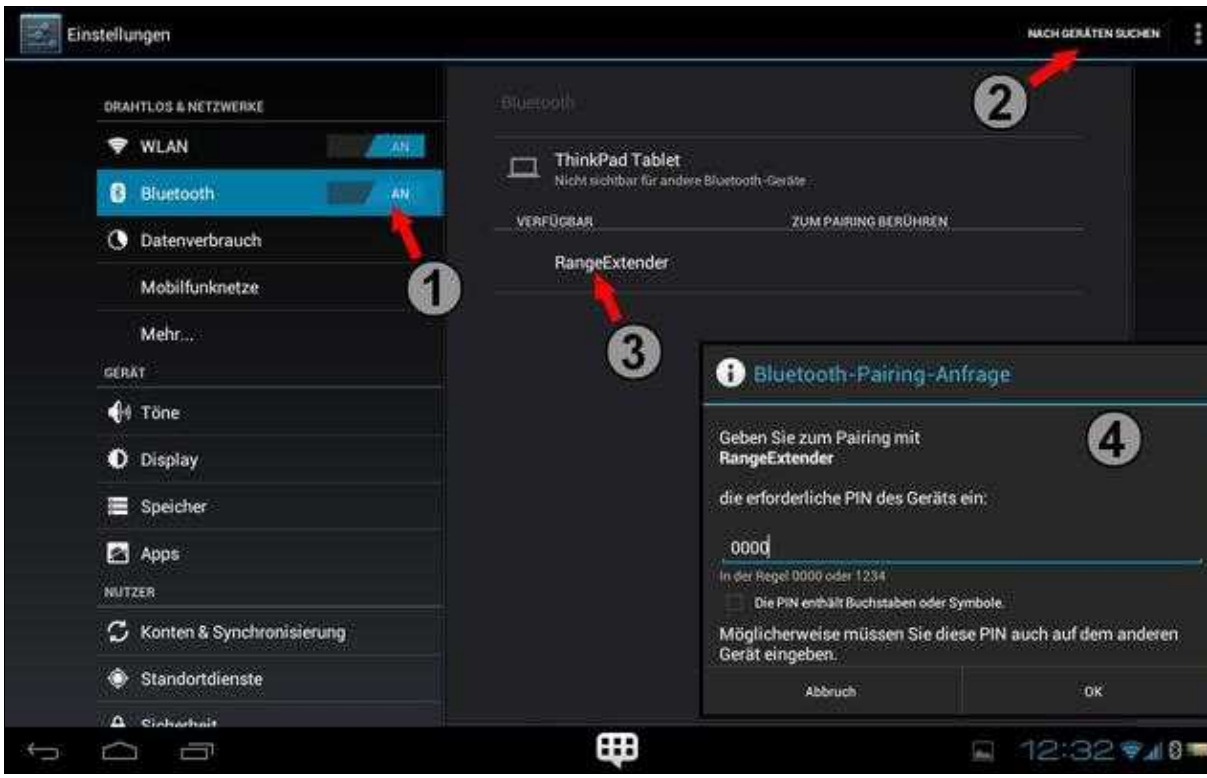


(To enlarge -> click on the image)

2. **To bind the RangeExtender on the tablet** (or with a different radio communication i.e. PKT).

- Switch ON RangeExtender + tablet.
- Change on the tablet into the *Settings* and bind the RangeExtender via the Bluetooth.
- The required Bluetooth PIN for the login you will find on the backside of the RangeExtender (0000).

Example view:



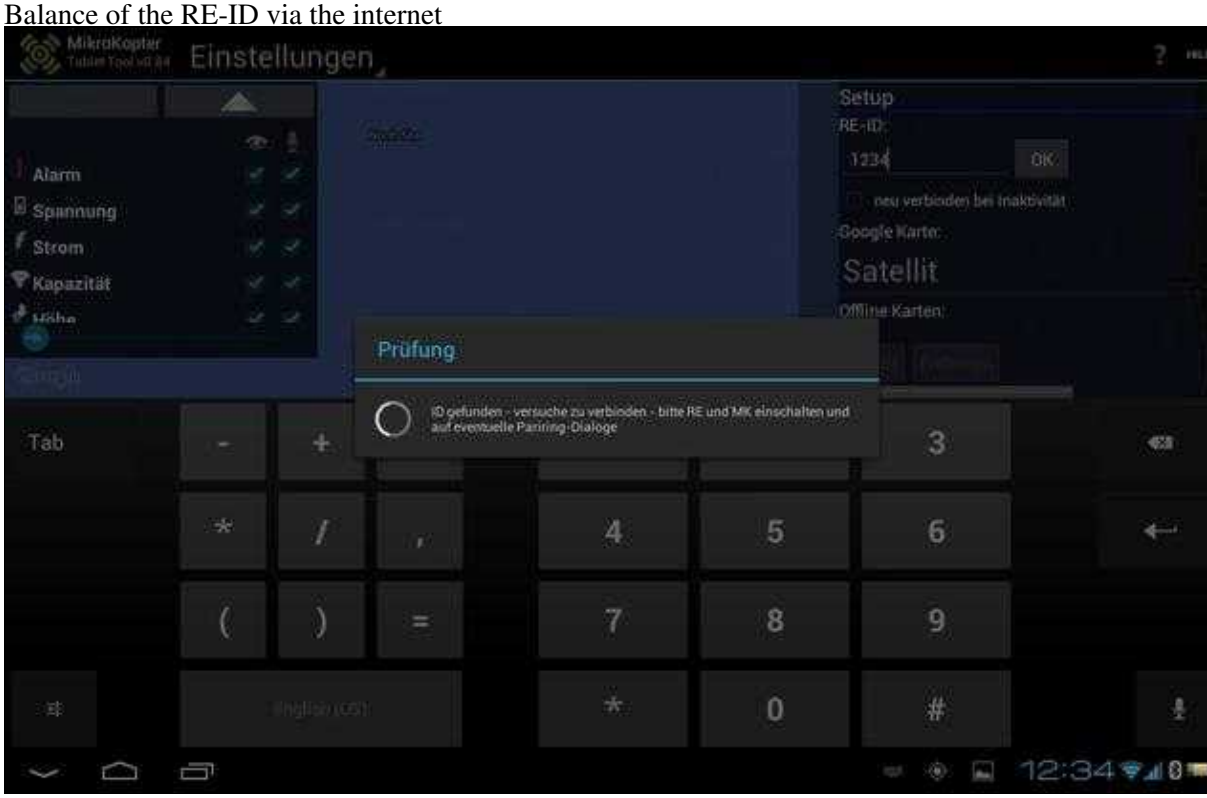
(To enlarge -> click on the image)

3. **Start APP and enter RE-ID**

- The tablet need to have an internet connection.
- After you started the MK-Tablet Tool you change from the tab *Planning* to the tab *Settings*.
- On the right side underneeth *RE-ID* the appropriate RE-ID can be entered and confirmed with **OK**.
  (the RE-ID you will find on the backside of the RangeExtender. For other devices (like the PKT etc.) you will get the RE-ID after ordering (Link)

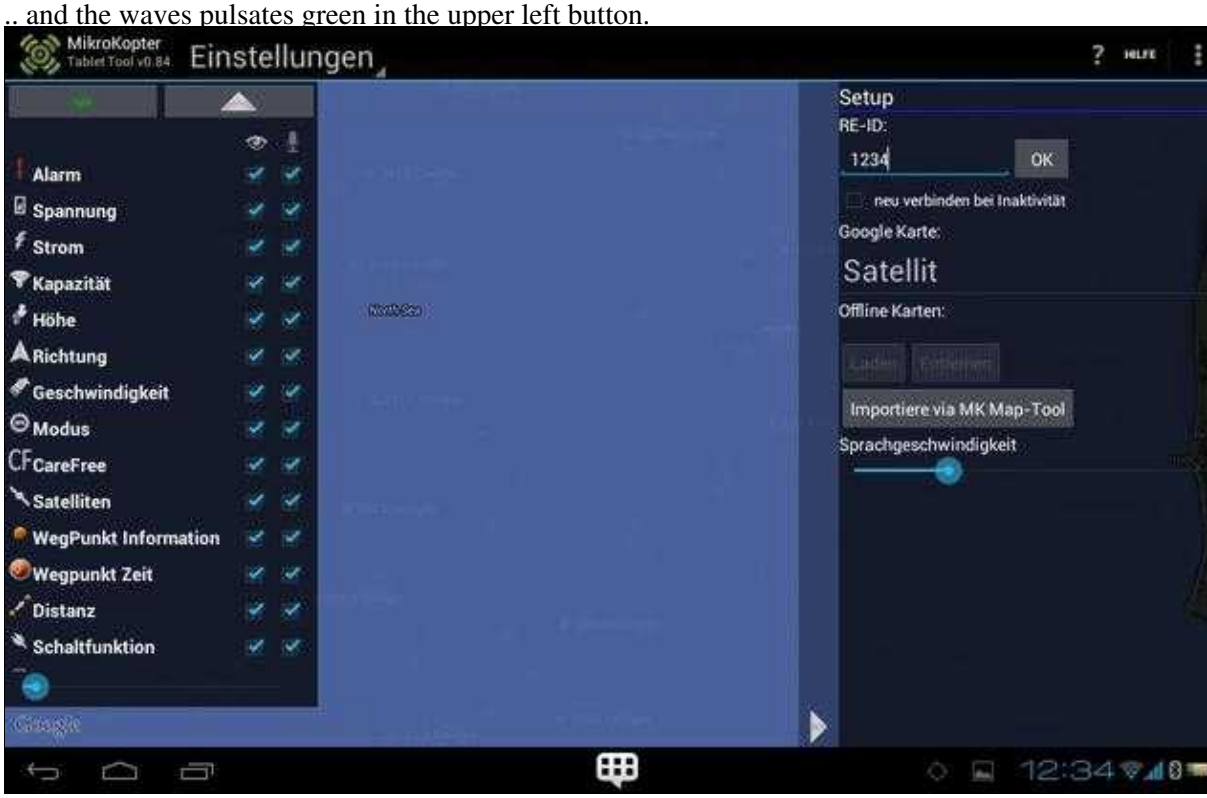
Example view:

Balance of the RE-ID via the internet



After a successful identification the tablet tool will bind with the RangeExtender - The blue LED on the RE flashes ...

- .. and the waves pulsates green in the upper left button.



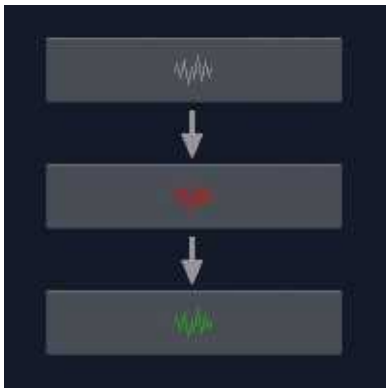
(To enlarge -> click on the image(s)

If the waves are pulsating now in the upper left button the connection to the Kopter is established and you can use the tablet tool.

4 Establish a connection to the RangeExtender / Kopter

After a successful registration of the RE-ID with the tablet tool you can make a connection to the RangeExtender / Kopter after each new start of the tablet tool via the button with the wave.
After a "Click" on the button with the wave you can see the conditions of the connection via the colors on the button.

- **gray** = no action
- **red** = connection will be established
- **green**
    - ♦ permanently green = connection to the RangeExtender / no connection to the Kopter
    - ♦ alternating green = connection to the RangeExtender + Kopter



5 Overall view

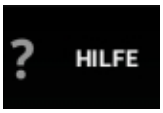
The use of the MK-Tablet Tool is pretty easy. To get more comfortable with the MK-TT and the symbols here now some information about the partition:

(To enlarge -> click on the image)

6 The menu bar

INFO: Some menu points are only available after you have set WayPoints or with a connection to the Kopter.

6.1 Help

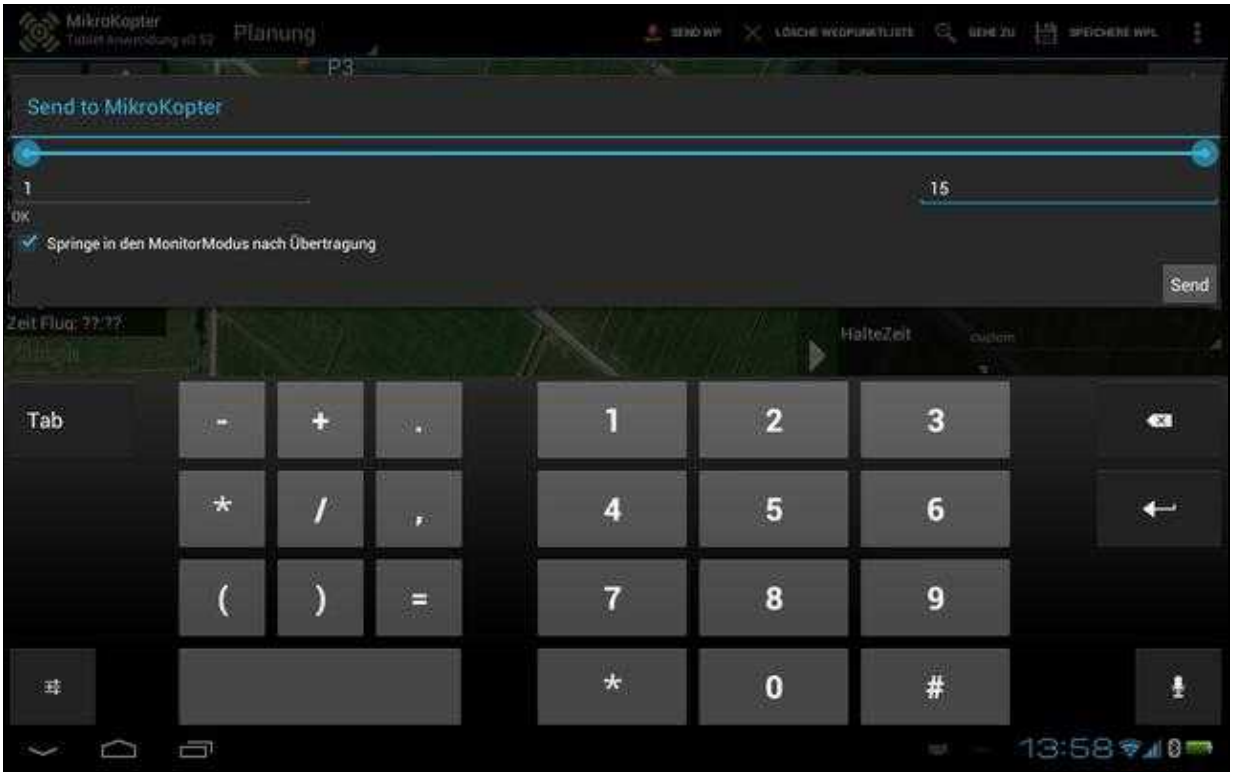
- 

  Via this button you will be transferred to the Wiki-page with an existing internet connection.

6.2 Send WayPoints

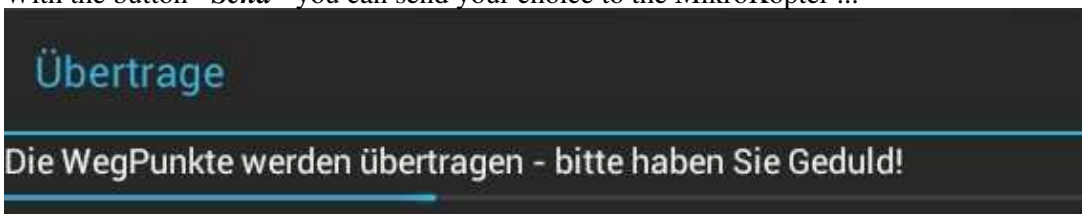
- 

- If WayPoints/POI have been set, you can transfer them to the Kopter.
  In the mask, which opens up, you are able to decide to choose, if you want to transfer via number entry or via the slider/tab all WayPoints/POI or just only a porrtion of it.

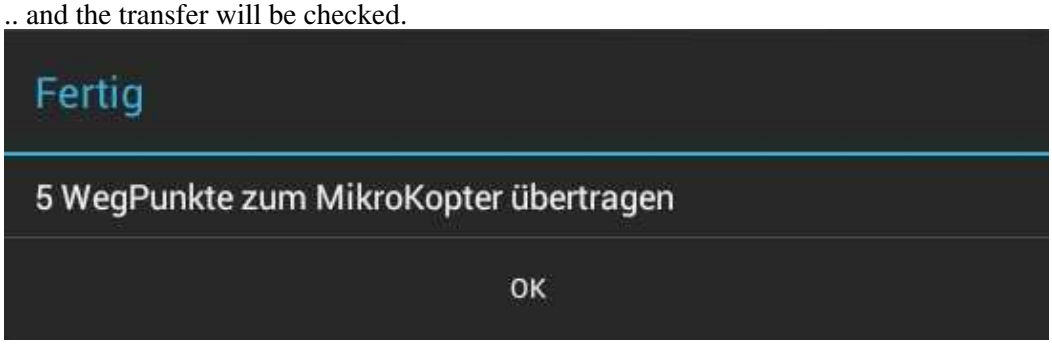


- (To enlarge -> click on the image)

With the button ***"Send"*** you can send your choice to the MikroKopter ...



- .. and the transfer will be checked.



If the checkmark *"Jump into MonitorMode after transfer"* has been choosen, the window *"Status"* will open after transfer.

6.3 Delete WayPoint List

- 

- Via this button you can delete set (fixed), already in process, or all other WayPoints/POI.

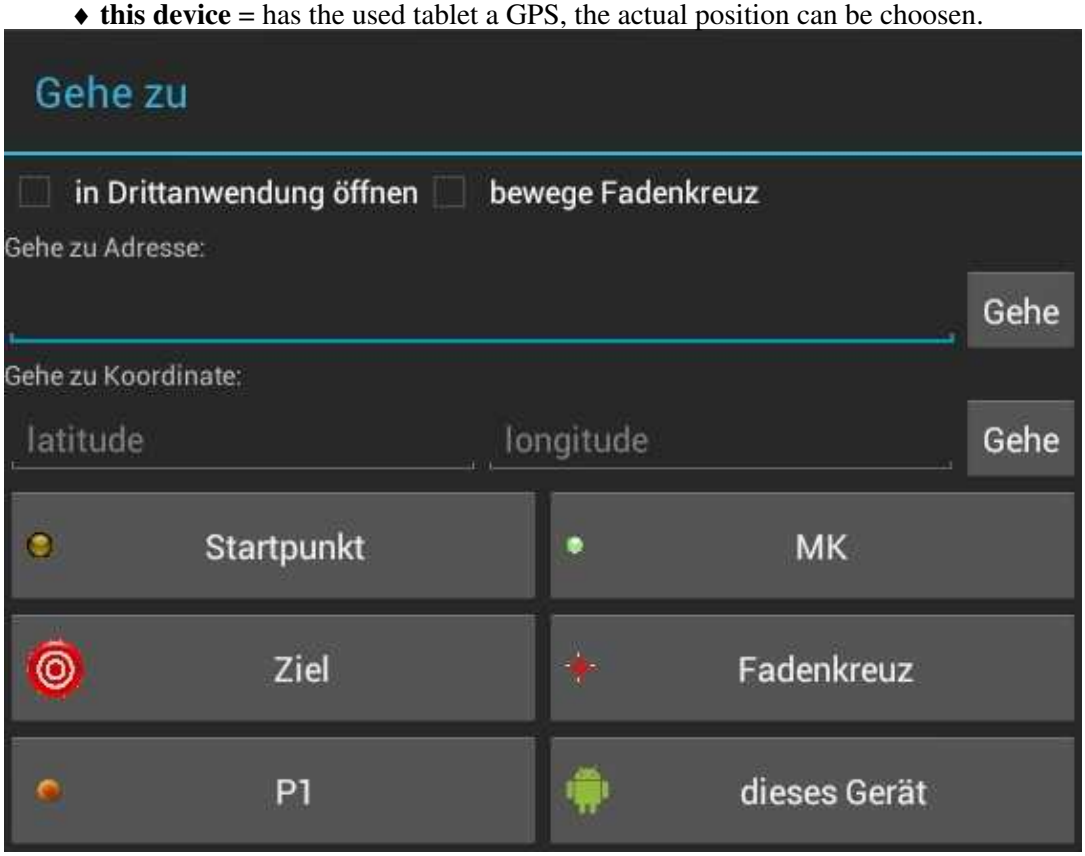
6.4 Go to

- 

- Via *"Go to"* you can:
    - ♦ specify the entered addresses or coordinates:
        - ◊ with *Go* direct on the map to open it
        - ◊ with a set checkmark on *open third party* and *Go* i.e. with GoogleMaps
        - ◊ with a set checkmark on *move cross line* and *Go to* to move the cross line.

or with:

- ♦ **Start point** = the position where the Kopter is, while starting the motors or switching ON the Kopter.
- ♦ **Target** = the next position the Kopter would fly.
    - ◊ (after transferring the WayPoints it would be WP1, than WP2, etc.)
- ♦ **P1** = the position in the map with the first confirmed WayPoint.
- ♦ **MK** = the actual position of the MikroKopter (Satfix necessary).
- ♦ **Cross line** = the position in the map with the last set WP/POI.
- ♦ **this device** = has the used tablet a GPS, the actual position can be choosen.



6.5 Points

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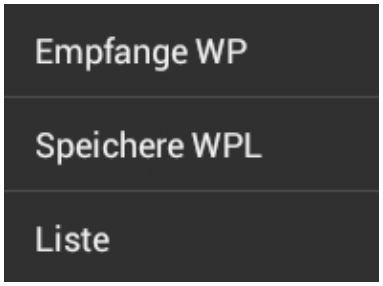
- A "Click" on the points opens up a submenu with additional functions:

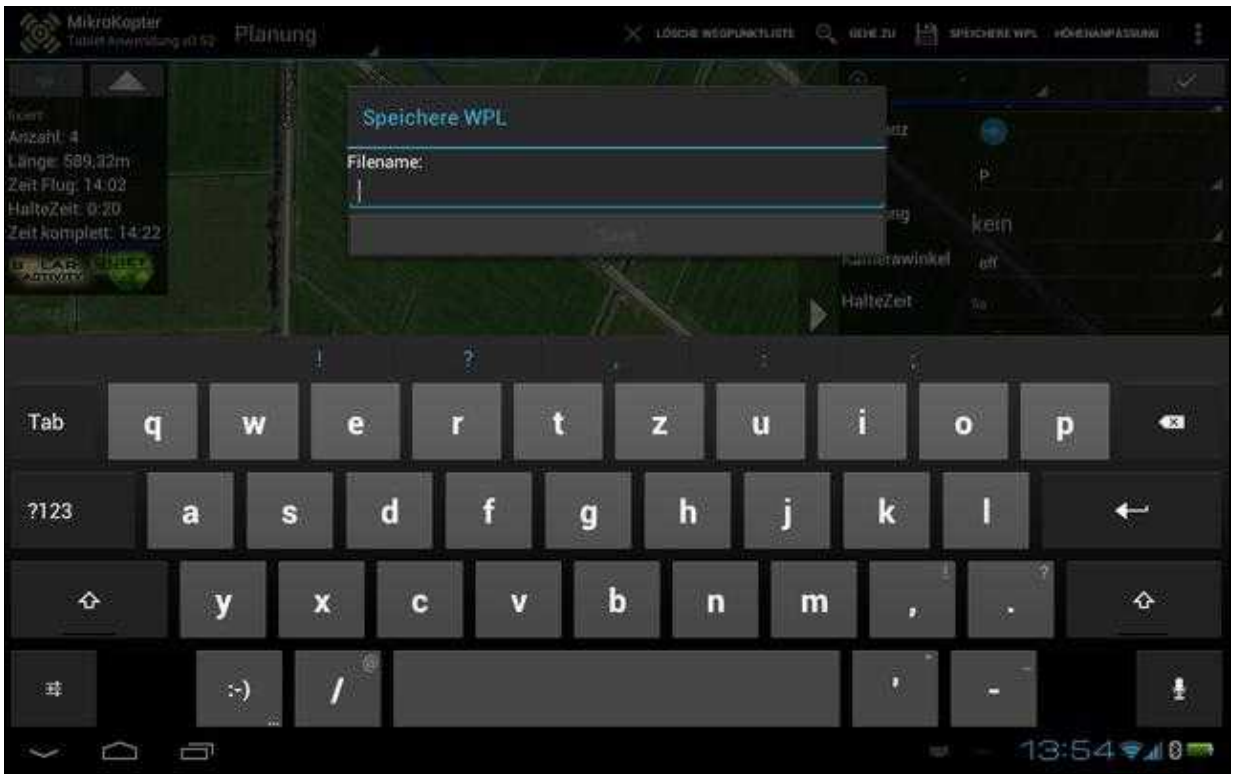


6.5.1 Receive WP

- This function reads the already existing WayPoints from the Kopter and displays them in the map.

6.5.2 Save WPL

- Are WayPoints/POI saved and confirmed on a map, you can save them in a file.



(To enlarge -> click on ther image)

6.5.3 List

- If you open the ***List*** all WayPoints/POI with all values are displayed in a list.

Typ	Name	Zeit	Radius	WP-Event	Steigrate	Höhe	Richtung	Geschwindigkeit	Kamerawinkel	pos
	POI1	--	--	--	--	0 m	--	--	--	
	P1	5s	10m	6	1,5 m/s	28 m	-1	1,5 m/s	--	
	P2	5s	10m	6	1,5 m/s	28 m	-1	1,5 m/s	--	
	P3	5s	10m	6	1,5 m/s	28 m	-1	1,5 m/s	--	
	P4	5s	10m	6	1,5 m/s	28 m	-1	1,5 m/s	--	
	P5	5s	10m	6	1,5 m/s	28 m	-1	1,5 m/s	--	

A "click" on the appropriate button **"pos"** opens the coordinates of each !WayPoint/POI.

Here you can check either way:

- the exact coordinates of the set WayPoint>/POI
- or enter a coordinate by yourself (in decimal degrees) for the opened up WayPoint/POI.

7 Selection

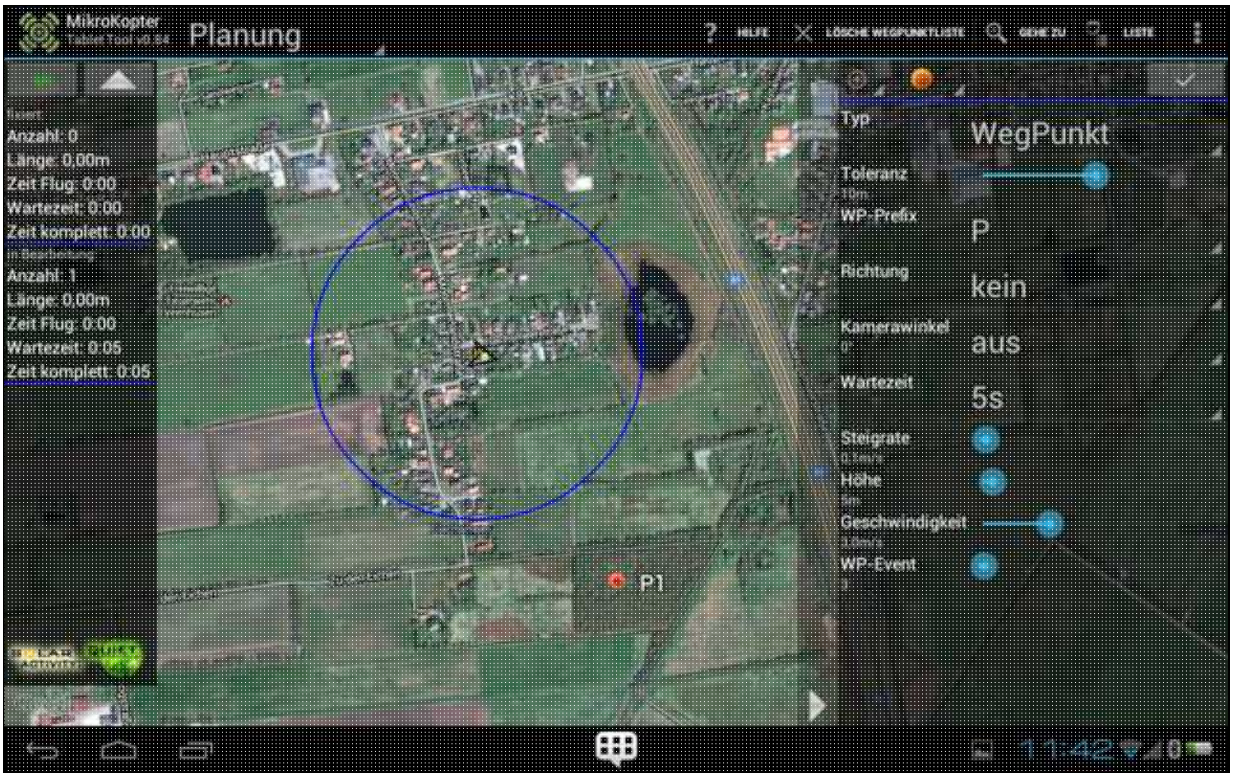
In the MK-TT you have all together three menu points.

- Planning
- Status
- Settings

The different menu points you can choose in the upper menu bar:

(To enlarge -> click on the image)

8 Planning

- 

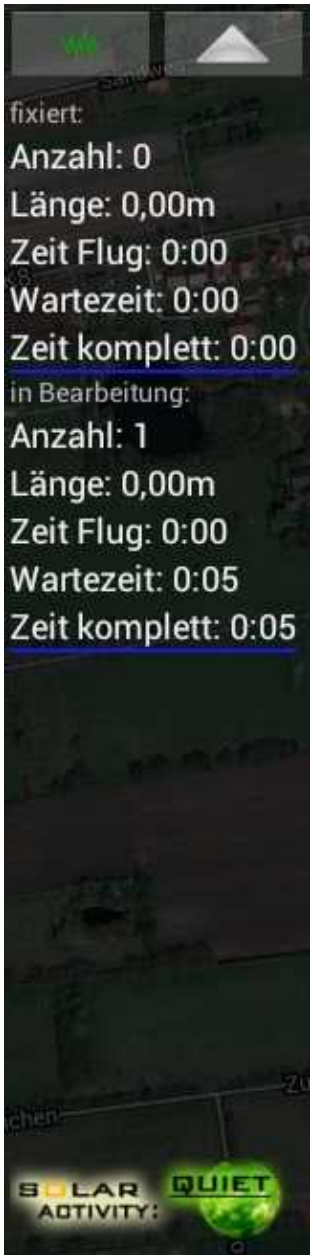
(To enlarge -> click on the image)

In the menu **Planning** you can set, move, save or load WayPoints/POI.
For orientation the upper menu bar, the left info window and the rightsided selection-/setting window are available.

8.1 Radius

- Is there a connection to the MikroKotper a blue circle in a distance of 250mtr around the actual position will be displayed on the map.

8.2 Info window

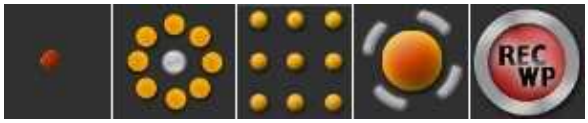

fixiert:
Anzahl: 0
Länge: 0,00m
Zeit Flug: 0:00
Wartezeit: 0:00
Zeit komplett: 0:00
in Bearbeitung:
Anzahl: 1
Länge: 0,00m
Zeit Flug: 0:00
Wartezeit: 0:05
Zeit komplett: 0:05
SOLAR ACTIVITY:
QUIET

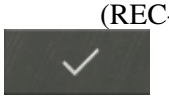
- **Left button - wave symbol**
  - ♦ Connection with RE and Kopter. Flashes green during connection
- **Button with arrow**
  - ♦ Close and open the info window
- **Area 1 = "fixed"**
  - ♦ **Numbers**
    - ◊ Numbers of set WayPoints
  - ♦ **Lenght**
    - ◊ Total lenght of the flight distance from WP to WP
  - ♦ **Time Flight**
    - ◊ Total flight time
  - ♦ **Waiting time**
    - ◊ Total waiting time of all WayPoints
  - ♦ **Total time**
    - ◊ Flight time + waiting time together
- **in progress**
  - ♦ shows the values for the fixed and currently in progress WP's together
- **Solar Activity**
  - ♦ Displays solar storms. Those storms can interfere the function of the GPS.
    - ◊ (Infos you can find here: Link)
  - ♦ **Sun GREEN** = everything is OK - trouble-free flight is possible
  - ♦ **Sun ORANGE** = partially disorder throughout solar storms
  - ♦ **Sun RED** = Solar storms interfere the GPS. Avoid the use of the GPS

8.3 Selection window

- In the right window WayPoints (and POI) can be set, edited and saved WayPoints can be loaded. The setup of each WayPoint can be made via the slider or with a direct entry of a number.

TIP:
A longer "click" on the appropriate script switches between slider and number entry.

- **Description of the function:**
- 
  - ♦ Set WP/POI new - Edit WP/POI - Load saved WP-list
- 

  - ♦ single WP - WP-circle with POI - WP-area - Panorama - REC-WP
    (REC-WP only visible if it has been used in the window "Status" !)
- 
  - ♦ The "OK"-symbol sets the WP/POI on the map
- **Type**
  - ♦ Choosing between WayPoint and POI
- **Tolerance**
  - ♦ Radius around the WP
- **WP-Prefix**
  - ♦ Selection of letters for WayPoints (to distinguish a bunch of WayPoints)
- **Direction**
  - ♦ View of the camera (Selection: no angle (with input), POI, WP)

- **Angle of the camera**
  - ♦ View of the camera (Selection: off, Auto, Angle (with input)
- **Waiting time**
  - ♦ Waiting time at the WP
- **Climbing rate**
  - ♦ Climb- / fall-speed between WP's in different heights
    (INFO: if you do not choose a value (no climb) the Kopter stays in the actual height)
- **Height**
  - ♦ Height of the WP / POI
- **Speed**
  - ♦ Flight speed to the WP (max ~6m/s possible.) (60dm/ = 6m/s = ~21km/h)
- **WP-Event**
  - ♦ Time in Ms. Determines how long a set cascet in the bitmap switches the output "ON/OFF".
- 
  - ♦ Close and open the selection window

8.4 WayPoints

8.4.1 Set WayPoints

To set a WayPoint on the map the following steps are necessary:

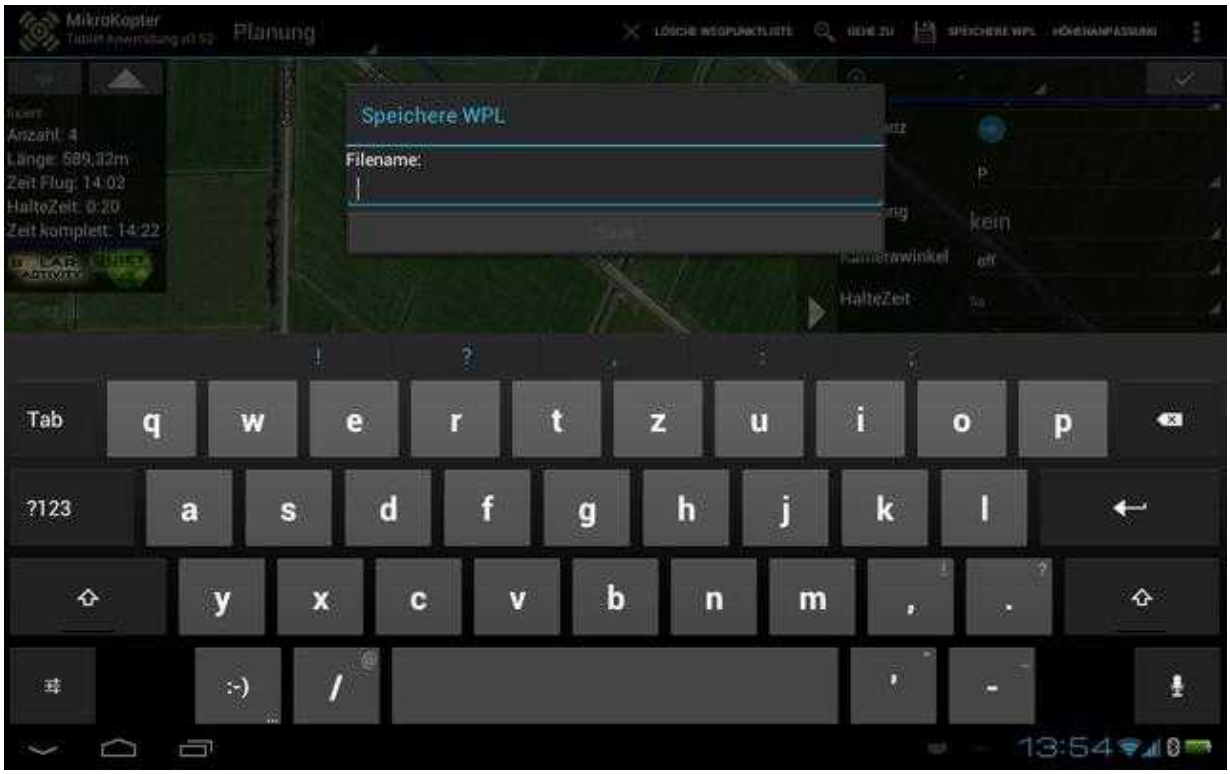
1. Choose the symbol *set WP/POI new* 
2. Choose desired WP (single WP - WP-circle with POI - WP-area - Panorama)
3. Select type (WP/POI) and enter the settings
4. Set WP/POI on the map
5. Confirm WP/POI with the "OK"-symbol

8.4.2 Edit WayPoints

Already set WayPoints can be easily edited, moved or deleted:

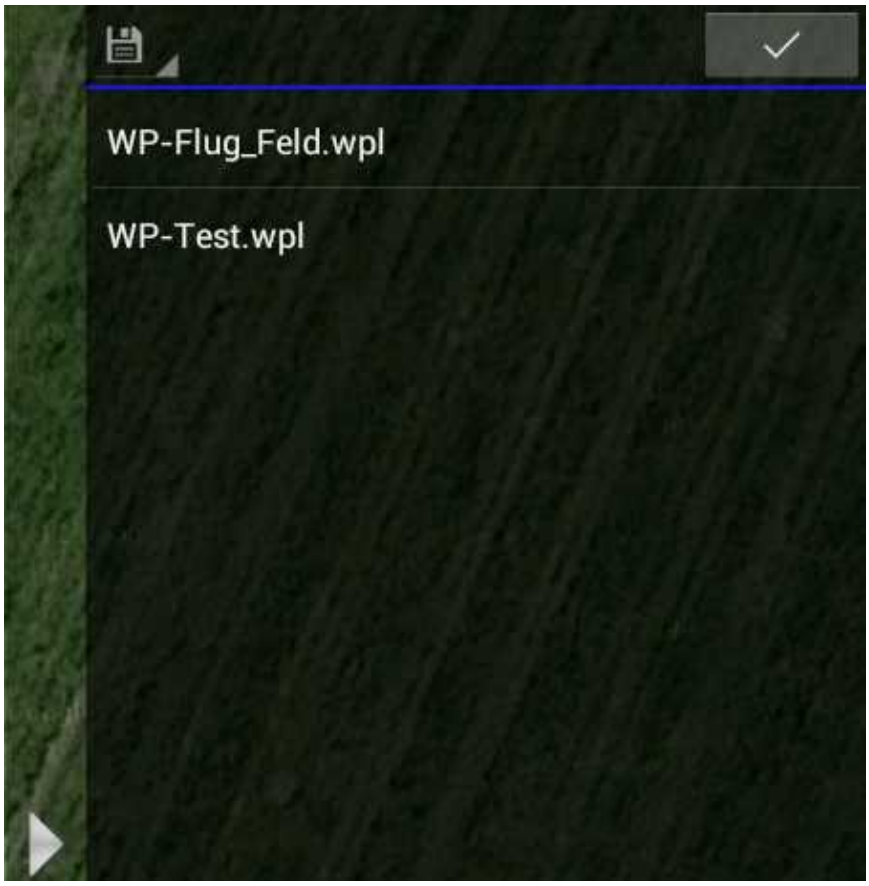
1. Choose symbol *Edit WP/POI* 
2. + 3. Choose the to modify WP or POI either way on the map or with thze selection button.
3. Choose the move-symbol to give a WP/POI a new position. Place the WP/POI new on the map with a finger touch.
4. Customize the new settings
5. or delete the chosen WP/POI

8.4.3 Save WayPoints



To save WayPoints/POI you choose the entry ***Save WPL*** in the menu bar.

8.4.4 Load WayPoints



Load already saved WayPoints / POI:

1. Choose symbol *Load saved WP-List* 
2. Choose saved WP-List.
3. After a click on one of the saved WP-lists it will be displayed where it was created.
   If you click on a different spot on the map the WP-list will be displayed there.
4. With a "Click" on the button "OK" the WP-List will be placed on the map.

9 Status

The menu point *Status* will be displayed during the flight. Here you can:

- follow the flight of the Kopter live on the map
- watch the set telemetry data in the left info window
- announce via the voice button the telemetry data or info-text
- the actual position of the MikroKopter (also during the flight) can be set to the map with a click on the button ***REC-WP***

By clicking the button a WayPoint will be set at the actual position of the MikroKopter.

By clicking the button the voice output will start.

INFO
Already set WayPoints with *"REC-WP"* need to be confirmed each in the menu window *"Planning"* to send them again to the Kopter. In that way each WayPoint can be set or deleted individually.

10 Settings

In the menu point ***Settings*** you can choose which telemetry data should be displayed and/or been announced. Here you can choose the view of the map, load saved maps and register the RangeExtender angemeldet werden.

10.1 Telemetry selection

On the left side you will find the selection to display / announce telemetry data.
If you checkmark the appropriate cascet you can activate / deactivate a display or announcement.

- **Left button - wave symbol**
  - ♦ Connection with RE and Kopter. Flashes green during connection
- **Button with arrow**
  - ♦ Close and open the info window
- **Alarm**
  - ♦ Warning messages (i.e. low voltage warning, loss of reception, etc.)
- **Voltage**
  - ♦ The actual LiPo voltage at the Kopter
- **Current**
  - ♦ The actual consumption at the Kopter
- **Capacity**
  - ♦ The actual used capacity at the Kopter
- **Height**
  - ♦ The actual height
- **Direction**
  - ♦ Direction in degrees between start point and actual position of the Kopter
- **Speed**
  - ♦ The actual flight speed
- **Mode**
  - ♦ The actual used mode (PH, CH)
- **CareFree**
  - ♦ Function CareFree (ON/OFF)
- **Satellites**
  - ♦ Number of received satellites
- **WayPoint information**
  - ♦ Infos around the WayPoint
- **Time WayPoint**
  - ♦ Remaining time before flying to the next WayPoint
- **Distance**
  - ♦ Distance to the next WayPoint
- **Switch function**
  - ♦ Displays the actual active switcgh output
- **Flight time**

- ♦ Display flight time

- **Slider**
  - ♦ Enlarge / minimize the display
    (has also an effect for the display *Status*.)

10.2 Settings

In the right window you choose the display for the Google Map, load saved maps and register the RangeExtender in the program.

- **RE-ID**
  - ♦ Entry of the RangeExtender ID
- **OK-Button**
  - ♦ Establishes an internbet connection to check the RE-ID
- **Reconnect after inactivity**
  - ♦ Activate automatically reconnection
- **Google Map**
  - ♦ Selection of the display (Satellite / Map)
- **Offline Maps**
  - ♦ Load = load saved map
  - ♦ Remove = remove opened map from the display
  - ♦ Import via MK Map-Tool = Connection with the webpage of the MK Map-Tool (you can choose or save there maps.)
- **Voice speed**
  - ♦ Choose speed of announcement

11 Tested Tablets - WhiteList/BlackList

- The WhiteList / !Blacklist is related to tablets using the original Android Software .
  If you use an alternitive Android Software on the tablet you maybe have problems with the connection which are not related to the MK-Tablet Tool.

WhiteList (functional)

- Asus Transformer TF101
- Asus Transformer Prime TF300
- HTC Flyer
- Samsung Galaxy Tab 10.1 (GT-P7500) with Android 4.04 Kernel 3.1.10
- Samsung Galaxy Tab 10.1n (GT-P7501) with Android 4.04
- Galaxy Note 10.1 (GT-N8010) with Android 4.1.2
- Nexus 7
- Nexus 10
- Galaxy Tab 2 10.1 with Android 4.0.3
- Panasonic Toughpad FZ-A1
- MEDION Lifetab S9714 (only short time installed and sucessful with RE connection, in that case "quite possible")
- Lenovo ThinkPad

BlackList: (make problems)

- Lenovo IdeaTab A2107A-H (Mod. 2298) with Android 4.0.3