mrobo 1080p Pen camera
Manual

A. Camera elements

1. Video recording
2. Camera lens
3. LED indicator
4. Voice recorder / Photo shot
5. On/Off button
6. Reset hole
7. Micro-SD slot
8. Micro-USB socket
9. Clip

B. First steps

Charging

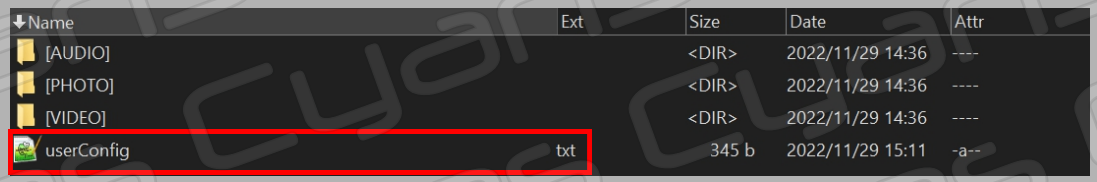
- Connect the camera to an external source of 5 VC 2A (power supply, power bank, computer). The LED indicator (3) shows a blue-red color. When the battery is fully charged, the LED turns off. Charging time : 2.5-3 hours.

Note when the battery is empty, when turning on the camera, the LED flashes several times in blue-red, then turns off

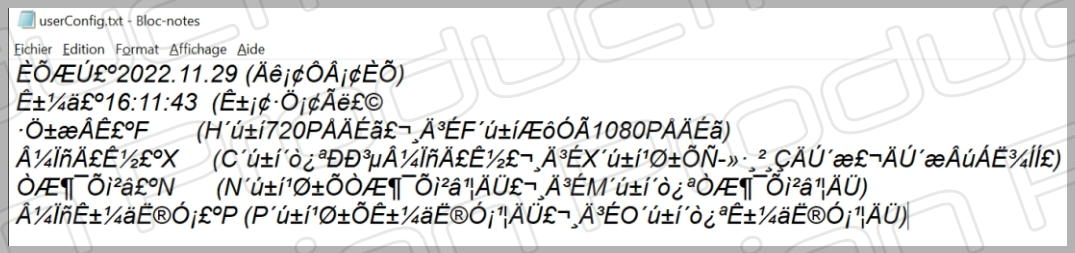
SD-card

- *Insert a micro SD card of maximum 128GB into the camera slot (7). By turning on the device, the card will be formatted and different directories will be created on the card. A 'userConfig.txt' text file is also created on the card. This file determines the settings that are assigned to the camera. These parameters can be changed by the user. To change them, you must edit this file with an editor such as the 'Notepad' editor.*

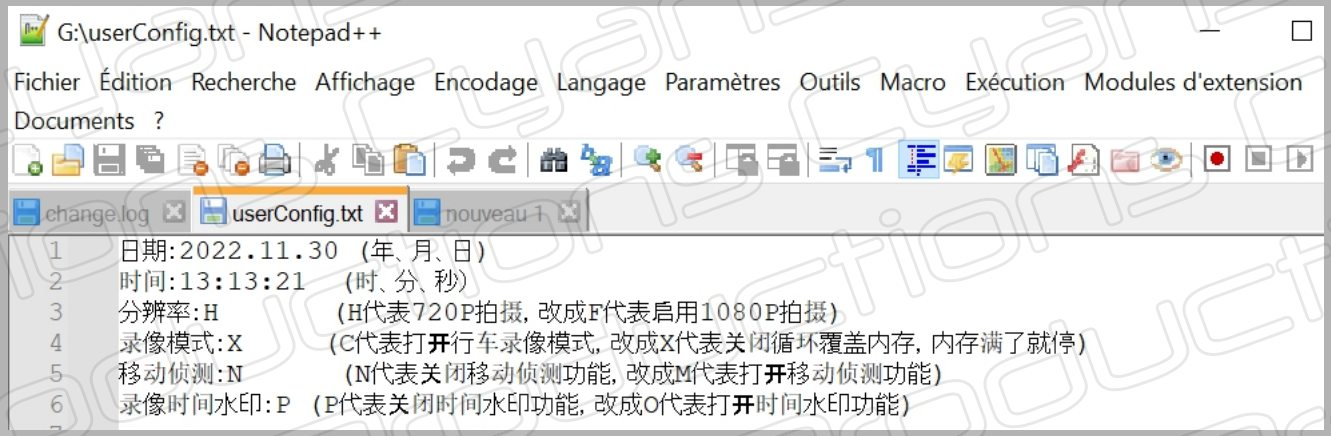
Note that if no card is detected when switching on, the LED flashes blue-red several times and then turns off.



Using the Notepad, this is what you will see. Indeed the original text is in Chinese.



It is possible to change the settings using the 'Notepad' editor. However, to display the content of the text file correctly, I suggest you use 'Notepad++', a file editor that you can download for free from the Internet.
And this is what it looks like:



With Notepad++ you correctly display Chinese symbols and related parameters. It is therefore easier to edit them. Settings contains date and time, video resolution, loop mode, motion detection, watermark.

```
1 日期:2022.11.30 (年、月、日)
2 时间:13:13:21 (时、分、秒)
3 分辨率:H (H代表720P拍摄，改成F代表启用1080P拍摄)
4 录像模式:X (C代表打开行车录像模式，改成X代表关闭循环覆盖内存，内存满了就停)
5 移动侦测:N (N代表关闭移动侦测功能，改成M代表打开移动侦测功能)
6 录像时间水印:P (P代表关闭时间水印功能，改成O代表打开时间水印功能)
```

Edit only the parameters that are framed in green

1 : Date
2 : Time
3 : Resolution (H= 1280x720, F= 1920x1080)
4 : Loop mode (X= stop recording when the card is full, C= loop recording, the oldest file will be overwritten)
5 : Motion detection (N=off, M=on)
6 : Time stamp (P=off, F=on)

Note that the date and time settings are transferred to the camera's internal memory and the camera's internal clock will adapt them to the current date and time as long as the battery is charged. The current date and time will each time be rewritten in the 'userConfig.txt' file All other settings should be changed as needed and will remain valid as long as they are not changed again.

C. Video recording

After setting up and inserting the SD card into the camera, turn it on by pushing the slider button (5) up (ON position). A blue-red LED (3) flashes several times and turns solid blue indicates that the camera is in standby mode. Briefly push the top button (1) to start recording. When recording, the LED (3) flashes red. To stop recording, press the top button (1) again. The LED status (3) changes back to solid blue. Turn off the camera by moving the slider (5) down (OFF position). Continuous 1080p recording: 3h40min

D. Photo

To take photos, the camera must be in video recording mode. When the camera is recording, briefly push the voice recorder button (4) to take a photo.

E. Sound recording

You also have the option of recording sound only. After setting up and inserting the SD card into the camera, turn it on by pushing the slider button (5) up (ON position). A blue-red LED (3) flashes several times and turns solid blue indicates that the camera is in standby mode. Briefly push the front button (4) to start sound recording. When recording, the LED (3) flashes blue. To stop recording, press the front button (4) again. The LED status (3) changes back to solid blue. Turn off the camera by moving the slider (5) down (OFF position).

F. Motion detection

Setup the motion detection in the 'userConfig.txt' file. Turn on the camera and activate the video recording mode. Directly after starting recording, a variable sequence between 12 and 22 seconds is recorded, then the device goes to sleep. When it detects movement again, the camera then records a new variable sequence and goes back to standby. To stop 'motion detection' mode, stop video recording. Don't forget to change the settings in the 'userConfig.txt' file if you want to go back to normal recording mode.

Note that for video recording and sound recording, motion detection recording, the LED will flash 9 times before turning off. The recording is still in progress at this time and will not stop until you press one of the recording buttons again. When the recording is stopped, the file is at the same time saved on the SD card.

G. View SD-card files

There are two possibilities for displaying the files saved on the SD card: 1) By inserting the SD card into a card reader attached to a computer or by connecting the camera directly to a USB port on your computer. By connecting the camera directly via a USB cable to a USB port on your computer, while displaying the files, the battery is charged at the same time. You can also view your files and charge the camera on your smartphone using an OTG adapter.

SD-card recorded files and data

e:*.*

Name	Ext	Size	Date	Attr
[AUDIO]		<DIR>	2022/11/29 14:36	
[LOST.DIR]		<DIR>	2023/05/31 09:54	----
[PHOTO]		<DIR>	2022/11/29 14:36	
[System Volume Information]		<DIR>	2023/05/30 19:19	--hs
[VIDEO]		<DIR>	2022/11/29 14:36	----
userConfig	txt	345 b	2023/05/31 09:55	-a--

Name	Ext	Size	Date	Attr
[..]		<DIR>	2022/11/29 14:36	----
MOVI0000	avi	10,83 M	2022/11/29 15:05	-a--
MOVI0001	avi	14,93 M	2022/11/29 15:09	-a--
MOVI0002	avi	17,70 M	2022/11/30 12:13	-a--
MOVI0003	avi	11,77 M	2022/11/30 13:00	-a--
MOVI0004	avi	12,33 M	2022/11/30 13:02	-a--
MOVI0005	avi	5,18 M	2022/11/30 13:15	-a--
MOVI0006	avi	42,31 M	2022/11/30 13:46	-a--
MOVI0007	avi	24,82 M	2022/11/30 13:47	-a--
MOVI0008	avi	39,15 M	2022/11/30 13:58	-a--
MOVI0009	avi	39,79 M	2022/11/30 13:59	-a--
MOVI0010	avi	4,38 M	2022/11/30 13:59	-a--

```
Complete name                            : E:\VIDEO\MOVI0000.avi
Format                                   : AVI
Format/Info                              : Audio Video Interleave
Format settings                          : BitmapInfoHeader
File size                                : 10.8 MiB
Duration                                 : 8 s 400 ms
Overall bit rate                         : 10.8 Mb/s
Frame rate                               : 30.000 FPS

Video
ID                                       : 0
Format                                   : JPEG
Codec ID                                 : MJPG
Duration                                 : 8 s 400 ms
Source duration                          : 8 s 0 ms
Bit rate                                 : 12.4 Mb/s
Width                                    : 1 280 pixels
Height                                   : 720 pixels
Display aspect ratio                     : 16:9
Frame rate                               : 30.000 FPS
Color space                              : YUV
Chroma subsampling                       : 4:2:0
Bit depth                                : 8 bits
Compression mode                         : Lossy
Bits/(Pixel*Frame)                       : 0.449
Stream size                              : 12.4 MiB

Audio
ID                                       : 1
Format                                   : PCM
Format settings                          : Little / Signed
Codec ID                                 : 1
Duration                                 : 7 s 665 ms
Bit rate mode                            : Constant
Bit rate                                 : 256 kb/s
Channel(s)                               : 1 channel
Sampling rate                            : 16.0 kHz
Bit depth                                : 16 bits
Stream size                              : 240 KiB (2%)
Alignment                                : Aligned on interleaves
Interleave, duration                     : 533  ms (16.00 video frames)
```

```
Complete name                            : E:\VIDEO\MOVI0062.avi
Format                                   : AVI
Format/Info                              : Audio Video Interleave
Format settings                          : BitmapInfoHeader
File size                                : 64.1 MiB
Duration                                 : 40 s 133 ms
Overall bit rate                         : 13.4 Mb/s
Frame rate                               : 30.000 FPS

Video
ID                                       : 0
Format                                   : JPEG
Codec ID                                 : MJPG
Duration                                 : 40 s 133 ms
Source duration                          : 40 s 0 ms
Bit rate                                 : 16.1 Mb/s
Width                                    : 1 920 pixels
Height                                   : 1 080 pixels
Display aspect ratio                     : 16:9
Frame rate                               : 30.000 FPS
Color space                              : YUV
Chroma subsampling                       : 4:2:0
Bit depth                                : 8 bits
Compression mode                         : Lossy
Bits/(Pixel*Frame)                       : 0.259
Stream size                              : 77.2 MiB

Audio
ID                                       : 1
Format                                   : PCM
Format settings                          : Little / Signed
Codec ID                                 : 1
Duration                                 : 39 s 858 ms
Bit rate mode                            : Constant
Bit rate                                 : 256 kb/s
Channel(s)                               : 1 channel
Sampling rate                            : 16.0 kHz
Bit depth                                : 16 bits
Stream size                              : 1.22 MiB (2%)
Alignment                                : Aligned on interleaves
Interleave, duration                     : 513  ms (15.38 video frames)
```

Name	Ext	Size	Date	Attr
[..]		<DIR>	2022/11/29 14:36	----
RECR0000	wav	232,04 k	2022/11/29 15:05	-a--
RECR0001	wav	288,04 k	2022/11/29 15:11	-a--
RECR0002	wav	312,04 k	2022/11/30 13:15	-a--
RECR0003	wav	72,04 k	2022/11/30 14:41	-a--
RECR0004	wav	0 b	2022/11/30 14:41	----
RECR0005	wav	44 b	2023/05/30 12:46	-a--
RECR0006	wav	44 b	2023/05/30 12:46	-a--
RECR0007	wav	704,04 k	2023/05/30 13:23	-a--

File Properties

	Attribute	Value
1	File name	RECR0000.wav
2	Location	E:\AUDIO\
3	File size	0,24 MB (237.612 bytes)
4	File attributes	- --a- ----
5	Last saved	2022-11-29 16:05:10
6	File type	Wave (Microsoft)
7	Audio format	Uncompressed
8	Audio sample rate	16.000
9	Audio bit rate	256 Kbps
10	Audio bit depth	16 bit
11	Audio channels	1
12	Speaker placement	Discrete #1
13	Audio length	00:00:07,424 (118.784 samples)
14	Video format	No Video
15	Video attributes	No Video
16	Video length	No Video
17	Video field order	No Video
18	Video pixel aspect ratio	No Video

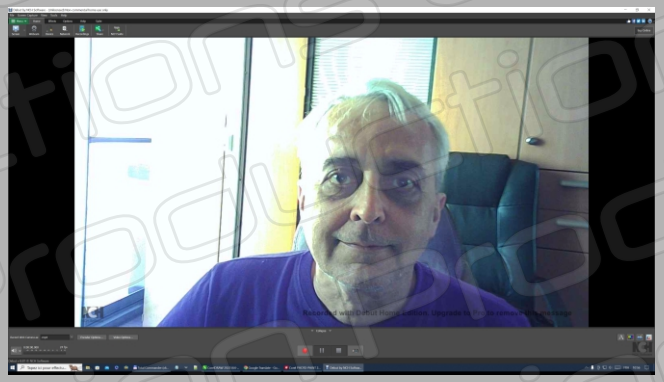
Name	Ext	Size	Date	Attr
[..]		<DIR>	2022/11/29 14:36	----
PICT0000	jpg	50,17 k	2023/05/31 09:22	-a--
PICT0001	jpg	53,65 k	2023/05/31 09:22	-a--
PICT0002	jpg	60,36 k	2023/05/31 09:22	-a--
PICT0003	jpg	56,49 k	2023/05/31 09:22	-a--

File	
Bits Per Sample:	8
Color Components:	3
Comment:	GPEncoder
Encoding Process:	Baseline DCT, Huffman coding
File Type Extension:	jpg
File Type:	JPEG
Image Height:	720
Image Width:	1280
MIME Type:	image/jpeg
Y Cb Cr Sub Sampling:	YCbCr4:2:0 (2 2)
Composite	
Image Size:	1280x720
Megapixels:	0.922

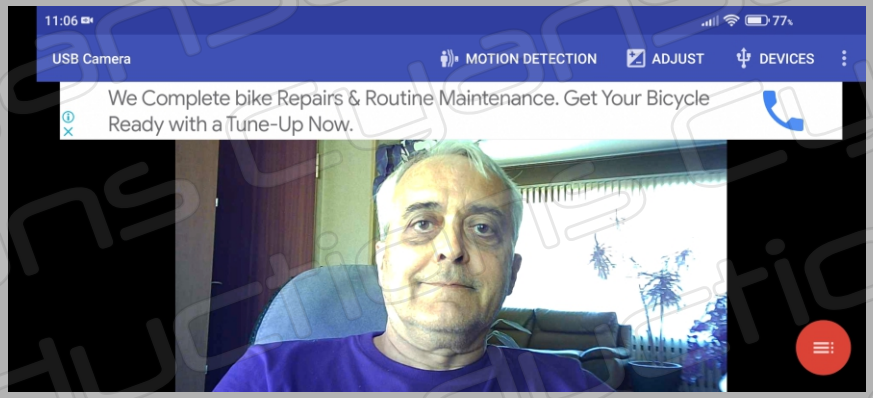
File	
Bits Per Sample:	8
Color Components:	3
Comment:	GPEncoder
Encoding Process:	Baseline DCT, Huffman coding
File Type Extension:	jpg
File Type:	JPEG
Image Height:	1080
Image Width:	1920
MIME Type:	image/jpeg
Y Cb Cr Sub Sampling:	YCbCr4:2:0 (2 2)
Composite	
Image Size:	1920x1080
Megapixels:	2.1

H. Webcam

The camera can also be used as a webcam. Connect the camera using the USB cable to a USB port on your computer but without inserting an SD card. The camera does not need to be turned on. Use a program like 'Debut video capture software' or any other video conferencing program to display the camera image.



The camera can also be connected to your smartphone using an OTG adapter. Connect the camera to your smartphone without inserting an SD card. Use an app such as 'USB camera' to view the video.



I. Reset

To reset the camera in the event of a problem, such as if you can no longer turn off the camera or the LED is frozen in a specific state, use an object such as a paper clip and insert it very carefully into the reset hole (6). A slight click is felt, the LED turns off and the camera is operational again.