



Stonito Faces

User guide
2023

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Welcome to Stonito Faces

Facial recognition works by identifying and measuring facial features. This procedure can identify human faces in pictures or live video streams, determine if the face in different images belongs to the same person, or check for a face in a large collection of existing images.

Stonito Faces use a simple procedure for facial recognition. Every face detected is scanned for its unique facial characteristics. This is some kind of face encoding.

This face encoding is compared with other face encodings and the measure of it is in fact a measure of a similarity of the two faces.

At the same time for each detected face software performs the simple check of age and gender and those results are also stored for possible statistical use.

Technology Used

We used well-known and widely used open source libraries:

- OpenCV, loading image sources
- Dlib, a toolkit for making real world machine learning and data analysis

Those technology are ported to .NET version 6.

The final product works as a standard Windows application for 64 bit.

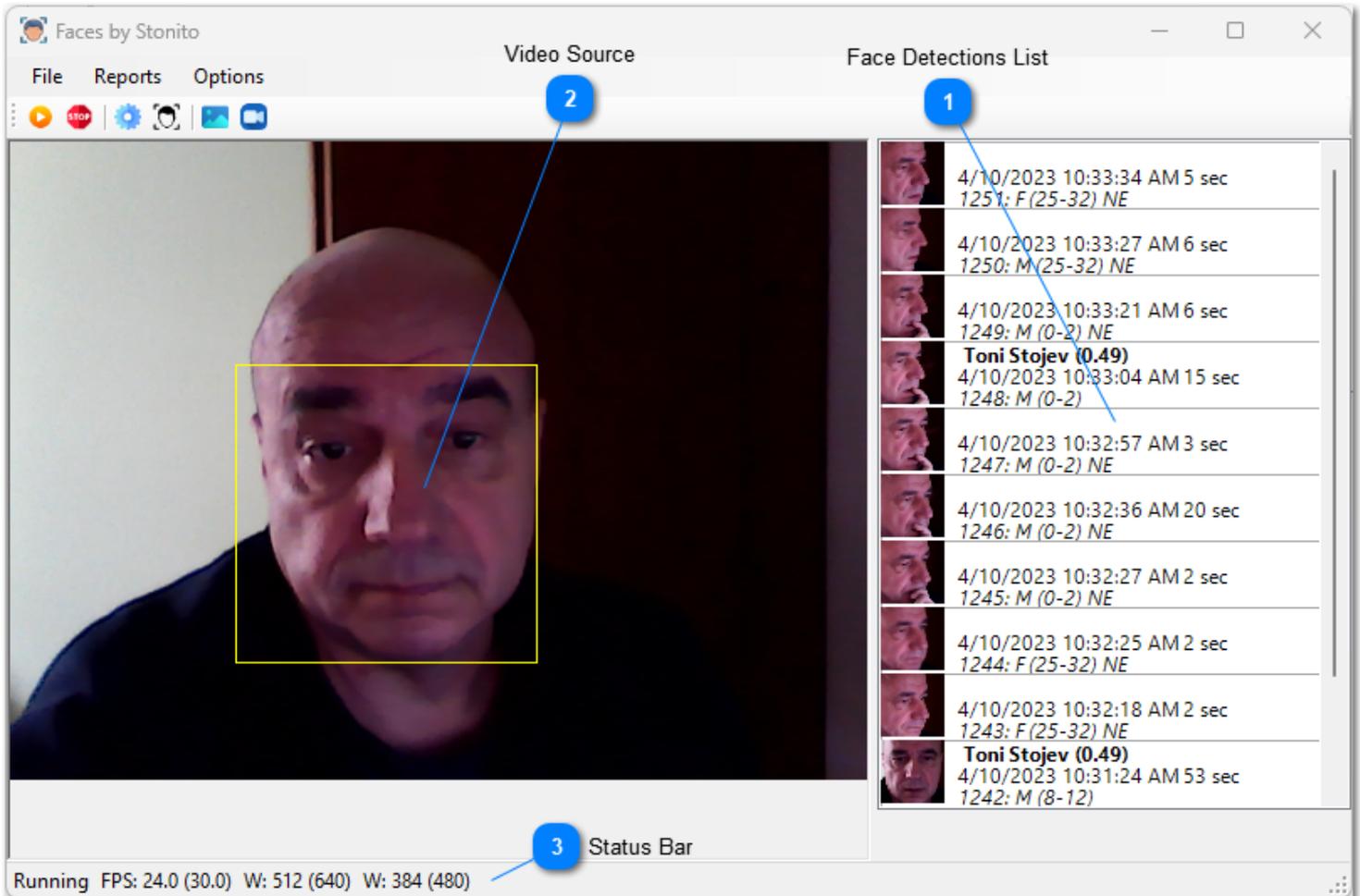
Getting Started

Stonito Faces runs on any computer with a 64 bit Windows operating system having .NET Framework 6 (or higher) installed.



The running software is minimized to a taskbar and you can recognize it by this icon. Double click will show the main form. Other option is right mouse click that will open context menu.

The main form is probably the best place to start our introduction.



1 Face Detections List

The list of all detections made by a software. You see the recognized face (if any), time of first detection, duration of tracking the same face in the video in seconds, age and gender.

NE stands for No-Encoding, meaning that the face fetched in that session doesn't have a suitable face encoding extracted. It can happen because face is detected in more poses than encoding which expects frontal face. The number (0.49) after the recognized person name is the measure of difference of facial encodings. The lesser the number the difference is smaller, for a complete match it would be 0.0.

2 Video Source

This is an area showing you the real time video from the selected source.

3 Status Bar

State of the camera video thread (Running or stopped), frames per second after calculations and from the video source, the frame width and height in pixels, after zooming and original from video source.

Main Controls

Stonito Faces is meant to be used in hidden mode, represented by an icon in a taskbar. When the main form is restored, we can check how it works and update and modify some variables that affect its work. For that we have available menu or toolbar.



1 Start Video



Starts or restores the thread for fetching images from live video source and processing of them for face detections and faces tracking.

2 Stop Video



Stops the thread for processing live video source or a playing video file.

3 Options



You set the working options of the face recognition process. This is done by setting a limited set of adjustable variables that determine program function adjusting to different source characteristics.

4 Known Faces



Used to set and maintain the list of Known Faces against the newly detected face will be compared with.

5 Load Image



Loads and test an image from disk for facial detections. The live video source processing is not affected with that.

6 Load Video File



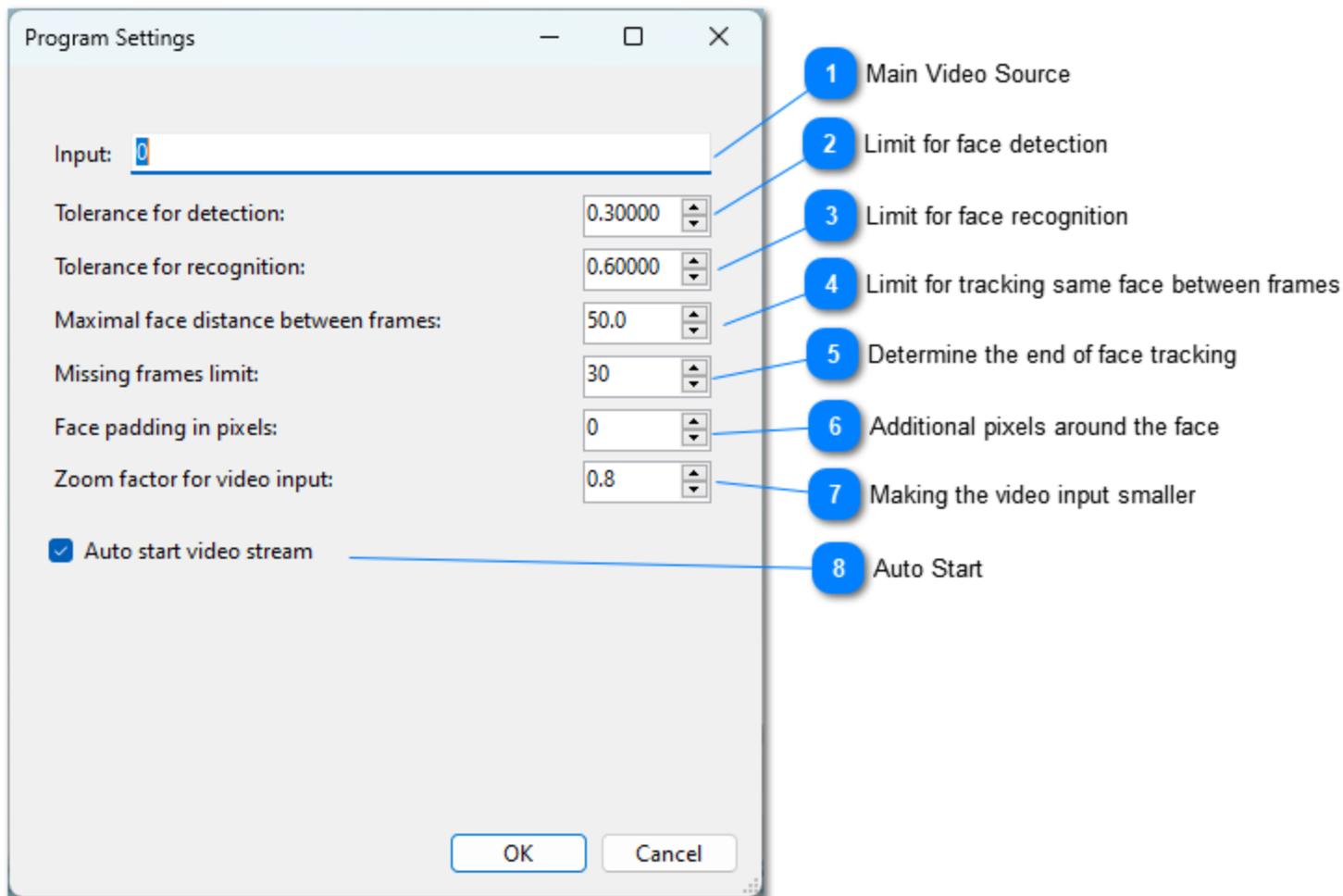
Stops a live video source processing and plays and process a video file from a disk.

Settings

Setting and training this network differs very little from the main neural network described in previous topic.

This network has less parameters and is much simpler to train and use.

Using this trained network you will be able to check any given combination in terms of how good it looks as a jackpot combination, based on previous draws.



1 Main Video Source

Integer value represents the USB web camera. If you have only one web camera connected, the number will be zero. If you have two cameras, the second is the number 1.

2 Limit for face detection

Fast detection of faces is shown on a main screen with a yellow box. The detected faces with this fast detection process may not be suitable for processing so you will probably want not to detect all those faces. This limit accounts only faces with the probability of being a face higher than this limit.

3 Limit for face recognition

Every counted face gets its face encoding extracted and compared for difference with all faces stored in Known faces table. The person will be recognized if its stored face encoding is closest to the newly detected face, but only if its difference is less than this limit. The smaller the number the smaller the difference.

4 Limit for tracking same face between frames

The face is tracked in subsequent frames, the nearest to the previous position will be added to tracking that face if the distance is less than this number. This is useful if you have more faces in a frame, that should be enough to connect faces to the right faces from previous frames. The number is in pixels, so the correct value depends on your camera positions and monitored people behavior.

5 Determine the end of face tracking

The same face won't be detected in every frame. The angle of the face may be inappropriate, it may be partially covered or blurred. This number defines how many subsequent frames may be missing a tracked face before that face is considered gone from the input stream and added to the detected faces and processed accordingly.

6 Additional pixels around the face

Faces detected originally detected are confined close to cover just the most important parts of the face. With this padding more of the face would be included for age and gender detection, but zero padding is quite satisfactory.

7 Making the video input smaller

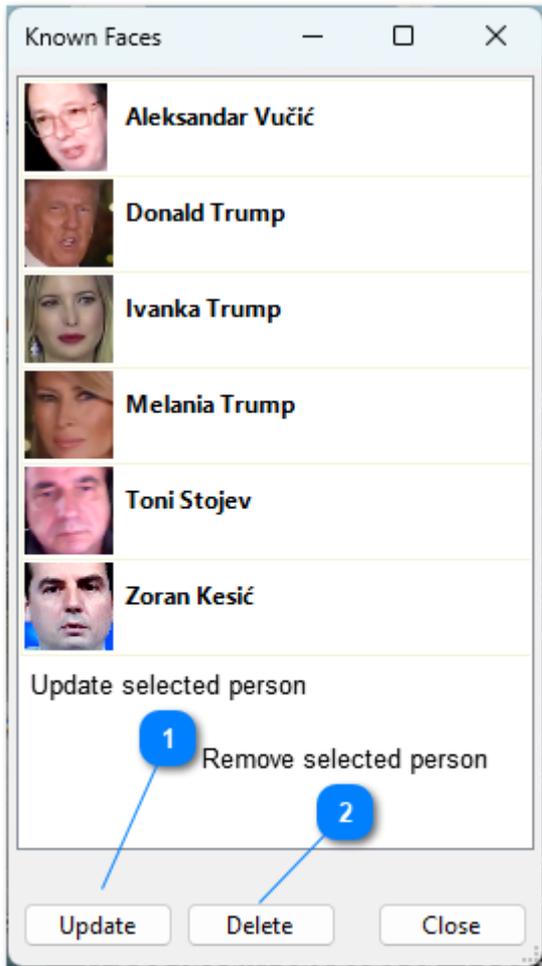
The smaller resolution of the input video the faster the detection will work and more frames per seconds can be processed.

8 Auto Start

If checked the live video source will be automatically started on program startup.

Known Faces

This is a form used to check on faces you are tracking for recognition.



1 Update selected person

Update

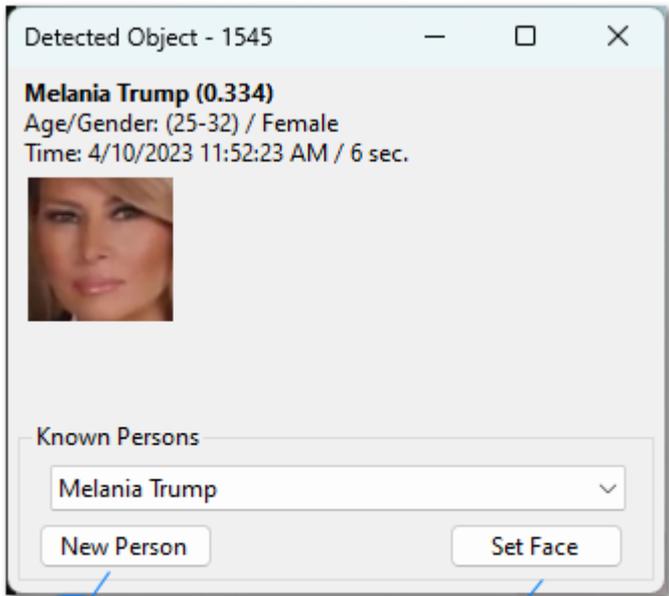
Change name of the known person.

2 Remove selected person

Delete

The previous recognition will be cancelled but not deleted.

The persons are added to this list upon detection.
You just double click on the detected face in the main form.



1 Add new known face

2 Set this face for a selected Known Face

1 Add new known face

New Person

Enter the name of the person and that person with this face will be added to the known faces list and will be include in comparison for all detected faces in future.

2 Set this face for a selected Known Face

Set Face

You can easily update the face representing known person. Select that person in the control above and click on this button. The new face will be used for all future comparison, previous recognitions and detection won't be affected with this change.

Load Image

Select the image from the disk from an open picture dialog, wait a second and you will see the results. Faces are detected, age and genders predicted and shown in the box for each face in the image.



Load Video

Select a video from open file dialog and you will see that video played and analyzed.

The screenshot shows the 'Faces by Stonito' application window. The main video area displays a news segment with a yellow bounding box around Melania Trump's face. The news banner at the bottom of the video frame reads: 'COUNTDOWN TO ELECTION DAY 12 DAYS NEWS EXCLUSIVE DONALD & MELANIA TRUMP SPEAK OUT SPEAK OUT ON CAMPAIGN'S IMPACT ON FAMILY abc'. The right sidebar lists the detected faces:

	Donald Trump (0.59) 4/10/2023 12:02:42 PM 1 sec 1562: F (48-53)
	4/10/2023 12:02:26 PM 9 sec 1561: M (0-2)
	Melania Trump (0.57) 4/10/2023 12:02:24 PM 3 sec 1560: F (8-12)
	4/10/2023 12:02:24 PM 3 sec 1559: M (0-2) NE
	4/10/2023 12:02:22 PM 2 sec 1558: M (25-32)
	Melania Trump (0.56) 4/10/2023 12:02:20 PM 3 sec 1557: F (25-32)
	4/10/2023 12:02:15 PM 8 sec 1556: M (0-2)
	Melania Trump (0.49) 4/10/2023 12:02:08 PM 12 sec 1555: F (25-32)
	Donald Trump (0.45) 4/10/2023 12:02:12 PM 4 sec 1554: M (8-12)
	4/10/2023 12:02:13 PM 1 sec 1553: F (4-6)

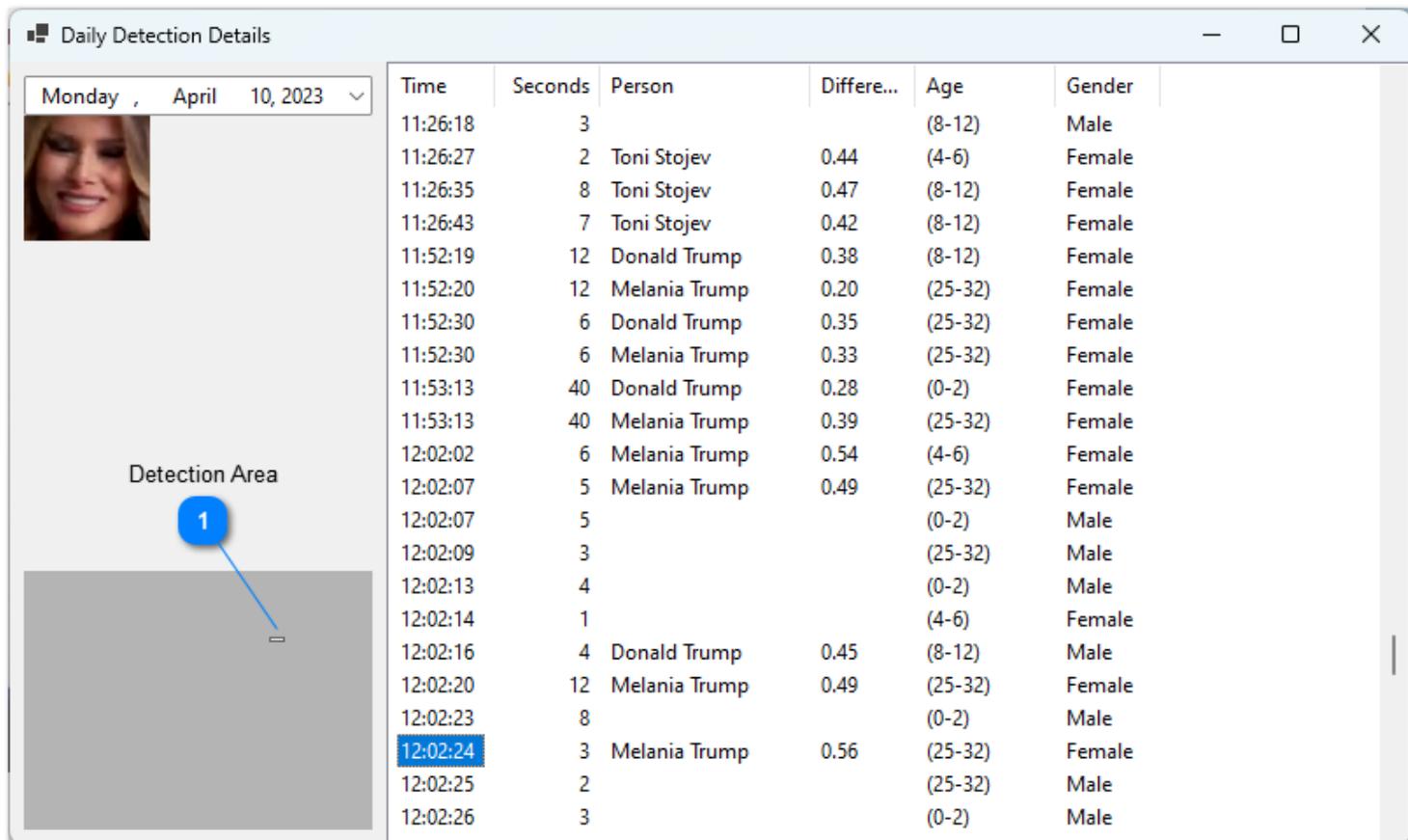
Running FPS: 40.1 (29.0) W: 512 (640) W: 288 (360)

All relevant settings value will be used, and faces would be checked with known faces for recognition.

Daily Report

Select a day and you will see all the detected faces for that date.

You can click on the column header to sort the table according to that column. Subsequent clicks change sorting mode ascending or descending.



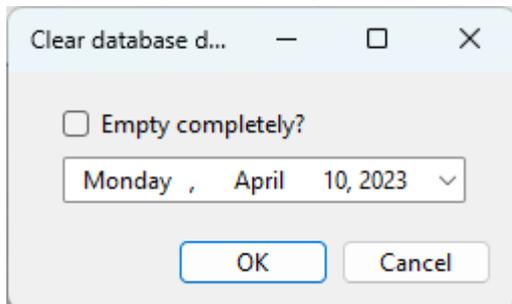
The screenshot shows a window titled "Daily Detection Details" with a date picker set to "Monday, April 10, 2023". On the left, there is a "Detection Area" image showing a face, with a blue circle containing the number "1" pointing to it. The main part of the window is a table with the following columns: Time, Seconds, Person, Differ..., Age, and Gender. The table contains 20 rows of data, with the row for "12:02:24" highlighted in blue.

Time	Seconds	Person	Differ...	Age	Gender
11:26:18	3			(8-12)	Male
11:26:27	2	Toni Stojev	0.44	(4-6)	Female
11:26:35	8	Toni Stojev	0.47	(8-12)	Female
11:26:43	7	Toni Stojev	0.42	(8-12)	Female
11:52:19	12	Donald Trump	0.38	(8-12)	Female
11:52:20	12	Melania Trump	0.20	(25-32)	Female
11:52:30	6	Donald Trump	0.35	(25-32)	Female
11:52:30	6	Melania Trump	0.33	(25-32)	Female
11:53:13	40	Donald Trump	0.28	(0-2)	Female
11:53:13	40	Melania Trump	0.39	(25-32)	Female
12:02:02	6	Melania Trump	0.54	(4-6)	Female
12:02:07	5	Melania Trump	0.49	(25-32)	Female
12:02:07	5			(0-2)	Male
12:02:09	3			(25-32)	Male
12:02:13	4			(0-2)	Male
12:02:14	1			(4-6)	Female
12:02:16	4	Donald Trump	0.45	(8-12)	Male
12:02:20	12	Melania Trump	0.49	(25-32)	Female
12:02:23	8			(0-2)	Male
12:02:24	3	Melania Trump	0.56	(25-32)	Female
12:02:25	2			(25-32)	Male
12:02:26	3			(0-2)	Male

1 Detection Area

The area where the face was found during tracking process.

You can empty database either completely or before a selected date. When Empty completely is unchecked date picker is not visible.



The screenshot shows a dialog box titled "Clear database d...". It has a checkbox labeled "Empty completely?" which is unchecked. Below the checkbox is a date picker showing "Monday, April 10, 2023". At the bottom of the dialog are "OK" and "Cancel" buttons.

Registration

This software has a free trial period.

After that period has passed, the only option to continue using it is to pay for it.

The price for **Stonito Faces** is 50 EUR and is payable using PayPal using the following [link](#).

After payment, you may request a registration code for three different computers with no time frame restrictions. I keep track of each payment and registration code request.

More registration codes are possible free of charge, particularly if the software is used for a longer time.

Registration Dialog

To use this application, you must buy it.
Before buying, you can run application as trial.
In trial mode some application features may be inactive.

Stonito Faces

Trial Running

Days to end trial period: **Finished** Trial Run

Run times left: **Finished** Register

Registration Info

Contact sales with your Registration Code.
They will give you serial for your application.

E-Mail: stonisa@gmail.com
Phone: +381 62 1081435

Registration Code: Copy to Clipboard

FALR0 - EETCI - 5OEN1 - ITSRO - C4M0F

Serial Number: Paste from Clipboard

OK

1 You send to me

2 I send you back and you enter it here

1 You send to me

Using Copy to Clipboard is preferred way for getting the registration code, as typo possibility is eliminated.

2 I send you back and you enter it here

The Serial Number I send you in response to your request should be entered here and then OK pressed to register the software on that computer for good.