



KEYS TO SUCCESS

September 25, 2017



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1. Introduction

Congratulations on your installation of the Smyle Mouse!

Smyle Mouse is a next generation head mouse software that provides complete set of mouse functions by means of head/face tracking done via a simple webcam. No specialized cameras, switches, dots on the forehead, or any other accessories are required.

Smyle Mouse includes multiple state-of-the-art, industry first patent pending features that do not exist in any other commercially available products. Further, it is highly customizable. Therefore, please read this document completely to derive the most benefits out of using the Smyle Mouse.

2. Start up and Calibration

To get the most benefit out of using the Smyle Mouse, please note the following.

❖ Before you begin

- ❑ Watch the Tutorial Videos at least once. (See link to videos [here](#).) The videos are pretty short and it takes less than 15 minutes to watch them all. Given that the Smyle Mouse has novel, patent pending features, time invested in becoming familiar with the new concepts can save a lot of time for the user.

❖ Calibration process

- ❑ Be seated comfortably in the front of the camera at about an arm's length distance (18-30 inches). When ready, click the "Calibrate and Start!" button on the "Ready to Start Smyle Mouse?" window.
- ❑ Look for the face detection indicator (a round symbol) shown to the right of your mouse pointer. Following are the types of indicator that will be displayed --



: A green smiley indicates that the user's face has been detected.



: A pink smiley indicates that while user's face has been detected, things are a bit less than ideal although Smyle Mouse is still fully functional. If possible, face the camera a bit better and/or improve the lighting conditions.



: A gray circle with a slash indicates that a face was not detected. Please make sure that the area of the user's face including irises of both the eyes and mouth is visible to the camera.



: A red smiley icon means that a face was detected, however, with difficulty. Please adjust your position such that the above-mentioned area of your face is clearly visible. Note that you may have to turn so that your face is pointed in the direction of the camera.

- ❑ Make sure to smile at least for couple seconds, while looking at the camera. The smile should be moderately strong but not extreme. It does not matter if the mouth is open or closed during the smile.
- ❑ After calibration is complete, maintain similar distance from the camera (compared to the distance during the calibration), to the extent possible. Note that coming closer to the camera increases the mouse sensitivity and the reverse is also true.

3. Pointing

Pointing means moving the mouse cursor / pointer on the screen via head motions. Please make sure to understand and follow the below.

On the [Smyle Mouse Main window](#)

- ❑ “Mouse Motion Mode” allows multiple ways for moving the mouse pointer. Choose one as below.
 1. “Always” - This is the default mode and is recommended for beginners. In this mode, the mouse will tend to move every time the user moves their head. (Whether or not it will actually move will depend on other settings such as Head Tremor and Mouse Stickiness, discussed below.)
 2. “With Smile” – In this mode, the mouse pointer will start moving based on head motion *only if* the user is also *simultaneously* smiling. Once the pointer starts moving, the user can stop smiling and the pointer will continue to move till the user keeps on continuously moving their head. The pointer will park itself once the user stops moving their head (provided that they are not smiling at that time).
 - ❖ The benefit of the “With Smile” mode is that the user has greater control on when the mouse pointer starts moving. This leads to higher comfort and productivity. However, additional skill and/or practice may be required to get proficient in this mode.

On the [Settings window \[Pointing tab\]](#)

- ❑ Mouse Sensitivity – Adjust this such that the user is able to move the mouse end to end on the display screen with only moderate and comfortable head motion.
 - A larger setting in Y direction (with respect to the X direction) is recommended. This is because typically humans have less range of head motion in the Y direction.
- ❑ Head Tremor Filter – Set this to the lowest setting the user can work with. We recommend a setting of 2 if the user has no tremor and has good control over their head.
 - Smaller values of this setting allow finer and smoother control over the cursor. Higher settings are recommended for users with head tremor.
- ❑ Dwell Park Time – Recommended default is about 600 milliseconds.

- Increase this time if they seem to need more time to place the cursor precisely. Decrease this time for faster dwell parking.
 - After the user gets a feel of the dwell park mechanism, they can turn off the “Animate Dwell Park” option in Preferences tab.
- ❑ Mouse Stickiness – The concept of mouse stickiness allows the user to naturally move their head without the mouse pointer leaving its parked location on the screen. This setting indicates the threshold head motion (speed) needed to make the parked mouse pointer move again. For example, to move and park the mouse pointer at the top right corner of the display screen, the user would move their head in the direction of top right corner. Once the mouse pointer is moved to the desired location, it can be dwell parked so that the user can move the head back to a more comfortable position. The mouse will stay put in the parked location as long as the user moves their head back slowly, that is, at a speed less than the threshold speed defined by the Mouse Stickiness setting.
- Default setting is 20. Lower settings allows to restart the mouse motion more easily, but make it harder to leave the mouse parked at a particular location. High settings do the reverse. We recommend the user experiment with this setting to find their sweet spot.
 - Note: When the user moves their head at a lower speed than the Mouse Stickiness setting, a stickiness indicator in the form of a broken yellow ring is shown around the mouse pointer. The pieces of the ring grow in size as the head motion approaches the threshold speed (indicated by Mouse Stickiness). When the head motion crosses this threshold, the broken yellow ring becomes a full ring, and the mouse pointer starts moving.
 - Many users prefer to not have mouse stickiness when using an on-screen keyboard. Smyle Mouse therefore disables mouse stickiness automatically when it detects that the On-Screen Keyboard (OSK) is active *and* the pointer is over the OSK window. The “Disable Mouse Stickiness when using On-Screen Keyboard” setting is provided to control this automatic disablement.
 - ❖ Mouse Stickiness provides convenience as well as reduces the chances of neck strain. It also improves their productivity by eliminating the effort required to constantly manage the location of the pointer.

4. Clicking and Dragging

Concept of “Easy Drag” Mode

By default (out-of-the-box) Smyle Mouse is in the “Easy Drag Mode”. This mode is designed to make it easy for users to initiate the drag command. In this mode, whenever the user starts smiling, that results in a mouse button press, and when the user stops smiling, that results in a corresponding mouse button release command.

- Smyle Mouse can be manually put in Easy Drag Mode by setting the Green and Yellow gesture timers to zero value.

Also note that by default “Mouse Motion Mode” is also set to “Always” (on the main window). This means that the mouse pointer tends to move when the user moves their head.

Given the above, by default, if the user happens to move their head while smiling, the mouse pointer moves between the mouse button press and release, which results in a click and drag command. Whereas, if the user holds their head reasonably steady throughout the smile, it results in a click at the location pointed to by the mouse pointer.

On the [Settings](#) window [[Clicking](#) tab] > [Advanced Options](#)

Advanced Options are infrequently used options, but can be very useful in certain situations.

- [Activate Instant Click \(in Easy Drag Mode\) – for Cerebral Palsy Users](#)

Remember that in “Easy Drag Mode”, when the user starts smiling, that results in a mouse button press, and when the user stops smiling, that results in a mouse button release. However, certain users (such as some people with Cerebral Palsy), have a difficult time keeping their head steady after initiating the smile. This means that they can end up dragging instead of clicking at the spot at the location of mouse pointer when they initiated the smile. This can be frustrating. Activating Instant Click means that Smyle Mouse will do a mouse button press *and* release instantaneously (i.e. without waiting for the end of the smile to do the release). This results in a click command, instantly at the *beginning* of the smile. This is can be very useful for users without steady head control.

- ❑ Space Key Instead of Mouse Button (on Smile) – for Switch Scanning with AAC software

When this checkbox is activated, smiles result in the space key (on the keyboard) to be pressed and released (instead of mouse button press and release). AAC software that can utilize the space key as switch input then can be controlled using smiles instead of using a head/foot switch or the like.

Please note the following --

- i. Make sure to set your AAC software to accept space key as switch input.
- ii. In Settings->Gesture Timers tab, make sure all the timers are set to default values. That is, set your Green and Yellow timer values to zero, and Red timer to 3000 or more. If the Green or Yellow timers are non-zero, you may see "Move Your Head to Point", "Move Your Head to Scroll", etc. messages, that do not make sense in this switch scanning mode.
- iii. In Settings->Pointing tab, set Mouse Stickiness to 200, and on Settings->Preferences->Visual Feedback->Mouse Motion Animation turn off "Animate Mouse Stickiness". This will prevent the mouse from moving around when the user happens to move their head as well as suppress mouse stickiness animation that could be distracting during AAC usage.
- iv. In this mode, start of a smile leads to press of the space key, and end of the smile leads to release of the space key. If the user has control on how slow/fast they can smile, they can take advantage of generating a distinct switch press from a switch release signal by smiling in a controlled fashion. Some AAC software may be able to use this distinctness to provide additional benefit to the user.
 - If your situation does not require distinction of switch press from switch release, then consider setting the "Activate Instant Click" checkbox (described in the previous section) for additional ease of use.
- v. Smiling in this mode generates different type of sound / beep. If the AAC software already generates a sound upon switch press/release, or if so preferred by the user, this sound can be turned off by going to Settings->Preferences tab->Audio Feedback->Mouse button Sounds. (Check off both the check boxes.)

5. Trouble Shooting

1. **Smyle Mouse sometimes thinks I am smiling when I am not.**

Solution:

Try one or more of the following—

- Make sure you are facing the camera when working on your computer so that your lips, nose and irises of both eyes are visible to the camera without obstruction.
- Perform a re-calibration, and make sure you smile moderately (but slightly stronger than the last calibration) when prompted during the process.
- Make sure facial features are being detected correctly by looking camera view displayed on the main Smyle Mouse window.
 - Correct the lighting situation such as low light or intense backlight, as required.
 - Try using a webcam that performs well in low light.

2. **Smyle Mouse does not click instantaneously. There is a time lag between when I stop smiling and when the click actually completes.**

Solution:

Try one or more of the following—

- Open your mouth slightly when you stop smiling. This is also a helpful for ending drag commands if they do not end crisply at the end of the smile.
- Perform a re-calibration, and make sure you smile moderately (but slightly stronger than the last calibration) when prompted during the process.

3. **Smyle Mouse is not detecting my face though I can see it in the camera view displayed in the main window.**

Solution:

Try one or more of the following—

- Make sure you are not too far away from the camera. A rough rule of thumb is to be about an arms' length from the camera.
- Correct the lighting situation such as low light or intense backlight. Especially, watch for large bright areas (such as large bright windows) in the camera view.

4. **Difficulty in placing the cursor precisely on a tiny area. I keep on missing the target and often overshoot or undershoot.**

Solution:

Try one or more of the following--

- Increase Dwell Park time. This will provide your more time to fine tune the placement before the pointer dwell parks.

- ❑ Reduce Head Tremor Filter. This increases the granularity and smoothness of motion, allowing for finer placement.
- ❑ Reduce Mouse Stickiness value, or even set it to zero. This helps when the final destination is close to the original destination of the mouse pointer.
- ❑ Turn on "With Smile" Mouse Motion mode on main Smyle Mouse window. Then, keep on smiling while trying to place the pointer precisely by making small head motions. Stop smiling while holding the head steady when the pointer is at the desired location. (You may want to reduce the Dwell Park time when using the "With Smile" mouse motion mode.)

5. **Difficulty with moving the mouse through large distances on the screen. The mouse is not moving far enough even though the user has already turned their neck to the maximum extent.**

Solution:

Try one or more of the following--

- ❑ Start the head motion at a higher than average speed (versus starting at lower than average speed). Higher head speeds move the mouse pointer through disproportionately larger distances.
- ❑ Increase the Mouse Sensitivity setting so that smaller head motion translates to large mouse motion.
- ❑ While Smyle Mouse is running, go to the Microsoft Windows' Control Panel and change Mouse settings as follows.
 - i. Turn on "Enhance Precision".
 - ii. If needed, increase "Pointer Speed".
- ❑ If you are using the "Always" Mouse Motion Mode, set the "Mouse Stickiness" setting (Settings window > Pointing tab) to about 20 (or something you find comfortable). Then, to use a golf analogy, rather than trying to hit hole-in-one, make more than one attempts to get to your destination. That is, in the first attempt, move the mouse towards the destination to the maximum extent that is comfortably possible, and let it dwell park. Then pull the head back bit slowly (so that the dwell park mouse stays stuck to its new location) and then make another attempt to bring it closer to or at the final destination. Repeat as needed.
- ❑ If you are using "With Smile" Mouse Motion Mode, start with the head positioned in an opposite direction to the direction in which you would like to move the pointer. For example, if your pointer is in the middle of the screen and you would like to move it to the right edge of the screen, then point your head to the left before you begin smiling and moving your head towards the right. Secondly, you can also try to move the pointer to the target through multiple attempts, progressively getting closer to the target with each attempt.
