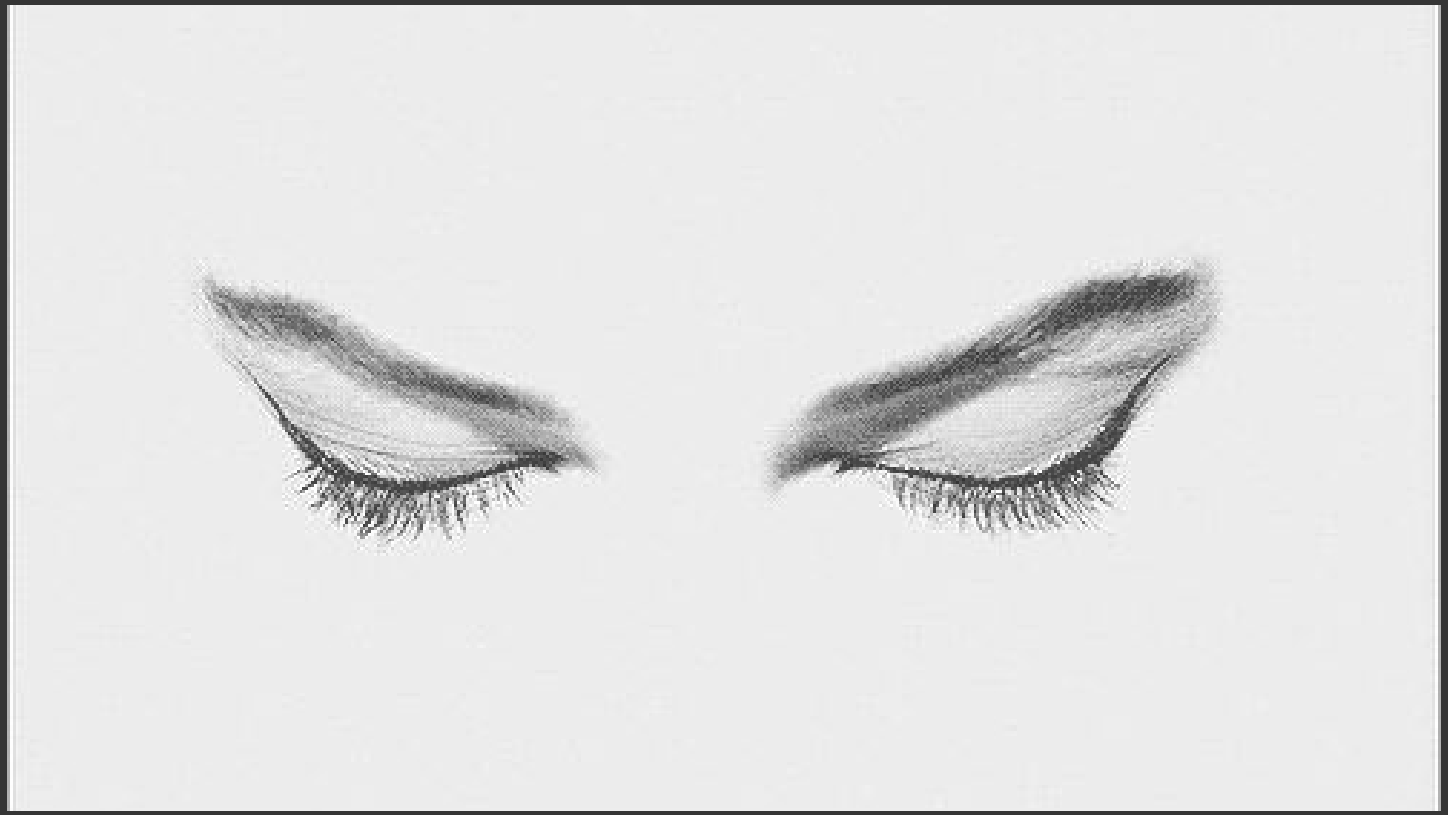
eyeGalaw:
A Google Chrome Extension for Website Navigation through Human Gaze

Eyes



Eye tracking

Eye tracking

Why study eye tracking?

Technology:
Usability

Technology:
Usability

Eye tracking:
Usability

Technology:
Convenience

Eye tracking:
Convenience

Usability
Convenience

Google Chrome +

Eye movements +

Web camera

Specifically,

1

incorporate basic navigation and advanced navigation methods

2

to detect the user’s gaze location on the screen using an ordinary web camera

3

navigate active web pages using eye movements

But wait! Limitations first.

(stuff stuff)

Eye glasses is a no no (and other eye movement disorders)

Gaze navigation happens inside the browser only

Limited to its control functionalities

(scroll up/down, next/previous page and hold)

How?

(Methodology)

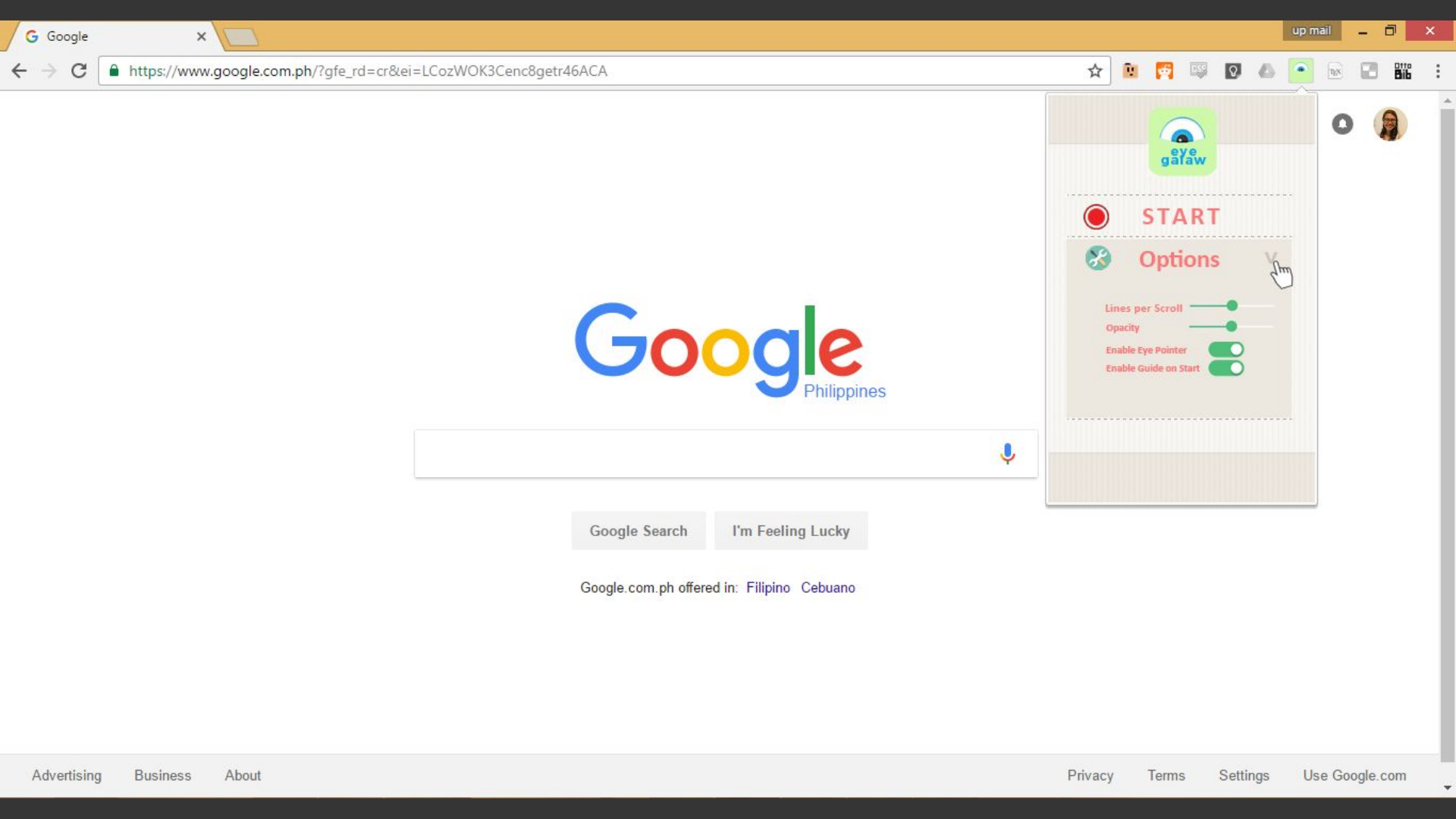
System Requirements

- HTML5 and CSS
- Javascript
- Webgazer.js

Webgazer.js

eyeGalaw:
Main Functionalities

1
Settings Tab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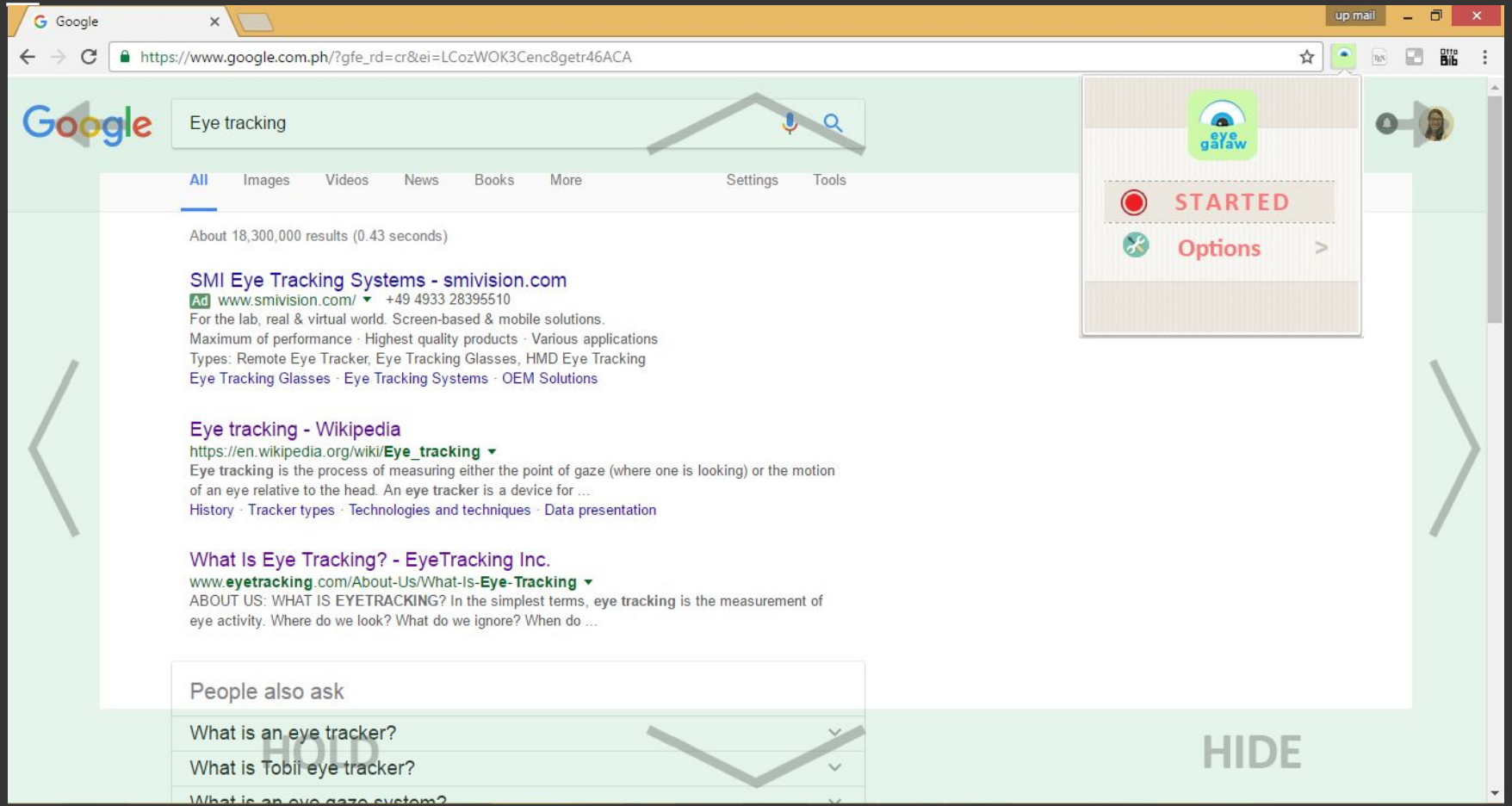
2
Scroll Up, Down, Left, and Right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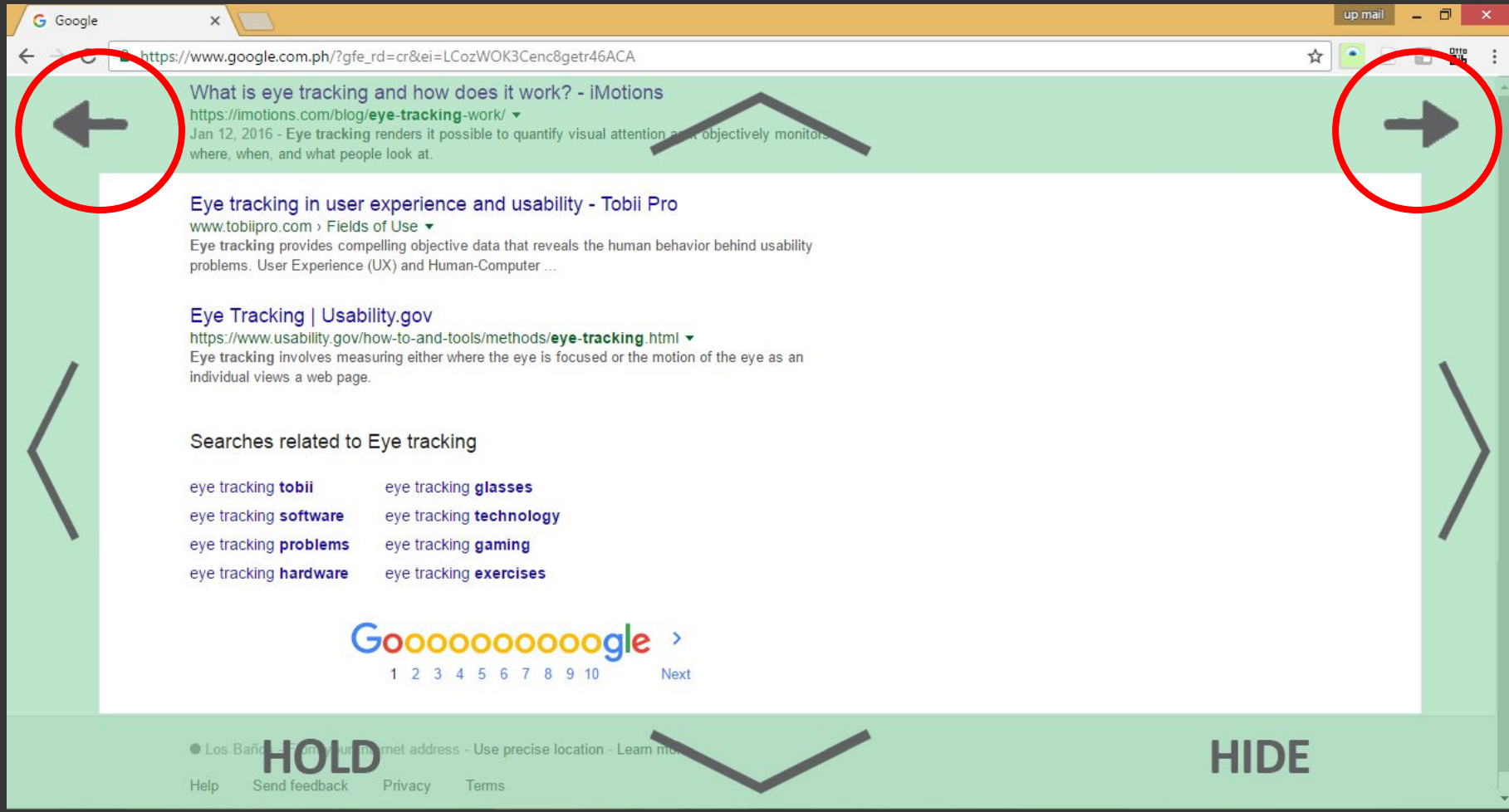
eye gafaw
STARTED
Options
HOLD
HIDE

3
Previous page and Next page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eye tracking technology
eye tracking problems
eye tracking gaming
eye tracking hardware
eye tracking exercises
Goooooooooogle
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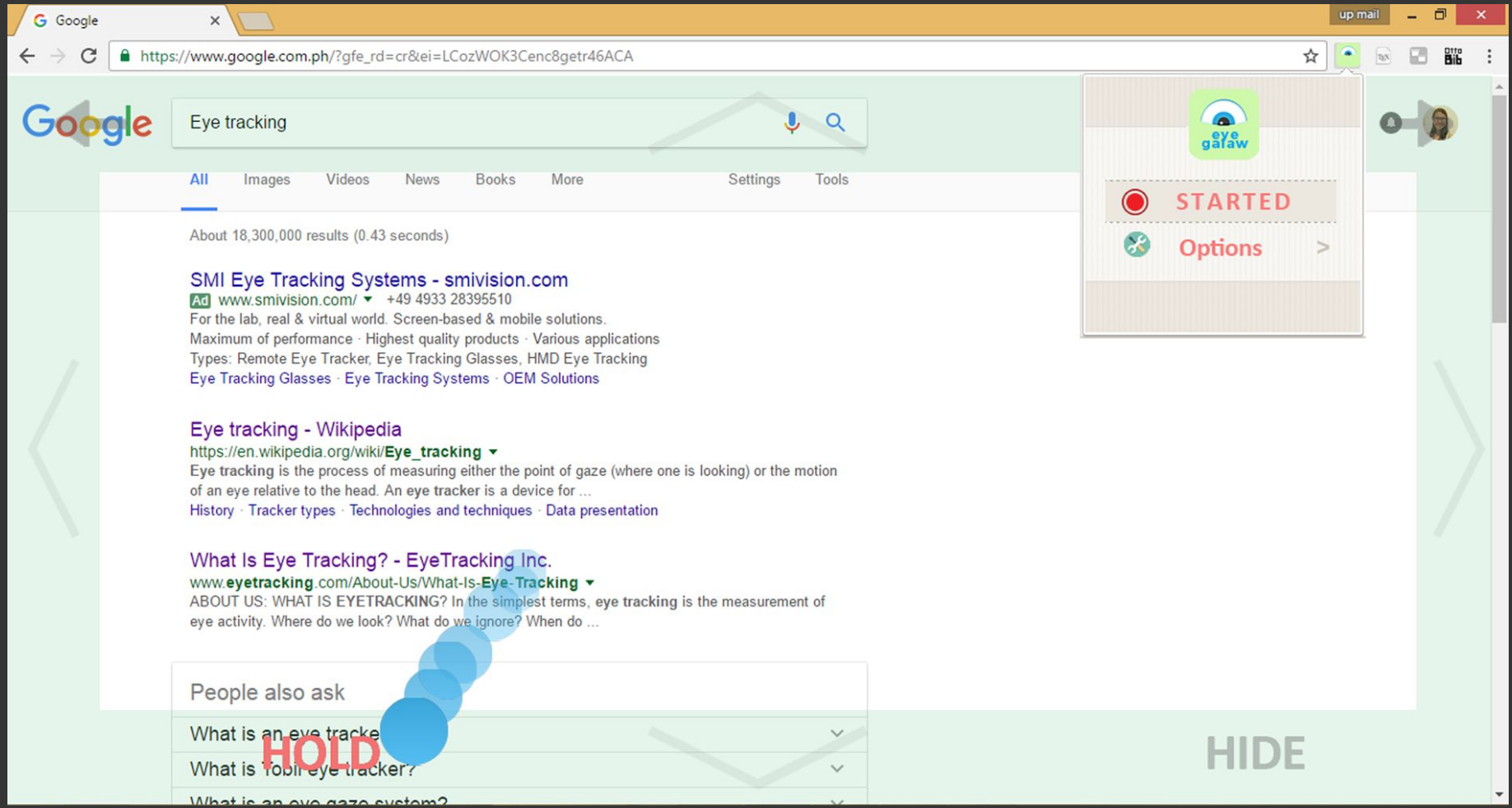
4
Hold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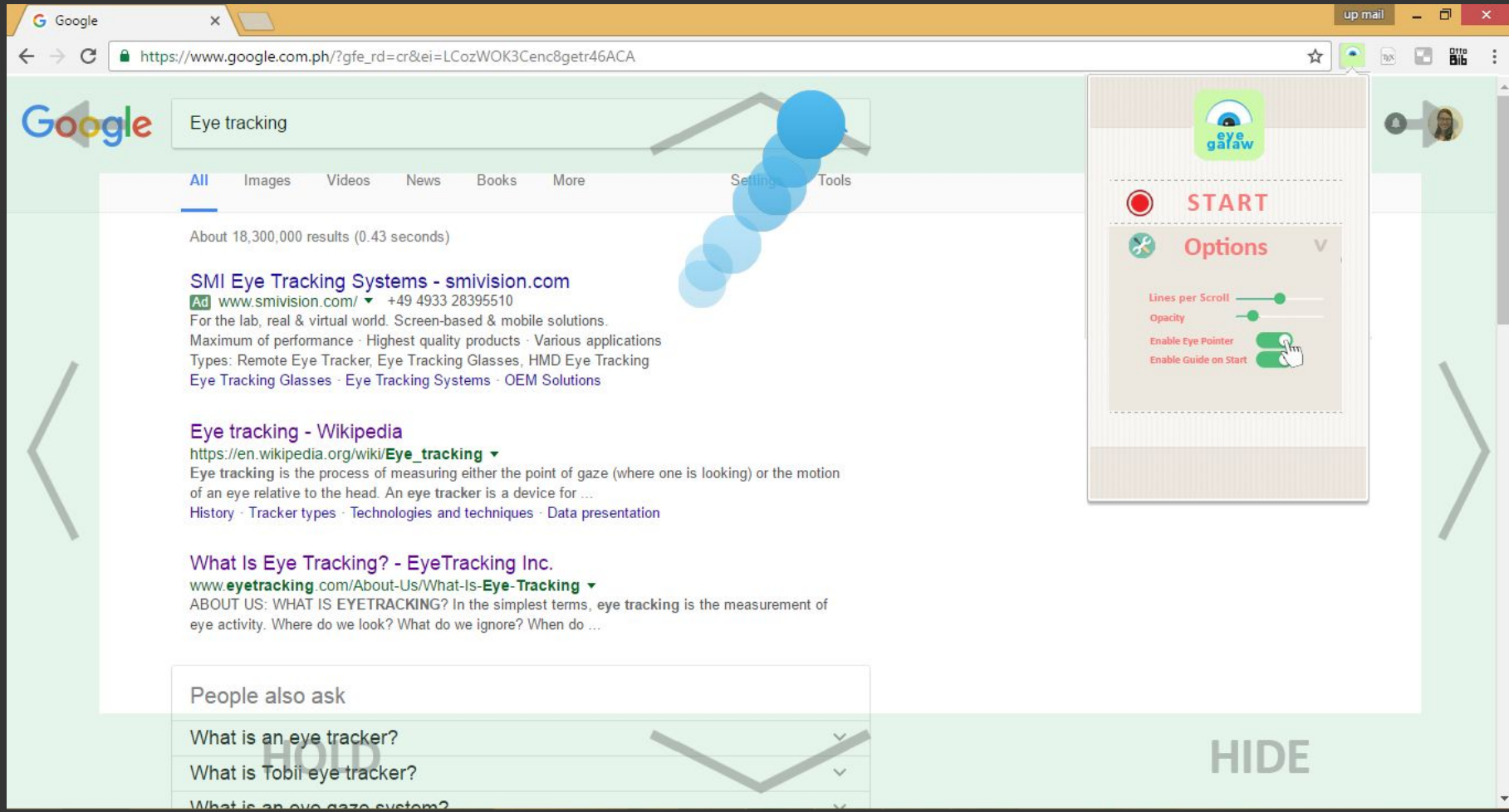
What is Tobii eye tracker?
What is an eye gaze system?
HOLD
eye gafaw
STARTED
Options
HIDE

5
Toggle Hide/Show interface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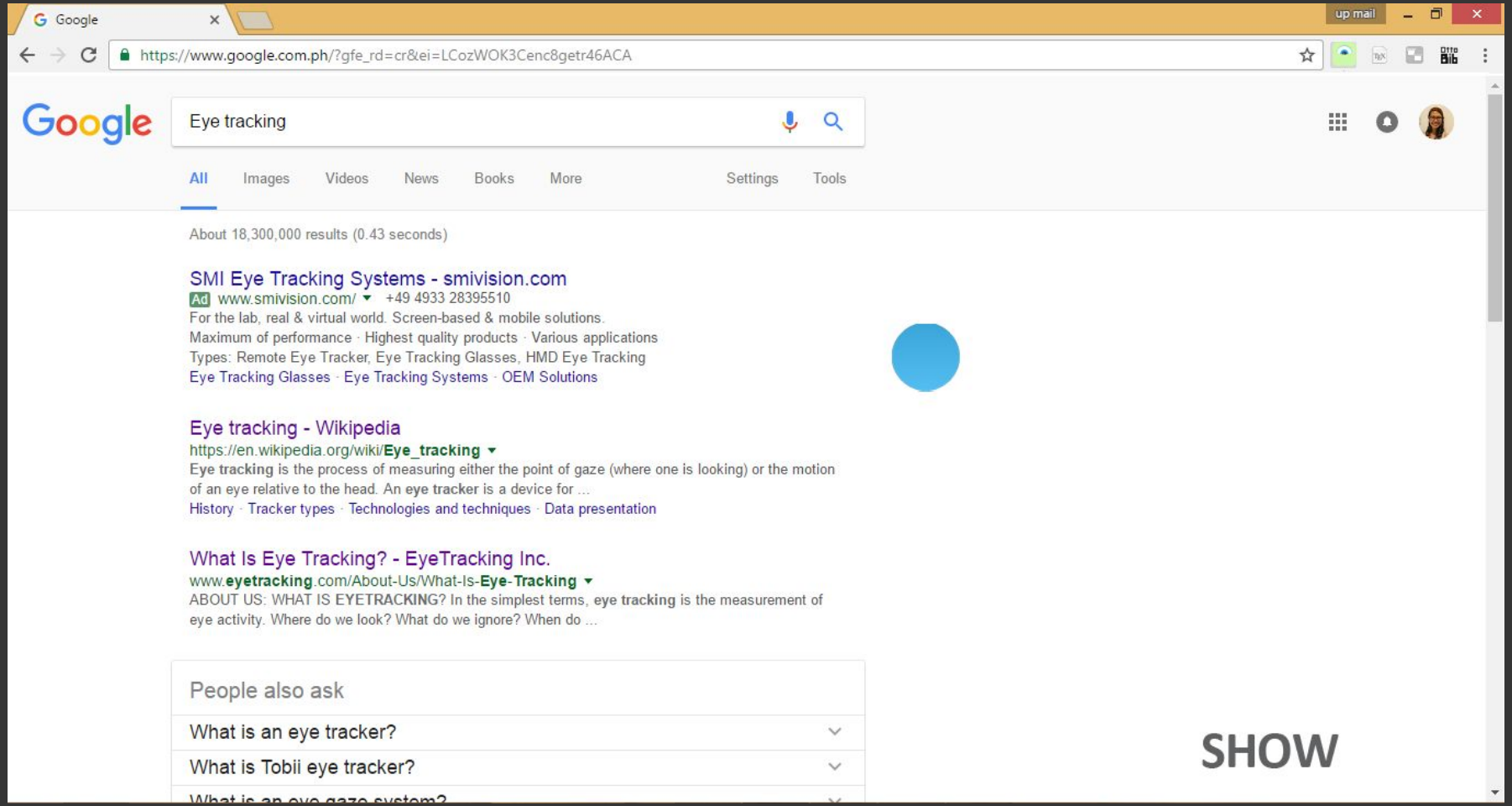
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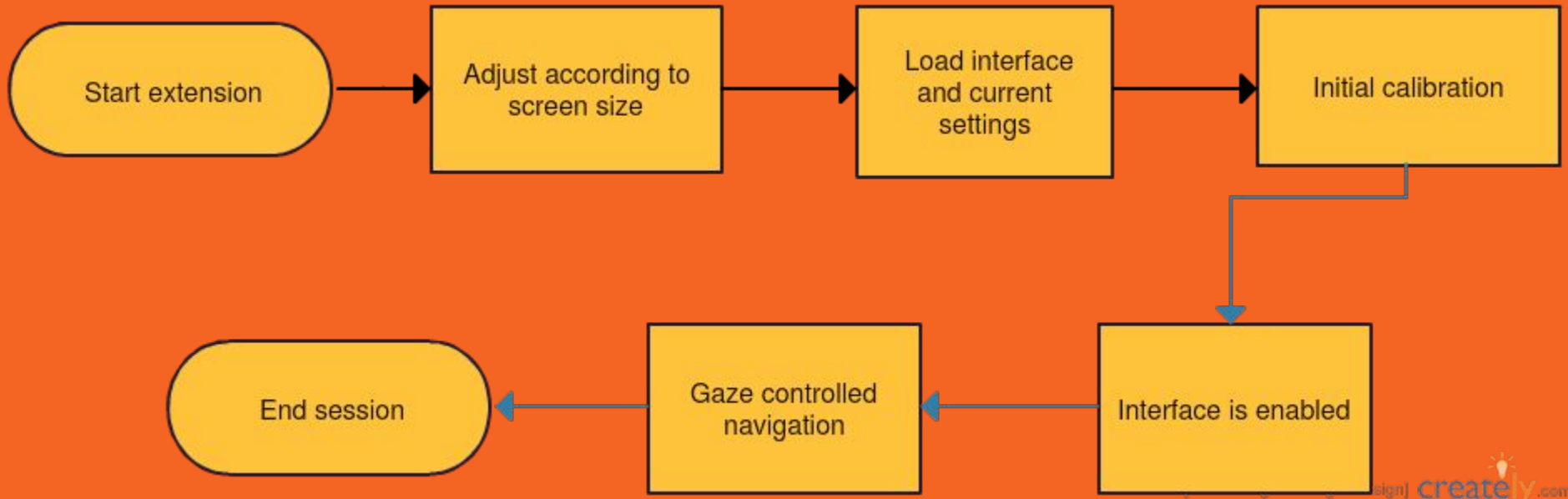
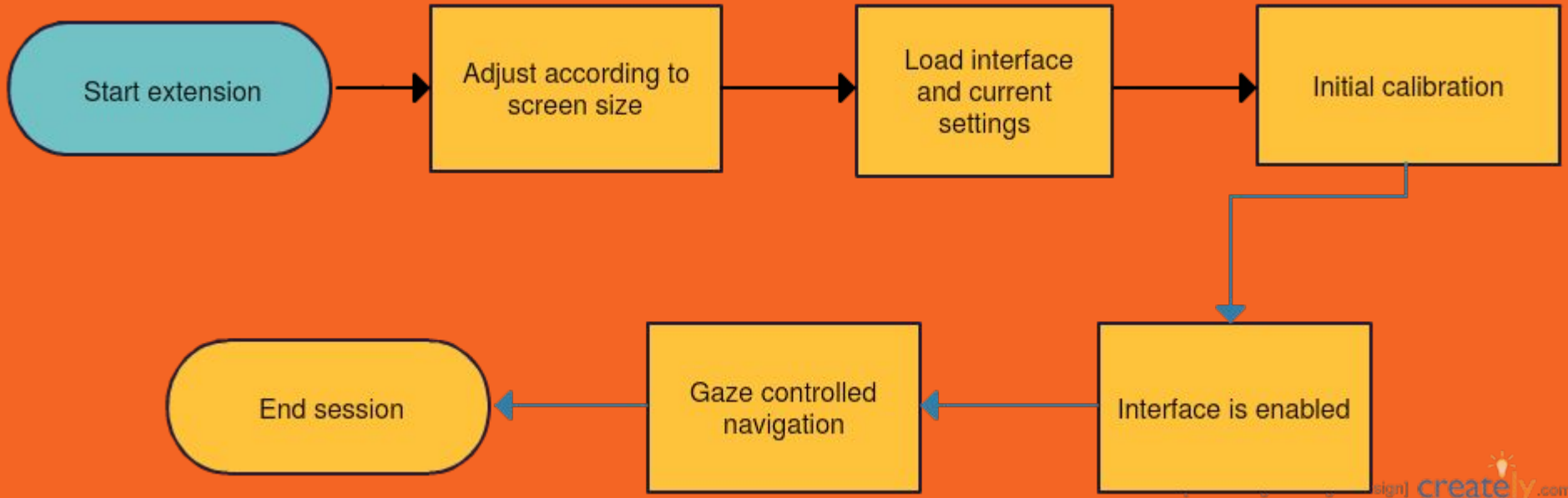
SHOW

Activation


Start extension
Adjust according to screen size
Load interface and current settings
Initial calibration
Interface is enabled
Gaze controlled navigation
End session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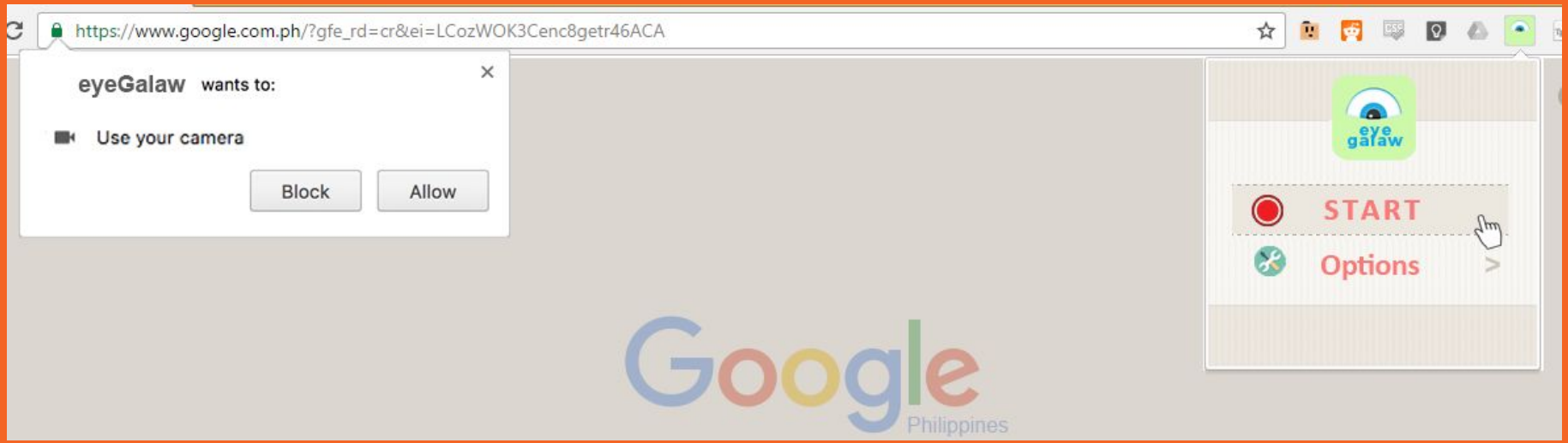
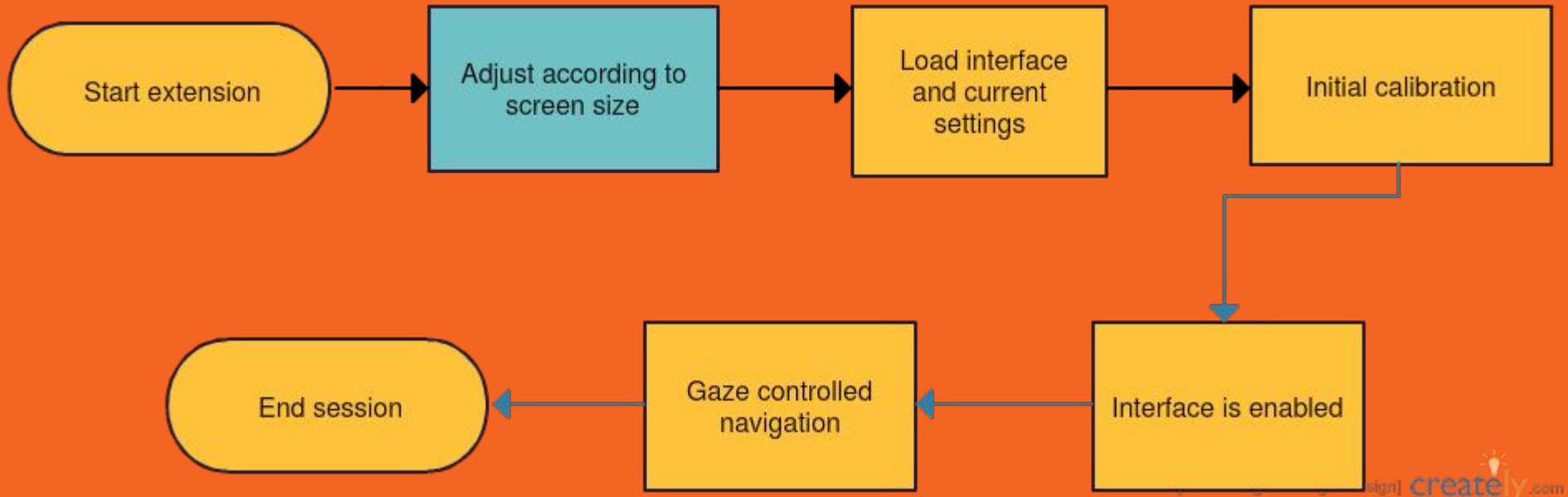
End session

Security permission in accessing the computer's webcam

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Load interface and current settings
Initial calibration
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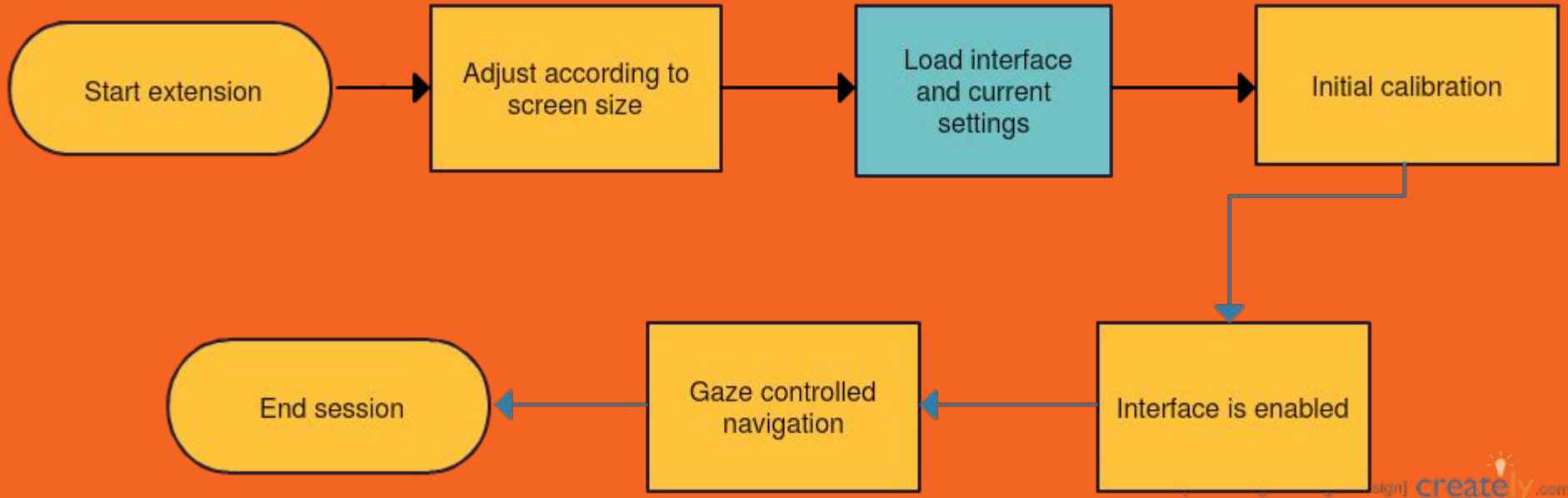
- 1366x768
- 1920x1080
- 1280x1024
- 1280x800
- 1024x768

Screen sizes in pixels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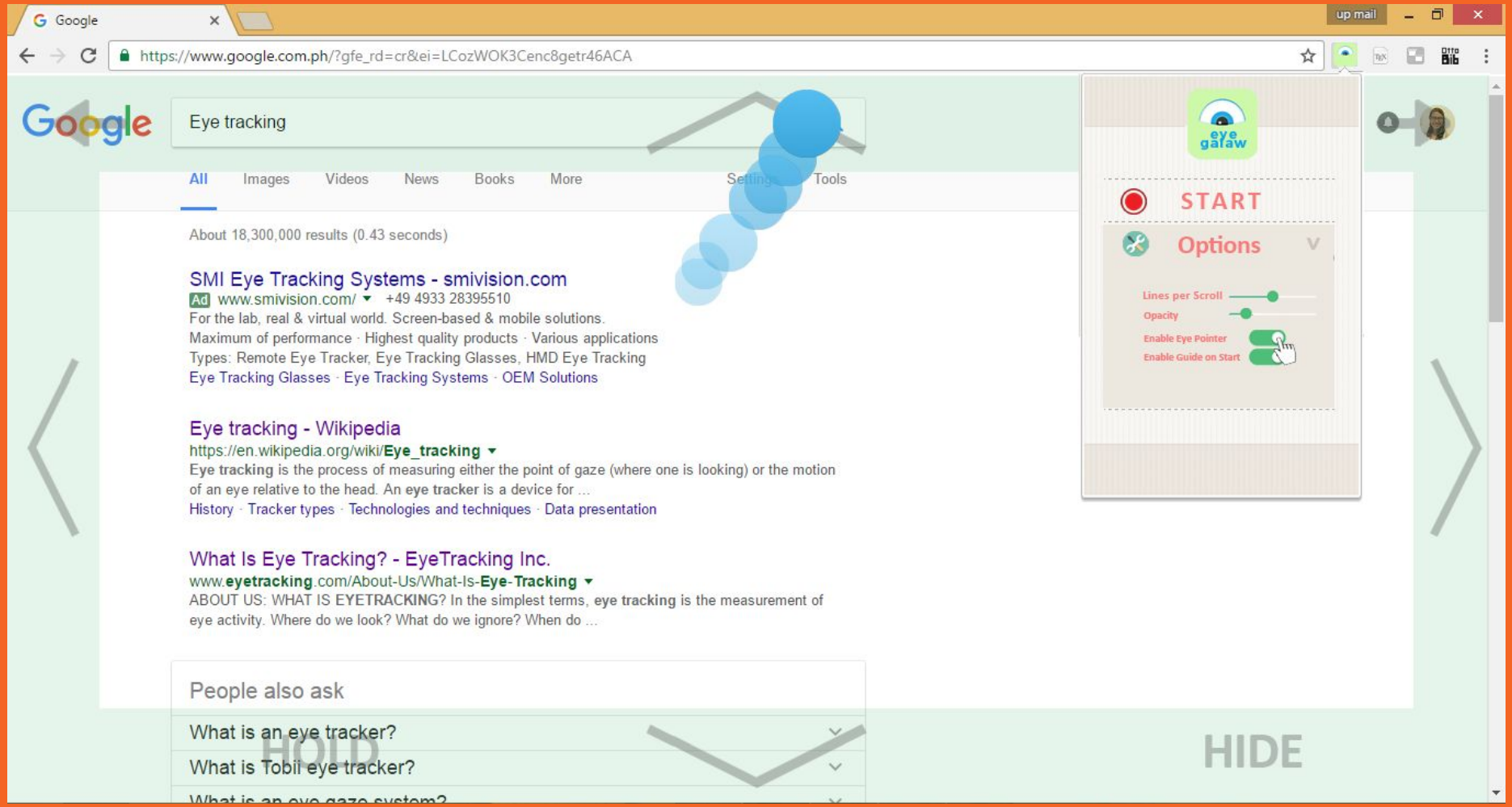
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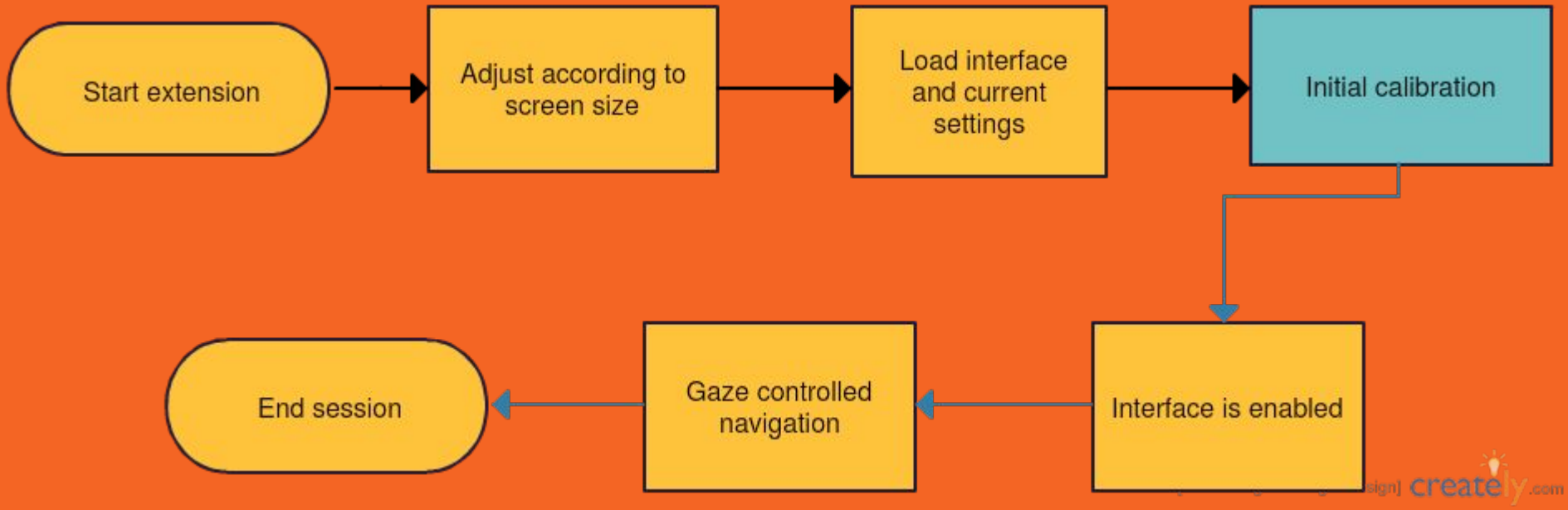
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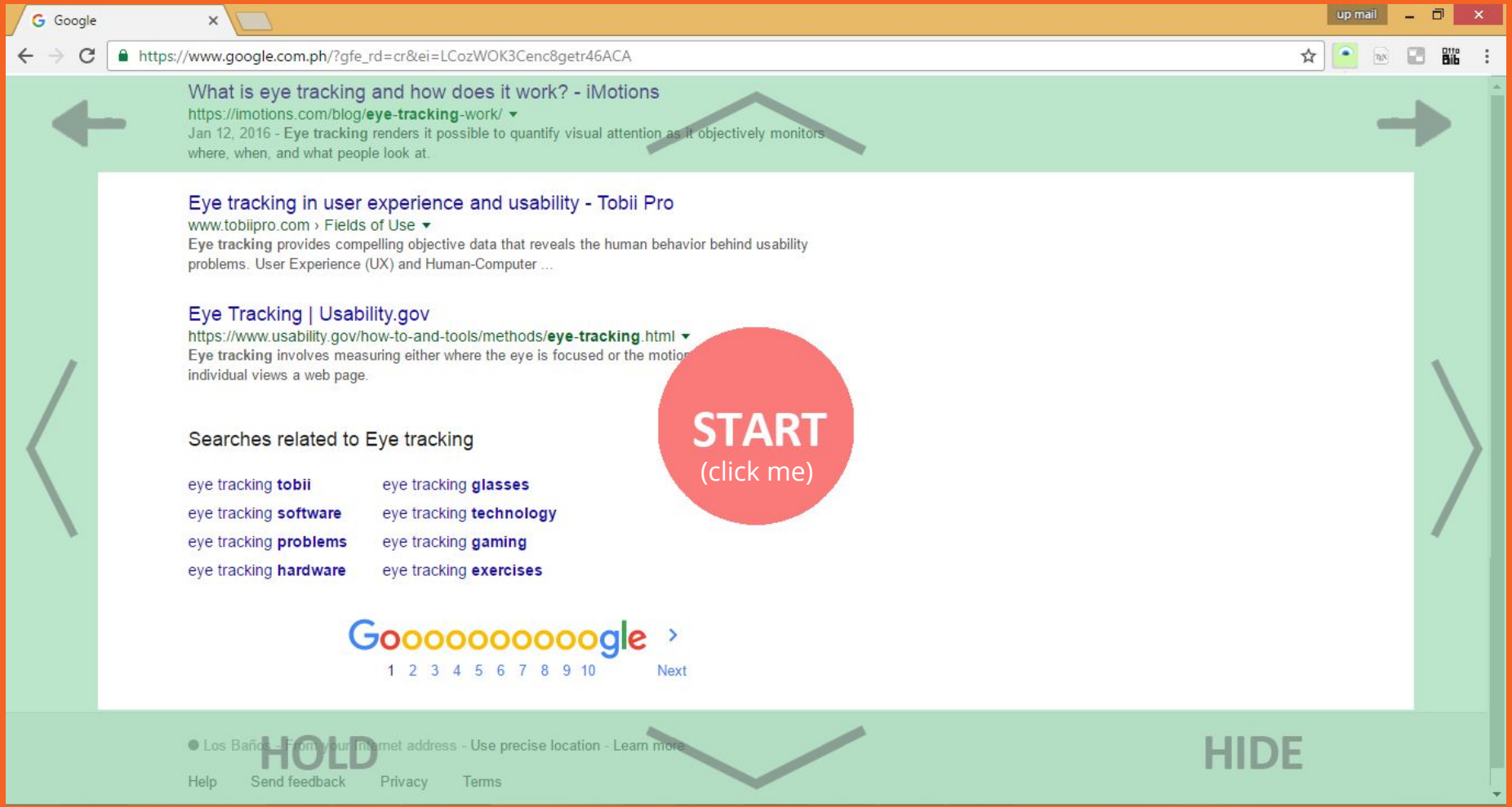
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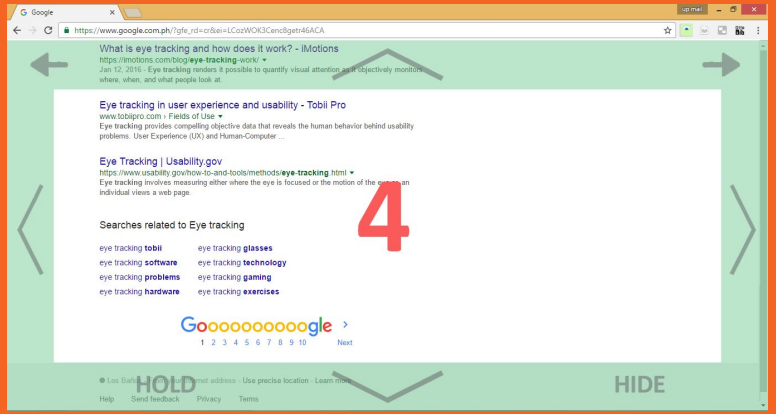
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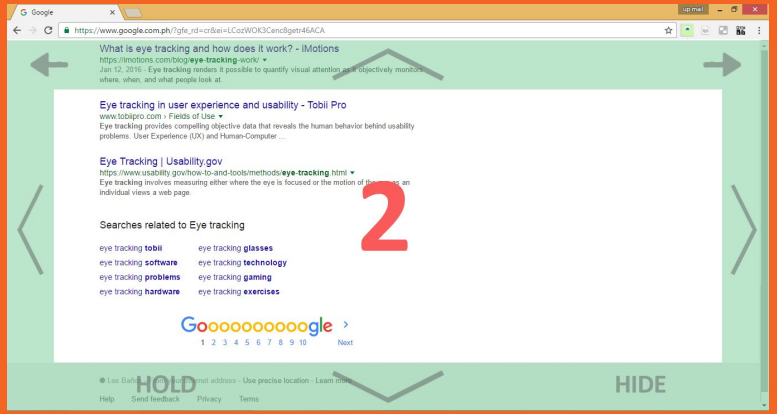
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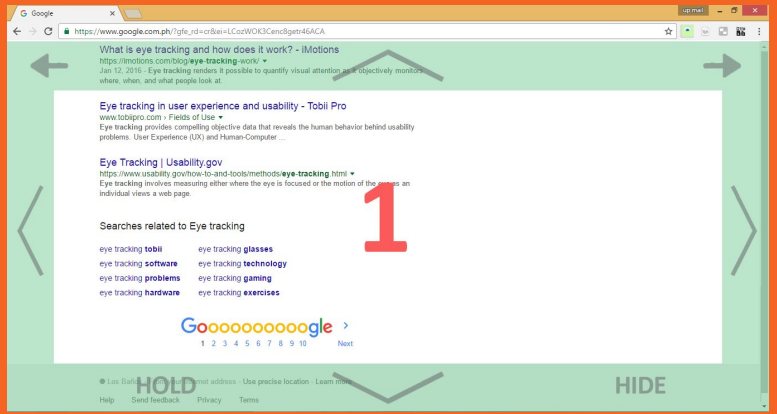
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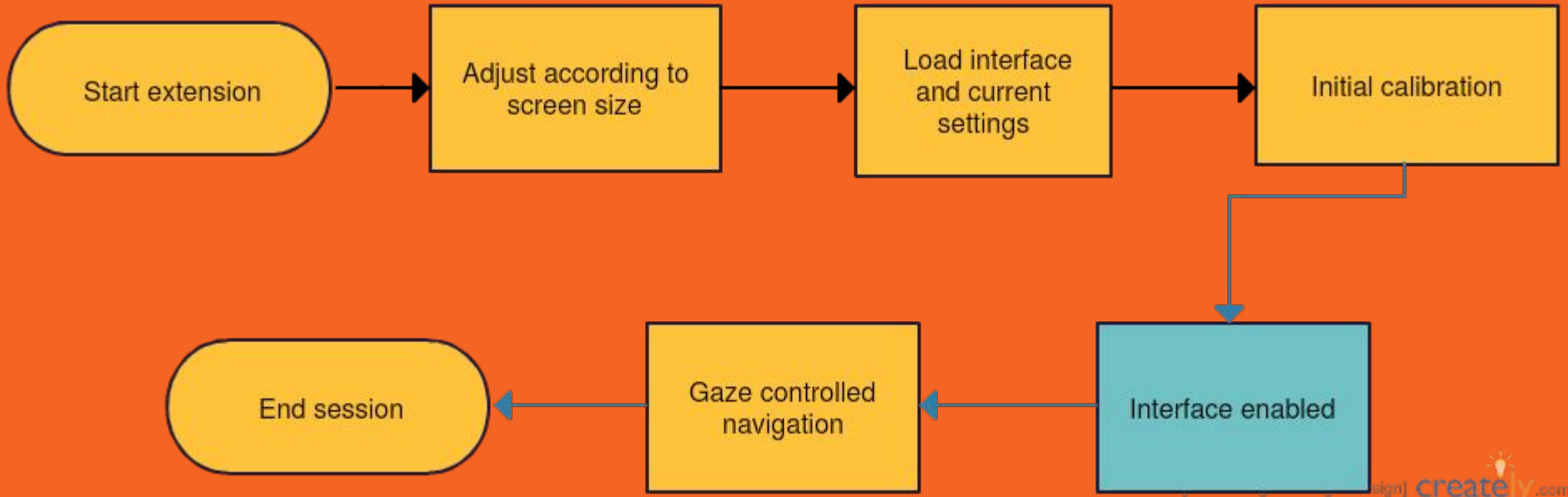
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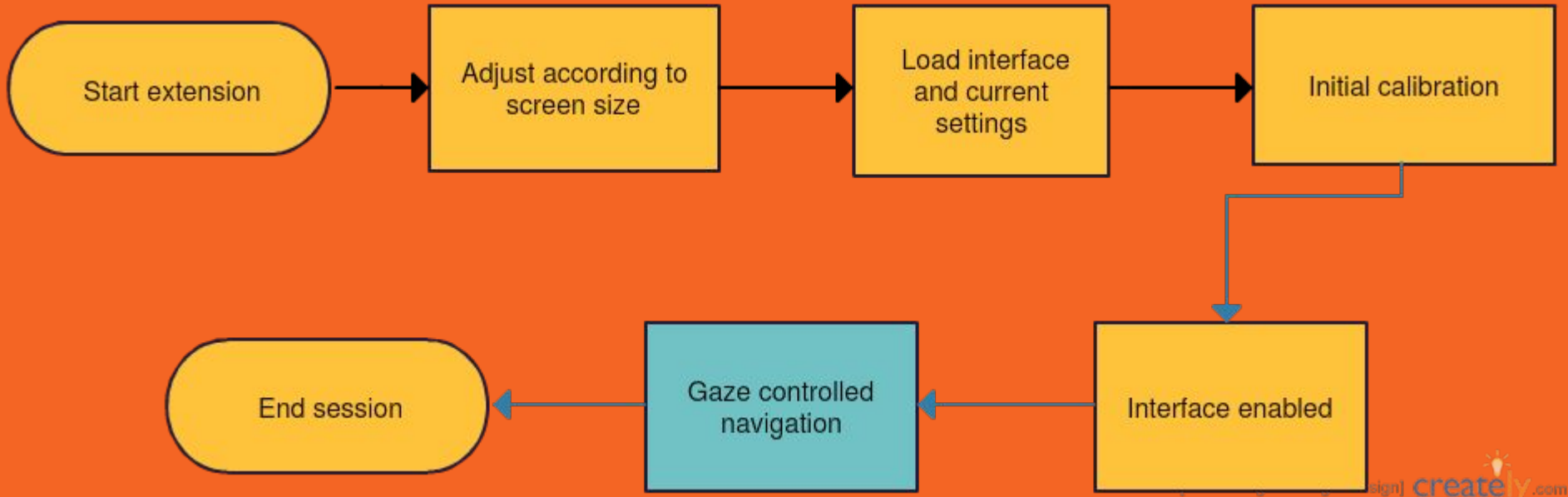
Initial calibration
Interface enabled
Gaze controlled navigation
End session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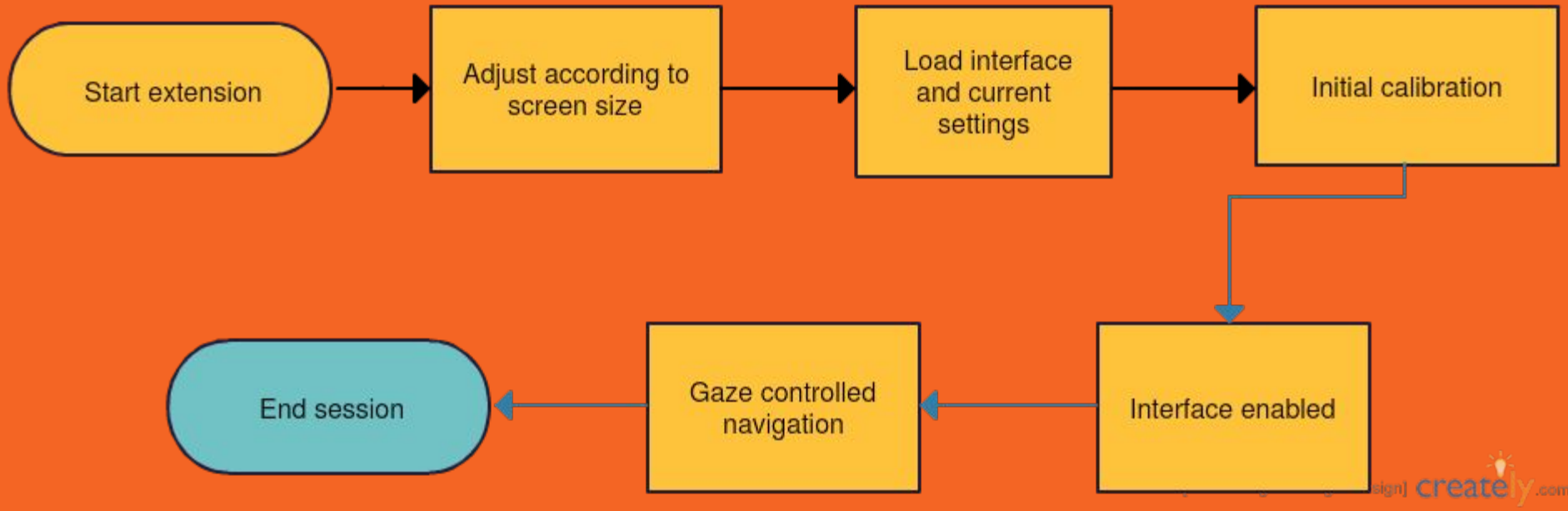
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End session

Notes:

- Problems with low resolution cameras

Notes:

- Only works in well lit environment

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Thank you!

References

Thank you

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Thank you

Webgazer.js

Type Definitions

`gazeListener(prediction, elapsedTime)`

Handles gaze events by providing a prediction Object and elapsed time

Parameters:

Name	Type	Description
`prediction`	Object	Object containing the prediction data *Properties* Name / Type / Description x / integer / the x screen coordinate predicted y / integer / the y screen coordinate predicted `all` / Array / if regModelIndex is unset, an array of prediction Objects each with correspodning x and y attributes
`elapsedTime`	integer	amount of time since begin() was called

Source: webgazer.js, line 508