

GNG2101 Deliverable J

Macro Gimp: User Manual

Submitted by

Group B25

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Abstract

Digital artists suffering from certain disabilities must use complex graphic editors such as Adobe Photoshop and GIMP. Their small icons and hidden menus make it difficult for these users to find the tools they need. This product aims to provide a more accessible digital drawing experience with a custom user interface, preferably with a voice command feature.

The final product is a desktop application created using the Electron framework. It contains a custom toolbar with large buttons and a voice search functionality that uses a speech-to-text API. Such a product is unique since there aren't currently any support applications for GIMP on the market.

In order to recreate this application, knowledge of web development, Electron and the AutoHotkey scripting language is required. It is also important to take different screen sizes into account. The developer must also remember to keep the user interface simple to provide a better user experience.

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Introduction

Nowadays, graphic editor tools like Adobe Photoshop and GIMP are commonly used by digital artists. Photoshop is certainly a great tool, but it is also a very complex application with small and condensed icons. The same goes with GIMP, which is a free alternative for Photoshop. The buttons in the toolbar are quite small.

The product in question, Macro Gimp is a Windows desktop application that is placed on top of the GIMP graphics editor. It will serve as a custom user interface for the drawing software. Macro Gimp was designed for digital artists suffering from disabilities that could hinder their ability to find functionalities and tools in the graphics editor.

Currently, products similar to Macro Gimp do not exist on the market. This application is unique, in the sense that it addresses the needs of a specific group of people for this specific drawing software. Therefore, anyone who would like to have a more accessible digital drawing experience with GIMP could find Macro Gimp useful.

Features

Macro Gimp's main features consist of a custom toolbar, a voice search button and a desktop notifications system.

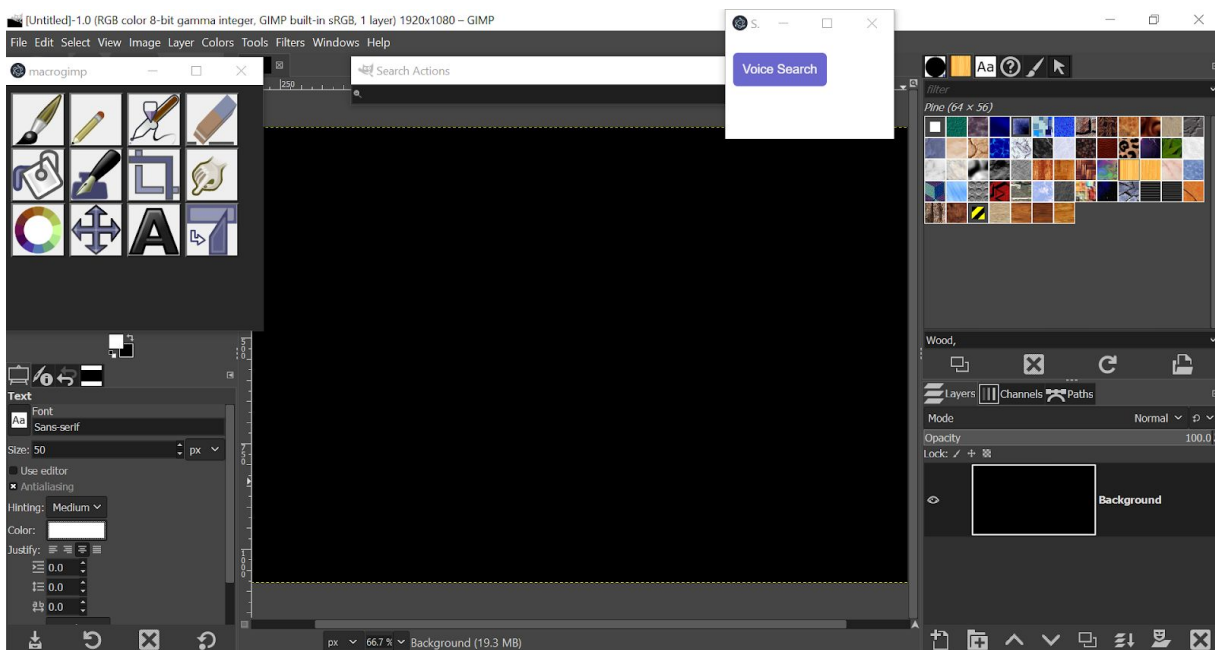


Fig 1: The user interface of the GIMP graphics editor with Macro Gimp on top of it.

The toolbar window on the left of the screen consists of buttons that are significantly larger than GIMP's native icons. The size of these buttons make it easier for the user to find the desired tool. Whenever a button is selected, the application's code opens an executable file that performs a macro, that is to say an automated sequence of events (keyboard shortcuts, mouse clicks, etc.).

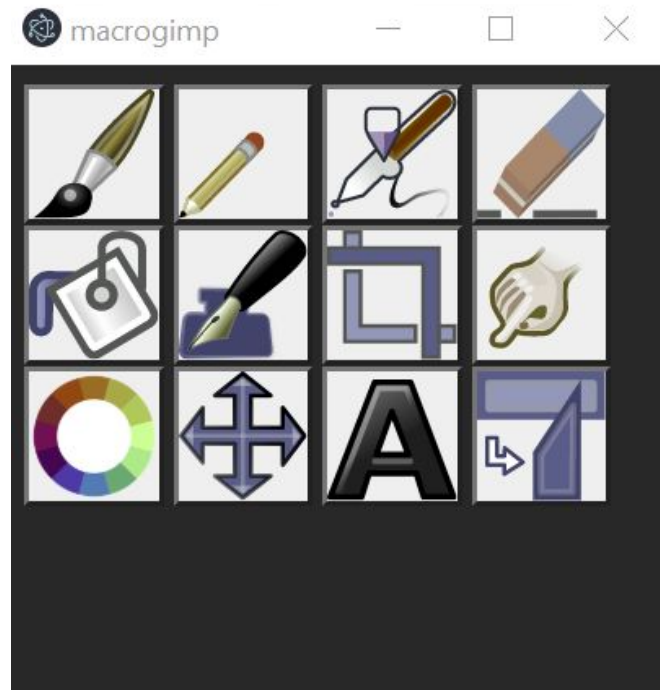


Fig 2: The custom toolbar that contains tools that are most used by digital artists.

There is also a notification system in Macro Gimp, where whenever the user selects a tool, a Windows notification pops up. That notification serves as a confirmation message for the user.

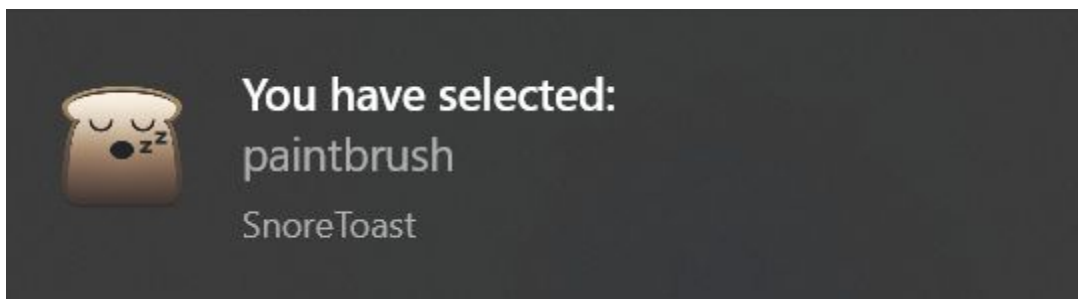


Fig 3: An example of a Macro Gimp confirmation message.

On the right side of the screen, there is a voice search window that types into GIMP's native search bar whatever the user says into their microphone. Afterwards, any tool whose name matches the keywords entered will appear in a list under the search bar. The user can then select the one they desire. This functionality only works when the user's computer is connected to the internet.

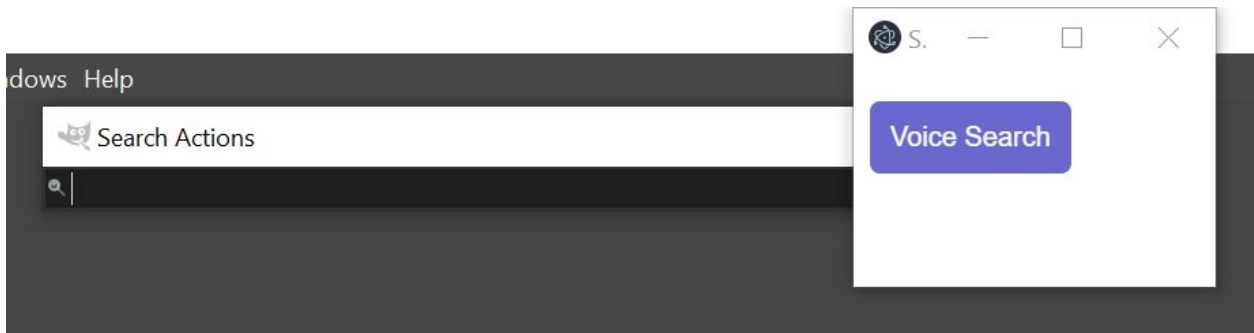


Fig 4: The voice search window next to GIMP's search bar.

Installation

The GIMP application can be installed on their official website at:
<https://www.gimp.org/downloads/> .

GIMP for Windows



Fig 5: The two available options for downloading GIMP.

Select the option in the orange button "Download GIMP x.xx.xx directly" in order to download the setup file for GIMP. Once the file is downloaded, double-click it to open the setup,

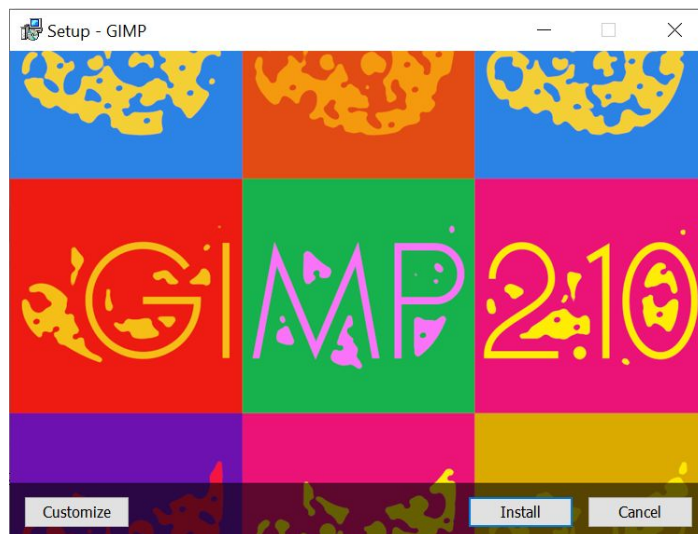


Fig 6: The GIMP setup.

Use the default installation settings by clicking on “Ok” and “Install”. After GIMP is finished installing, launch the drawing software.

In order for Macro Gimp to function properly, it is necessary to change some of GIMP’s settings in order. All of these settings consist of modifying the user interface so that the GIMP icons are in the right position.

Here are the changes that need to be made:

1. Click on “Edit” in the menu at the top of the GIMP user interface

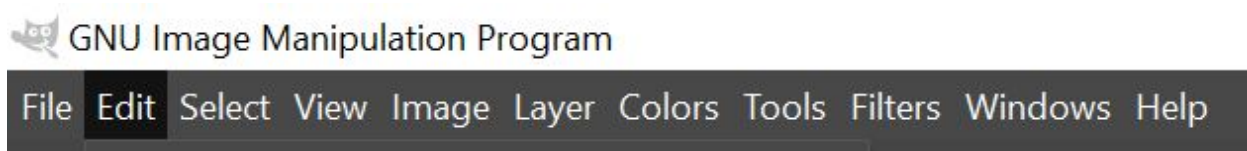


Fig 7: The “Edit” button.

2. Select “Preferences”

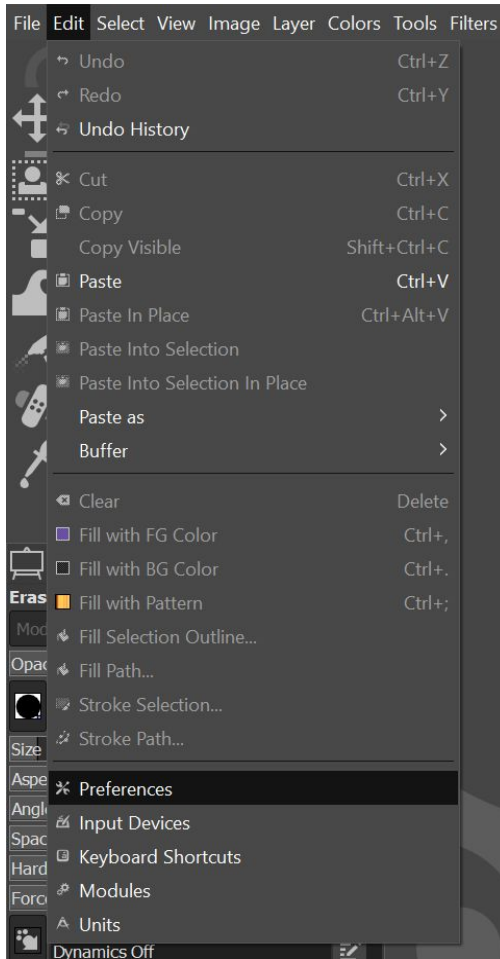


Fig 8: The “Preferences” menu.

3. Go to Interface > Icon Theme

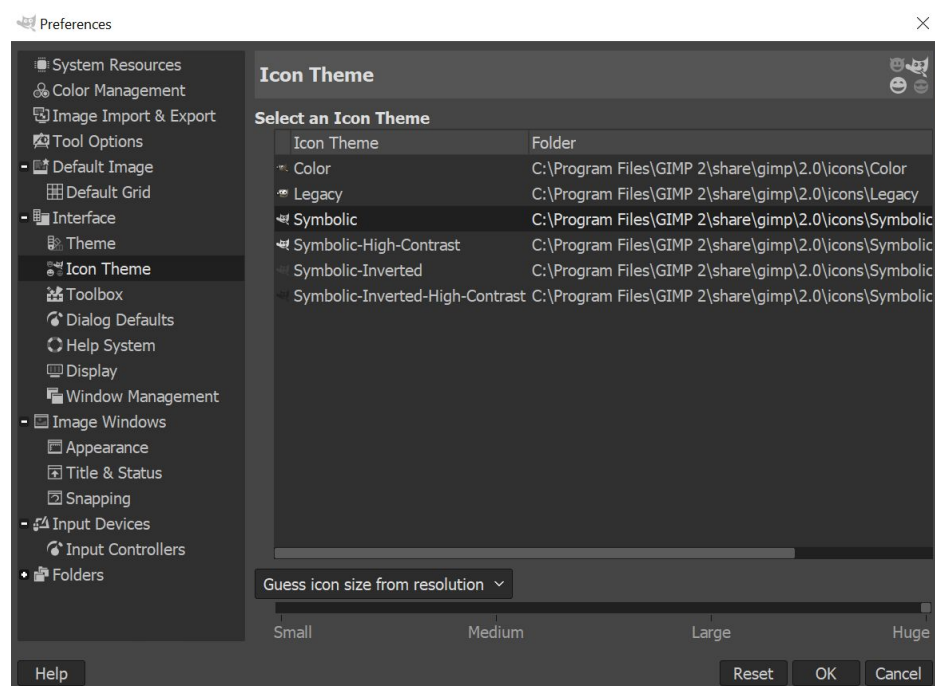


Fig 9: The Icon Theme settings.

4. Click on the dropdown and select "Custom icon size"

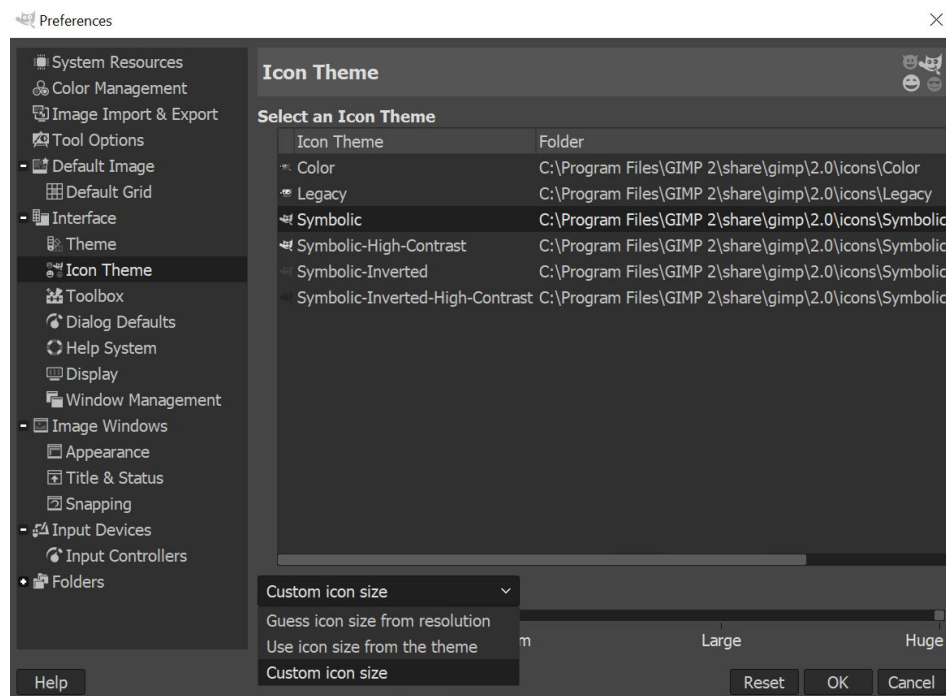


Fig 10: The dropdown allowing the user to change the icon size.

5. Drag the slider all the way to right where it says “huge”



Fig 11: The slider that controls the size of icons.

6. Go to Interface > Toolbox and uncheck “Use tool groups”

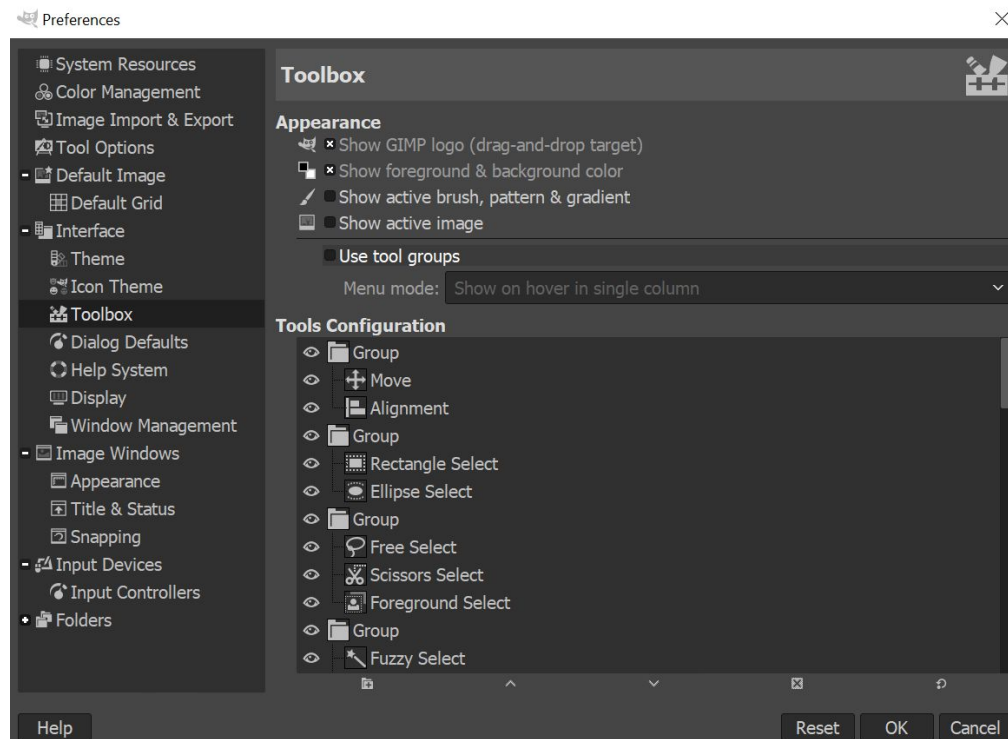


Fig 12: The toolbox settings.

7. Save changes made to the preferences

The final result should look like this:

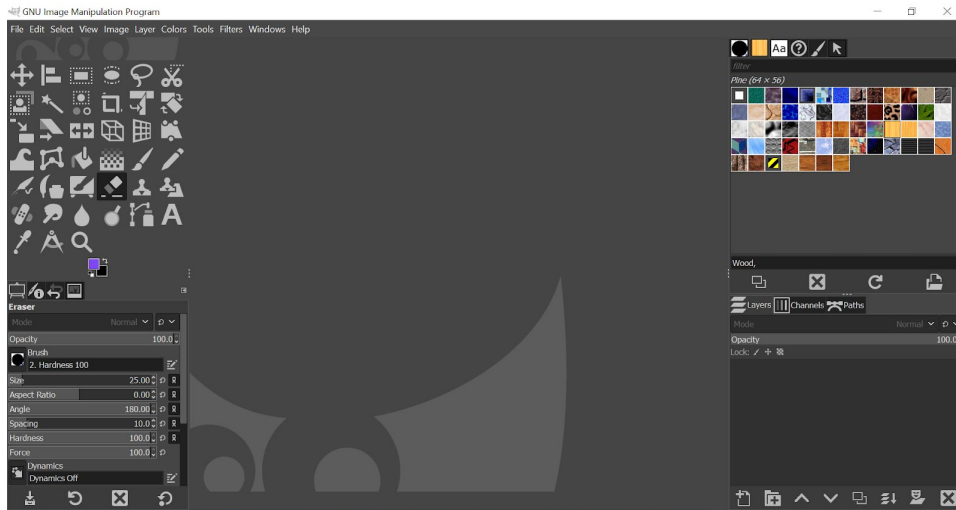


Fig 13: The GIMP user interface after all the configuration changes.

After that, Macro Gimp can be installed with its own setup file. After the application is installed, launch it while GIMP is open. It will automatically place itself over the graphics editor.

To select a tool, simply click on the button in the custom toolbar assigned to the one desired. To search for a tool vocally, click on the “Voice search” button in the right window and speak into the computer’s microphone. Then, click on the desired tool that appears under the search bar.

Development

Macro Gimp was developed using Electron, a Node.js (Server-side JavaScript) framework that allows the creation of desktop applications using web technologies (HTML, CSS, JavaScript). The buttons for the custom toolbar and the voice search function were created in the same way as buttons in a web page. The HTML files are then rendered in the Electron app windows.

In order to make Macro Gimp’s custom buttons select GIMP’s tools, macros were used to press keyboard shortcuts that are assigned to certain tools. In order to create these automated procedures, a scripting language called AutoHotkey was used. When an AHK script is opened, it can perform simple actions such as pressing a key on the keyboard or clicking a certain area of the screen. In order to use those scripts, the AutoHotkey software must be downloaded. However, for the final product, AHK files were converted to small .exe files so they could be opened by any computer.

The voice search functionality uses the Google Web Speech API, which is a speech-to-text tool integrated in the browser. In browser JavaScript, it is known as SpeechRecognition. Its usage requires a Google API key and a Google client ID.

Troubleshooting

If the voice search functionality is not working, chances are that the computer is not connected to the internet. Macro Gimp cannot access the speech recognition API, which is a browser feature, if there is no internet connection. In that case, it is suggested to restart the Wi-Fi connection or check upon your Ethernet connection.

If the clicking on the buttons seem to do nothing, it is probable that the GIMP window was not sized correctly. In order to fix this, maximize the GIMP window.

Design Files

In order to create Macro Gimp, several sketches were made to visualize what the user interface would look like. Several deliverables were also written prior to the completion of the final prototype to analyze client needs and target specifications. These design files can be found at: <https://makerepo.com/hongyuewang/gng2101b25macrogimp> . Furthermore, the source code for Macro Gimp is presently in a GitHub repository at: <https://github.com/hongyuewang/macrogimp> .

Conclusion

In summary, there were many lessons learned in the development of this application. Firstly, it was important to be willing to learn new technologies, such as Electron and AutoHotKey. The syntax required to write code for those two technologies had to be learned in a short period of time.

Secondly, different screen sizes must be taken into account. This is why the AHK scripts use relative positions instead of hardcoded pixel positions.

Lastly, it was important to keep the application simple, since the goal of the product is to improve the user experience.

In the future, it is recommended to improve the user interface to make it look more aesthetically pleasing. Also, it could be a good idea to expand this product to Photoshop and add more features that could make the use of these graphic editors more accessible.

Bibliography

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2. The GIMP Team. GIMP - GNU Image Manipulation Program. GIMP. Accessed December 7, 2020. <https://www.gimp.org>
3. AutoHotkey. AutoHotkey. AutoHotkey. Accessed December 7, 2020. <https://www.autohotkey.com>

Appendices

Bill of Materials

Name	Unit Price	Quantity	Cost
Electron	\$0.00	1	\$0.00
GIMP	\$0.00	1	\$0.00
AutoHotkey	\$0.00	1	\$0.00
Google API Key	\$0.00	1	\$0.00
Google Client ID	\$0.00	1	\$0.00
			Total: \$0.00

Table 1: Bill of Materials