User Manual

Project 21029
Iteration Documentation Package 3
V1.0
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Sponsor:
Simply Noted

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Revision History

Revision	Description	Revised by	Date
1.0	Initial creation	EW, CM, RG, FG, BM, NS	2021- 05- 06
2.0	Updated lines numbers to edit	EW	2021- 05- 09

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1.0 Installation

1.1 Initial Downloads

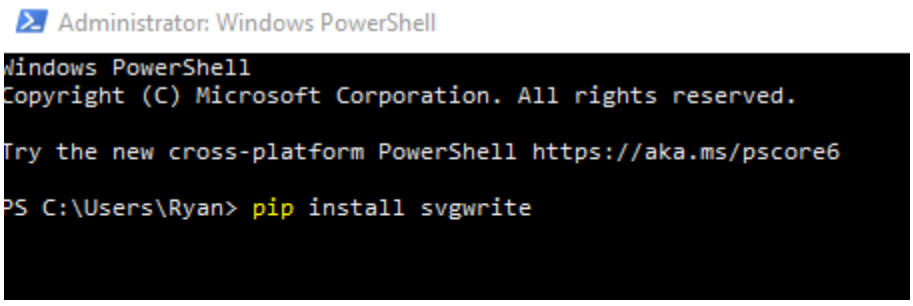
To begin the installation process, download the zip file given by our group containing the GUI python script and some resources needed for the GUI. When running the Python script after installation, do not remove the script from the folder unless you bring everything else in the folder with it wherever you move it. Do not begin running the script until installation is complete.

The user will also need to install Inkscape and Font Creator from the links below. Inkscape is free and can be used immediately. Font Creator is a subscription service and you will need to register at a later date and/or use the free trial while installing.
Inkscape: https://inkscape.org/release/inkscape-1.0.2/
Font Creator: https://www.high-logic.com/font-editor/fontcreator/download

1.2 Python Installations

Our GUI runs on a Python script. While many current computers have a form of Python installed, you should ensure you have a working version of Python and pip.py for our application. Below are the links to download and install Python and then, subsequently, pip.
Python: https://www.python.org/downloads/
Pip.py: https://pip.pypa.io/en/stable/cli/pip_install/

After successfully installing Python and Pip, you must install the Python dependencies needed for our application using Pip. For example, you will need to install the "svgwrite" extension for Python by importing it in our software and with Pip. To do so, you just need to open a terminal/command line wherever your Python is found and use the following command ("pip install svgwrite").



This process will need to be done for each of the following dependencies and their corresponding commands.

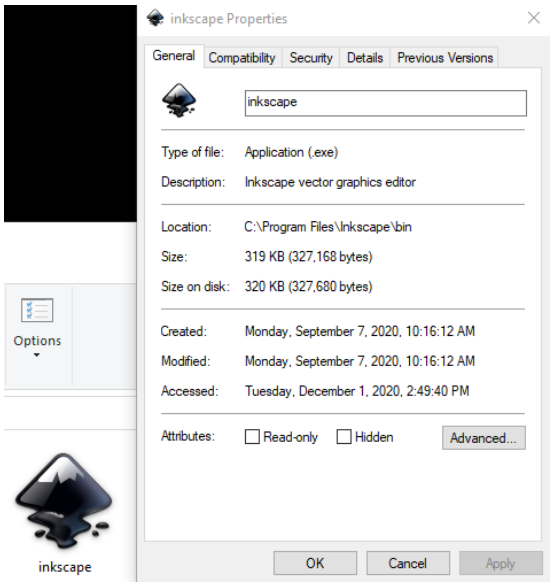
- Tkinter
    - “pip install tk”
- PIL
    - “Pip install Pillow”
- svgwrite
    - “pip install svgwrite”
- pygetwindow
    - “pip install pygetwindow”
- Pyglet
    - “ pip install pyglet”

1.3 Path Changes

With the creation of the software, we used our own system architecture so the file pathing in some of the code has to be changed to match the pathing on the operating computer. For example, Inkscape is saved on our computer in the “Program Files” folder, with the path shown below.

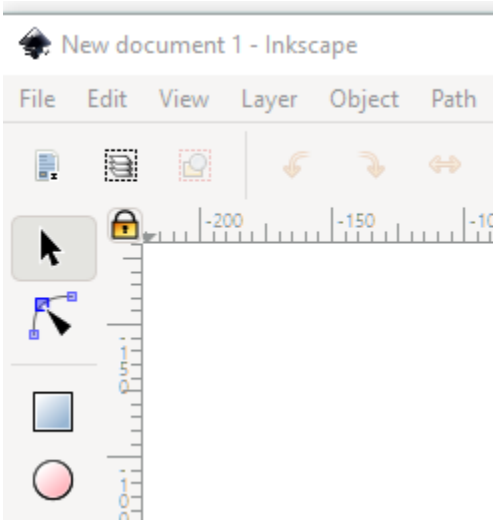
```
33      def open_ink(self):
34          self.clear_order1()
35          inkplace = r'C:\Program Files\Inkscape\bin\inkscape.exe'
```

The pathing for line 35 above must correspond with where the Inkscape executable is on your device. This is the case for many other lines, including where we use Font Creator and open file dialogs with the machines file system. You can find this by finding the executable needed for each line and right clicking on the executable file and selecting the “Properties” tab. This will show you the path of the file needed under “Location”. You will just need to add the name of the executable to the end of the path and put that new pathing in the Python script.

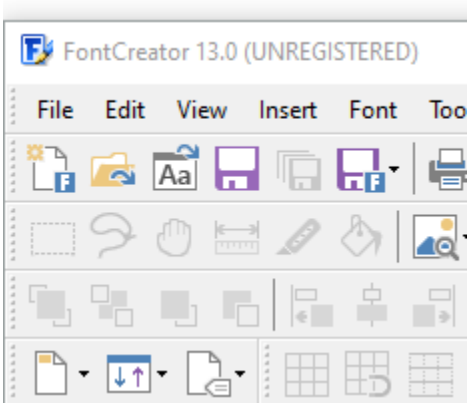


The following lines of code are where you will need to change the file paths and their corresponding applications.

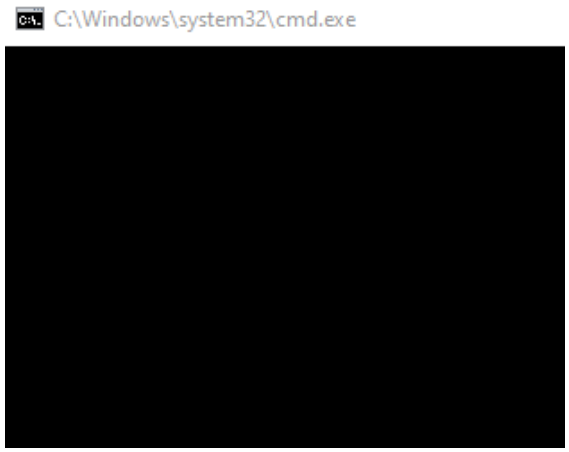
- Line 33, get new Inkscape path (probably in “Program Files”)
- Line 51, change default window name of Inkscape on your computer
    - Title of window when opening Inkscape
    - “New document 1 - Inkscape” below



- Line 62, change default window name of Font Creator on your computer
    - Title of window when opening Font creator
    - “FontCreator 13.0 (UNREGISTERED)” below



- Lines 54 and 65, may need to change terminal name for closing windows
    - Title of command prompt when running os processes
    - “C:\Windows\system32\cmd.exe” below

- 

- Line 70, get new Font Creator path (probably in Program Files)
- Line 117, change initial directory for file dialog for where to find SVGs
- Line 160, change initial directory for file dialog for where to find CSVs
- Line 165, change initial directory for file dialog for where to find fonts
- Line 246, change initial directory for file dialog for where to find fonts

2.0 Usage

2.1 Toolbar

The toolbar within the GUI is found on the left-hand side of the interface. The toolbar consists of four buttons that allow the operator to access the various capabilities of the GUI. These buttons, in descending order, are the Font Creator button, the Inkscape button, the Calligraphr button, and the Create/Send Orders button. Each of these buttons, when clicked by the operator, will produce a new interface from which a new functionality is available to the user.

In the Font Creator button the user is able to access the external application Font Creator. This application allows Simply Noted to customize the characters, kernings, glyphs, and other handwriting idiosyncrasies to the customer's liking. The product of this application is a customized OTF file.

In the Inkscape button the user is able to access the external application Inkscape. This application allows Simply Noted to preview an SVG file prior to being delivered to the RWM. Though there are many more capabilities provided from within Inkscape, the essential functionality provided is the ability to see the layered text prior to delivery.

In the Calligraphr button the user is able to access the external application Calligraphr in their browser. Calligraphr, as previously stated, serves as the OCR component in the GUI. In this application the user is able to provide a completed writing template image and create an OTF file

of the customer's handwriting. There are some additional features which may be conducted in Calligraphr as well such as character randomization and some character customization.

In the Create and Send Orders button the user is able to access an internal interface in which multiple capabilities are provided. The capabilities in this button are creating a CSV file, merging a CSV file to produce an SVG file, and delivering an SVG file to a desired IP address.

2.2 External Applications

The GUI includes three external applications on the toolbar: Font Creator, Inkscape, and Calligraphr. Calligraphr serves as the OCR of the project. It allows the user to fill out a template of their handwriting, upload it, and produce a customized handwriting font. Within Calligraphr, there are a variety of options that can be used to customize the font further, such as adjusting the spacing, and editing characters individually. In Font Creator, the user can customize characters within font files using existing OTF files. This application provides features such as kerning, ligatures, and space customization, along with an advanced character editor. Inkscape is used to preview an SVG file before it is sent to the RWM. Inkscape does provide many more functionalities, however, for the scope of this project that is its only use.

2.3 Create Orders

Create orders give you two options the first is creating a new csv to use for the mail merge process. This allows you to input a name for the csv and then input the comma separated data into the big text area. The first line will serve as your column headers so for example (FirstName, LastName, Address, Phone number). Once you enter all the information that you want to use for the creation of the svg you can hit the submit button.

Now you can use the load csv button to load the csv you just created or a csv that is already made. Once you hit the choose file it will open your file path and you will select the csv you want to make a svg from. At the top of this screen it will show the column headers and will assign them to a variable so that you can use them in the creation of the SVG. First you will enter the desired name for the SVG and then you will enter the message you want to send to the robot in the big text box. For example, "Hello {var0} I hope you have a great day" this will go through the first variable column and iterate through the data in there and include the data in the message. Once you are happy with the message you can hit the select font file button. From here you select the font file that you want to use for the svg creation. Once you select the font file and click ok it will automatically make the svg file.

2.4 Send Orders

To be able to use the Send Orders component of the GUI you have to make sure that the operators pcs and the robot are both on the same wifi network. Once you confirm this all you need to do is make sure the robot is powered on and use the RWM's IP address and enter it into the required text box. The robot will send codes back to the operators terminal to determine the status of the robot.