

# Image/Picture Steganography

---

## Student Details

- Number: 154409
- Name: Emmanuel Maneswa
- Email: [emmanuelmaneswa@gmail.com](mailto:emmanuelmaneswa@gmail.com)

## Project Advisor

- Asst. Prof. Dr. Cem Kalyoncu

## Languages

- C++
- QML
- JavaScript

## Softwares/Tools Used

- Visual Studio Code: <https://code.visualstudio.com/>
- Git: <https://git-scm.com/>
- Bitbucket: <https://bitbucket.org/>
- Github: <https://github.com/>
- CMake: <https://cmake.org/>
- Qt: <https://www.qt.io/>
- OpenCV: <https://opencv.org/>
- Doxygen: <http://www.doxygen.nl/>
- Trello: <https://trello.com/>

## Supported Image Formats

- JPEG: \*.jpeg, \*.jpg, \*.jpe
- PNG: \*.png
- TIFF: \*.tiff, \*.tif
- WebP: \*.webp
- Bitmaps: \*.bmp
- OpenEXR: \*.exr
- HDR: \*.hdr

## Format Stego Image is Saved

- PNG: \*.png → Because it uses a lossless compression(LZW).

## Third-Party Libraries

- Sha256: <http://www.zedwood.com/article/cpp-sha256-function>

## Directory Structure

```
.
├── build
├── CMakeLists.txt
├── docs
│   ├── project 1
│   │   ├── proj1_documentation.docx
│   │   ├── proj1_documentation.pdf
│   │   ├── proj1_poster.pdf
│   │   └── proj1_poster.pptx
│   └── project 2
│       ├── Project Poster (154409 - Emmanuel Maneswa).pptx
│       ├── Project Presentation (154409 - Emmanuel Maneswa).pptx
│       └── Project Report (154409 - Emmanuel Maneswa).docx
├── gui
│   ├── js
│   │   ├── embed.js
│   │   └── extract.js
│   ├── pages
│   │   ├── embed.qml
│   │   ├── extract.qml
│   │   └── main.qml
│   └── qml.qrc
├── include
│   ├── convert.hpp
│   ├── middlemen.hpp
│   └── steganography.hpp
├── README.md
├── README.pdf
├── samples
│   ├── 3.webp
│   ├── sample_1280×853.exr
│   ├── sample_1280×853.hdr
│   ├── sample_1920×1280.bmp
│   ├── stego-image11.png
│   ├── stego-image12.png
│   ├── stego-image13.png
│   ├── stego-image14.png
│   ├── stego-image15.png
│   ├── stego-image16.png
│   ├── stego-image1.png
│   └── tiff-image.tiff
├── scrum-board
│   ├── 1. 2020-03-11_20:23.jpeg
│   ├── 2. 2020-03-30_07:31.jpg
│   ├── 3. 2020-04-07_16:53.jpg
│   ├── 4. 2020-04-07_16:56.jpg
│   ├── 5. 2020-04-08_12:32.jpg
│   └── 6. 2020-04-08_12:35.jpg
```

```
|   |─ 7. 2020-04-09_08:46.jpg
|   |─ 8. 2020-04-25_02:30.jpg
|   |─ src
|   |   |─ convert.cpp
|   |   |─ main.cpp
|   |   |─ middlemen.cpp
|   |   |─ steganography.cpp
|   |─ tests
|   |─ third-party
|   |   |─ README.md
|   |   |─ README.pdf
|   |   |─ sha256
|   |       |─ include
|   |       |   |─ sha256.hpp
|   |       |─ LICENCE.txt
|   |       |─ src
|   |           |─ sha256.cpp
```