

QR code generator overview

Purpose

The QR code generator was necessary as the QTrobot will be using it to identify a user, rather than facial recognition. Due to potential safeguarding issues surrounding the capture and storage of children's facial profiles.

These issues were identified during a client meeting. The QR code was identified as a viable solution to work around the issue while maintaining the intended functionality.

Code

The code was written in python using the 'qrcode' library. A simple function was written that takes the user ID as a parameter and outputs an image of their user ID as a QR code.

```
#QR code generator for the QT Robot
import qrcode
#function to take user id as a parameter for QR generation
def generateQR(user_id:str):

    code = qrcode.make(user_id)
    code.save(f"{user_id}_QR-code.png")
    return 0
```

Test cases

Test data	Expected result	Test result	Next steps
1	QR output that contains data '1'	Successful	N/A
2	QR output that contains data '2'	Successful	N/A
xyz	QR output that contains data 'xyz'	Unsuccessful	Update to accept alpha numeric string
abc	QR output that contains data 'abc'	Unsuccessful	" "
123abc	QR output that contains data '123abc'	Unsuccessful	" "



Future development

It needs to function with alphanumeric strings rather than integers; however, this will be updated when we establish the database and then can correct the definition of the user id.

This code also needs integrating into the application to generate the QR for the users' profile and display it to them.

Finally, it will have to be paired with a QR code scanner, which I am in the process of creating for the robot side, allowing the robot to identify the user based on the user id provided to it.

Sources

GeeksforGeeks (2024) *Introduction to Python qrcode Library*. Available at:

<https://www.geeksforgeeks.org/python/introduction-to-python-qrcode-library/>

[accessed 3 February 2026].