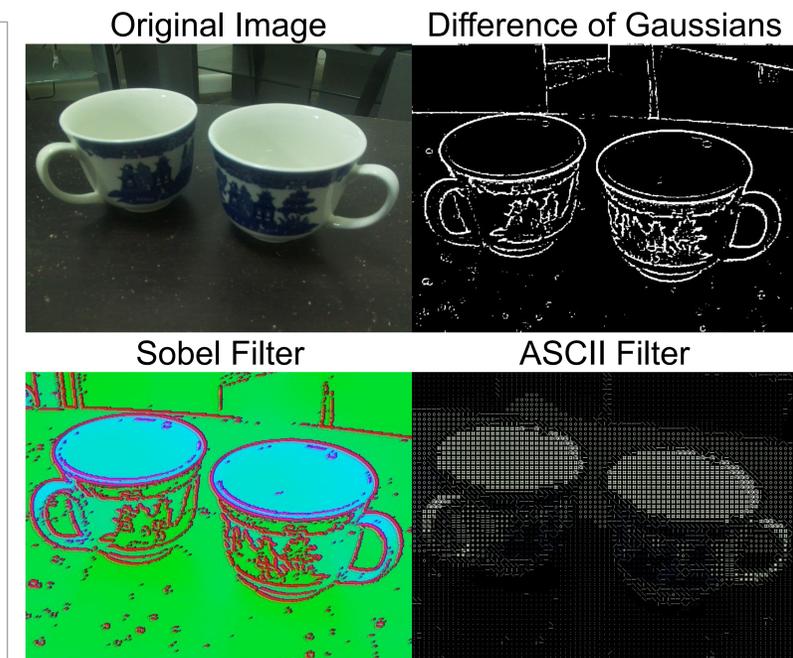
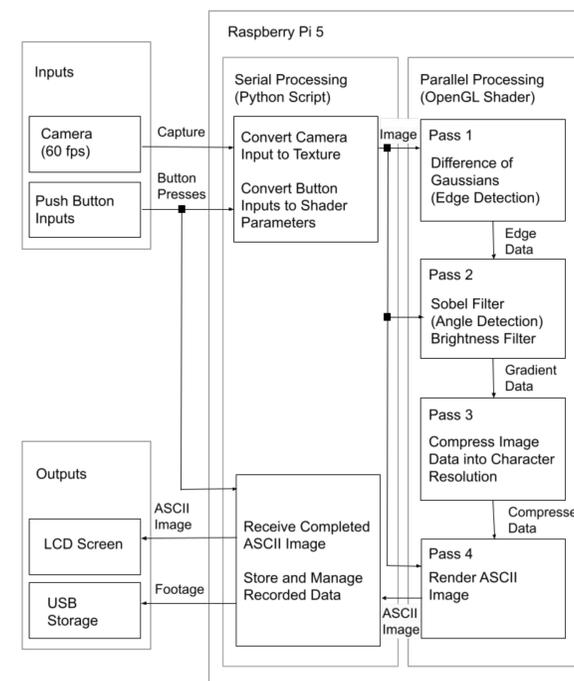


ASCII Camera

Project

- ASCII art is a graphic design technique that creates images using characters from a set of character instead of pixels.
- The goal of the ASCII Camera is to use real-time image processing to convert camera input to ASCII art.
- Why build this?
 - ASCII art is a unique storytelling medium, with strengths and weakness.
 - A handheld camera gives the user real-time feedback.
 - Image processing techniques have implications in many fields.

System



Methods

- Design and Hardware
 - The ASCII Camera uses a Raspberry Pi microcomputer to read input from a camera, process image data, and display the ASCII image to a LCD screen.
 - I designed a 3D-printed case to make the camera user friendly and easy to hold
 - The user can plug a USB drive into the camera for easy exporting of images and videos
- Data Processing
 - The ASCII camera can take pictures and record video
 - The image processing program uses 2D convolution for fast filtering
 - Image filtering happens on the Raspberry Pi's GPU using OpenGL language



Conclusion

- The ASCII Camera is able to convert images to ASCII art, which is both legible and visually appeal.
- The user is able to easily experiment with the ASCII medium, and save images videos to a USB drive if desired.
- Through this process I learned how to:
 - Design, build, and test a product
 - Use a microcomputer manage inputs and outputs
 - Write programs that can run on a GPU
 - Optimize filters for real-time applications
- Future Improvement:
 - Change powersource to rechargeable battery
 - Make case smaller and more durable
 - Optimize fragment shader for higher resolution and framerate