



Secure and Remote 3D Printing

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General Information:

Meeting Dates:

- 4/18/22

Faculty Sponsor

Dr. Sid Bhattacharyya

Client

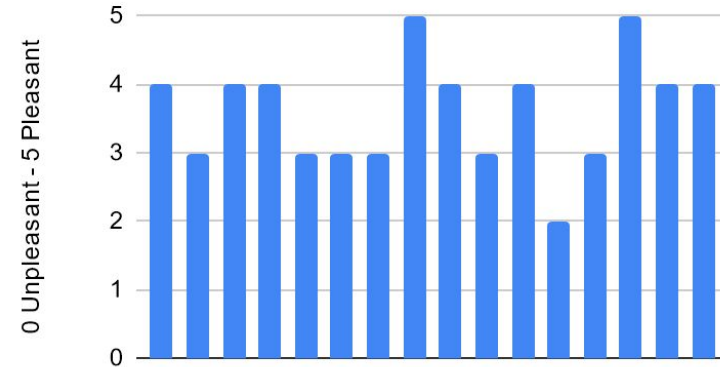
Mike C Newton

Milestone 6					
Task	Completion %	Tiffanie	Carl	Isaiah	Nick
1. Test/demo of the entire system	100%	33%	33%	34%	0%
2. Evaluation results	100%	100%	0%	0%	0%
3. Create user/developer manual	100%	0%	100%	0%	0%
4. MitM script for decryption	100%	0%	0%	100%	0%

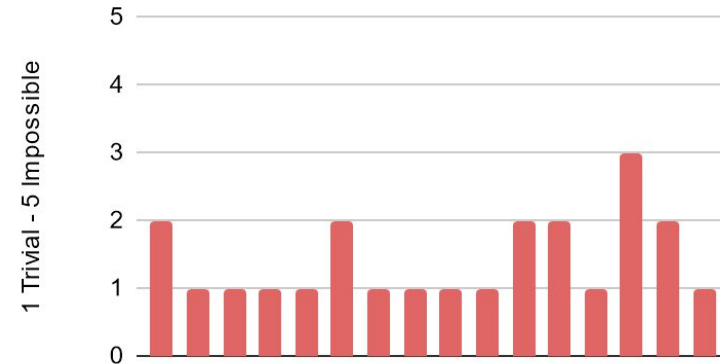
Evaluation Results (Round 2)

- Multiple file uploads at the same time
- Add a robots.txt and a sitemap.xml
- Automatically delete files once a user is deleted / removed
- Admin approval on user creation
- Email validation before being able to upload
- Optional comment field for files
- Allow users to see how long it will take to reach their position in the queue
- Admins should be able to move a file around in the queue, not just by sorting the entire queue. Or add the option to sort by print time to allow for short prints at the end or the day or whatever fits the schedule.

Appearance of the website



Website Navigation



Running the Server

```
sudo python3 manage.py makemigrations
sudo python3 manage.py migrate
sudo python3 manage.py createsuperuser
sudo python3 manage.py runserver
No changes detected
Operations to perform:
  Apply all migrations: Website, admin, auth, contenttypes, sessions
Running migrations:
  Applying contenttypes.0001_initial ... OK
  Applying contenttypes.0002_remove_content_type_name ... OK
  Applying auth.0001_initial ... OK
  Applying auth.0002_alter_permission_name_max_length ... OK
  Applying auth.0003_alter_user_email_max_length ... OK
  Applying auth.0004_alter_user_username_opts ... OK
  Applying auth.0005_alter_user_last_login_null ... OK
  Applying auth.0006_require_contenttypes_0002 ... OK
  Applying auth.0007_alter_validators_add_error_messages ... OK
  Applying auth.0008_alter_user_username_max_length ... OK
  Applying auth.0009_alter_user_last_name_max_length ... OK
  Applying auth.0010_alter_group_name_max_length ... OK
  Applying auth.0011_update_proxy_permissions ... OK
  Applying Website.0001_initial ... OK
  Applying Website.0002_alter_customuser_id_alter_fileupload_id_and_more ... OK
  Applying admin.0001_initial ... OK
  Applying admin.0002_logentry_remove_auto_add ... OK
  Applying admin.0003_logentry_add_action_flag_choices ... OK
  Applying auth.0012_alter_user_first_name_max_length ... OK
  Applying sessions.0001_initial ... OK
Email: tpetersen2018#^H@m^H^H^H^H^H^H[[3~^H
Error: Enter a valid email address.
Email: tpetersen2018@my.fit.edu
Password:
Password (again):
This password is too short. It must contain at least 8 characters.
This password is too common.
Bypass password validation and create user anyway? [y/N]: N^Hy^H^H
Password:
Password (again):
This password is too short. It must contain at least 8 characters.
This password is too common.
Bypass password validation and create user anyway? [y/N]: y
Superuser created successfully.
```

Secure Connection

DisallowedHost at /

Invalid HTTP_HOST header: '127.0.0.1:8000'. You may need to add '127.0.0.1' to ALLOWED_HOSTS.

Request Method: GET

Request URL: http://127.0.0.1:8000/

Django Version: 4.0.2

Exception Type: DisallowedHost

Exception Value: Invalid HTTP_HOST header: '127.0.0.1:8000'. You may need to add '127.0.0.1' to ALLOWED_HOSTS.

Exception Location: /usr/local/lib/python3.9/dist-packages/django/http/request.py, line 135, in get_host

Python Executable: /usr/bin/python3

Python Version: 3.9.2

Python Path: ['/home/kali/Desktop/SeniorDesignProject',
'/usr/lib/python3.9.zip',
'/usr/lib/python3.9',
'/usr/lib/python3.9/lib-dynload',
'/usr/local/lib/python3.9/dist-packages',
'/usr/local/lib/python3.9/dist-packages/boofuzz-0.2.1-py3.9.egg',
'/usr/local/lib/python3.9/dist-packages/tornado-5.1.1-py3.9-linux-x86_64.egg',
'/usr/local/lib/python3.9/dist-packages/funcy-1.15-py3.9.egg',
'/usr/local/lib/python3.9/dist-packages/backports.shutil_get_terminal_size-1.0.0-py3.9.egg',
'/usr/local/lib/python3.9/dist-packages/angr-9.0.gitrolling-py3.9.egg',
'/usr/lib/python3/dist-packages',
'/usr/lib/python3.9/dist-packages']

Server time: Sun, 17 Apr 2022 14:29:50 +0000

User Manual

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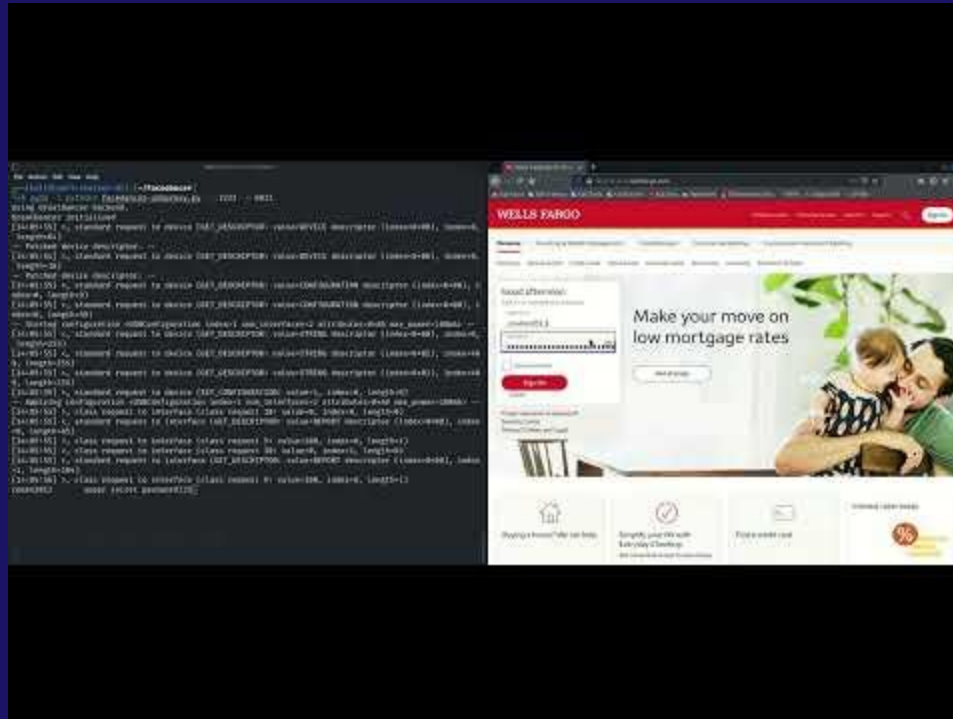
Supporting Users

1. Getting started
 - a. Overview of the differences between users and administrators
 - b. Highlight the basic flow of account creation and approval
2. Accessible Pages
 - b. Descriptions of each page accessible to default users
 - c. Descriptions of admin only pages
3. User options and features
 - a. Covers the functionality of each page
 - b. Outlines requirements for logging in, registering an account, uploading a file
 - c. Elaborates on the underlying processes of each button available to the user
4. Security
 - d. Provides the users with a list of security measures taken to ensure their models and interactions with the site are safe

Supporting Future Developers with Deployment

1. Printer setup
 - a. Covers how to build and maintain an Ender3 printer
 - b. Provides developers to Ender3 documentation and guides
2. Raspberry Pi
 - a. Explains our reasoning behind using a Raspberry Pi and some of the various benefits
3. Repository
 - a. Directs developers to the repository and how to start all of the containers
4. OctoPrint
 - a. Describes how the website interacts with OctoPrint
 - b. Outlines what is needed for OctoPrint to function properly and where to find more information and documentation
5. Docker compose
 - a. Describes our docker-compose file in depth and how it interacts with the host machine to setup all of the necessary processes

MitM Demo



<https://youtu.be/uZRoyPIB5x>

Lessons Learned

- Documentation takes just as long as implementation
- GreatFet cannot interface with serial ports
- 3D printers require a lot of recalibrations
- Octoprint has a lot of printer safety features in place, proving that we could not make the printer harm itself

**Any
Questions?**

Thank You!