

Secure Door Lock Milestone 2 Presentation

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| Task | Percent Completed | James | Christopher | Luke | Warren | To Do |
|---------------------------|-------------------|-------|-------------|------|--------|--|
| Camera Drivers | 40% | 40% | 20% | 20% | 20% | Implement 2k camera |
| Facial Recognition | 80% | 20% | 40% | 20% | 20% | Incorporate model on server |
| Raspberry Pi Interfacing | 10% | 25% | 25% | 25% | 25% | Unlock lock. Connect to server, and communicate between server, camera, and doorlock |
| .apk & server interaction | 25% | 30% | 20% | 30% | 30% | Finish connecting features to the server. |
| Backend Endpoint | 50% | 20% | 20% | 20% | 20% | Need websockets and IOT backend. |

Milestone 3 Task Discussion

- Camera Drivers

- Implemented a small camera driver for the Logitech C920 camera in C
- Modifications were made using inline assembly language to try to make optimizations which will be needed if streaming is expected.
- This process will be repeated and refined for the 2k cameras that we have for the project.

- Images Recognition

- Finished creating a model for image and facial recognition on AWS
- Uses AWS Lambda
- Created a bucket system for the facial recognition software to pull pictures from an uploaded source
- Started work on video processing



Milestone 3 Task Discussion

- Raspberry Pi
 - Wrote small programs for the Raspberry Pi and got a feel for integrating it with various hardware such as a camera and a light.
 - Learned to connect it to wif
 - The next step is to connect it to the server and doorlock.
- .apk and server interaction
 - Created a login screen and the capability to add users to the database.
 - Aesthetics were refined and Add approved visitor and Camera feed buttons were added (currently unconnected).
 - The next step is to get full interconnectivity between the app and the server.



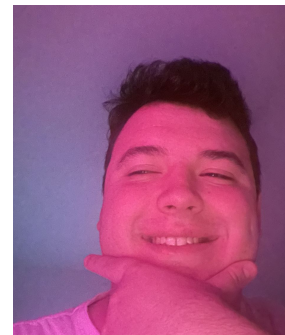
Milestone 3 Task Discussion

- Backend endpoint development
 - Refined routing for handling incoming requests.
 - Current routes handle Authentication, Login, Dashboard navigation and reAuth.
 - Finished setting up a SQLite database to store the needed information for both user profiles and device information.
 - Finished the integration of the Login UI to authenticate users through JWT (JavaScript Web Token) to focus on token based authentication within the app.
 - Began to interconnect the Raspberry Pi to the backend and tested communication between them.



Facial Recognition

```
1 import json
2 import boto3
3
4 def lambda_handler(event, context):
5     # TODO implement
6     client=boto3.client("rekognition")
7     s3= boto3.client("s3")
8     fileObj=s3.get_object(Bucket="ckieferbucket",Key="me.jpg")
9     file_content=fileObj["Body"].read()
10    response=client.detect_labels(Image = {"S3Object" : {"Bucket": "ckieferbucket", "Name": "me.jpg"}}, MaxLabels=3, MinConfidence=70)
11    print(response)
12    return {
13        'statusCode': 200,
14        'body': json.dumps('Hello from Lambda!')}
15
16
```



```
START RequestId: 2d21790a-0b44-4d2d-97bd-329f524fbe3b Version: $LATEST
{'Labels': [{'Name': 'Person', 'Confidence': 99.10786437988281, 'Instances': [{'BoundingBox': {'width': 0.3045912981033325, 'Height': 0.7761309146881104, 'Left': 0.4928624927997589, 'Top': 0.168666809797287, 'Confidence': 99.10786437988281}], 'Parents': []}, {'Name': 'Indoors', 'Confidence': 84.44918060302734, 'Instances': [], 'Parents': []}, {'Name': 'Table', 'Confidence': 70.38416290283203, 'Instances': [], 'Parents': []}], 'LabelModelVersion': '2.0', 'ResponseMetadata': {'RequestId': '3c54b324-3fa2-421c-8313-692bb7480d34', 'HTTPStatusCode': 200, 'HTTPHeaders': {'content-type': 'application/x-amz-json-1.1', 'date': 'Fri, 20 Mar 2020 11:23:37 GMT', 'x-amzn-requestid': '3c54b324-3fa2-421c-8313-692bb7480d34', 'content-length': '422', 'connection': 'keep-alive'}, 'RetryAttempts': 0}}
END RequestId: 2d21790a-0b44-4d2d-97bd-329f524fbe3b
REPORT RequestId: 2d21790a-0b44-4d2d-97bd-329f524fbe3b Duration: 2460.71 ms Billed Duration: 2500 ms Memory Size: 128 MB
Max Memory Used: 78 MB Init Duration: 160.96 ms
```

Facial Recognition

Buckets:

Buckets (8) [Info](#)

Buckets are containers for data stored in S3. [Learn more](#)

< 1 >

| | Name | AWS Region | Access | Creation date |
|-----------------------|--|---------------------------------|---|---|
| <input type="radio"/> | cf-templates-1lhjh90fml2lx-us-east-1 | US East (N. Virginia) us-east-1 | Bucket and objects not public | November 28, 2022, 00:33:14 (UTC-05:00) |
| <input type="radio"/> | ckieferbucket | US West (Oregon) us-west-2 | Objects can be public | November 28, 2022, 00:42:15 (UTC-05:00) |
| <input type="radio"/> | firststack-miestack-1q59ii9z8-datapanelogsbucket-7e1s45i4qbht | US East (N. Virginia) us-east-1 | Bucket and objects not public | November 28, 2022, 00:26:31 (UTC-05:00) |
| <input type="radio"/> | firststack-miestack-1q59ii9z8eegs-dataplane-eo7hsh0pobal | US East (N. Virginia) us-east-1 | Objects can be public | November 28, 2022, 00:26:55 (UTC-05:00) |
| <input type="radio"/> | firststack-miestack-6sq48wift-datapanelogsbucket-1tb1au1wv89ah | US East (N. Virginia) us-east-1 | Bucket and objects not public | November 28, 2022, 00:18:38 (UTC-05:00) |
| <input type="radio"/> | firststack-miestack-6sq48wiftnp6-dataplane-ravnm9b6ojig | US East (N. Virginia) us-east-1 | Objects can be public | November 28, 2022, 00:19:02 (UTC-05:00) |
| <input type="radio"/> | stacks-miestack-9bni270605jy-dataplane-1pazdoc96r4dc | US East (N. Virginia) us-east-1 | Objects can be public | November 28, 2022, 00:34:18 (UTC-05:00) |
| <input type="radio"/> | stacks-miestack-9bni270605jy-datapanelogsbucket-srg7tj999b1m | US East (N. Virginia) us-east-1 | Bucket and objects not public | November 28, 2022, 00:33:53 (UTC-05:00) |

ckieferbucket [Info](#)

[Objects](#) [Properties](#) [Permissions](#) [Metrics](#) [Management](#) [Access Points](#)

Objects (1)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 Inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Actions

Create folder

Upload

< 1 >

| <input type="checkbox"/> | Name | Type | Last modified | Size | Storage class |
|--------------------------|--------|------|---|--------|---------------|
| <input type="checkbox"/> | me.jpg | jpg | November 28, 2022, 00:46:15 (UTC-05:00) | 4.5 MB | Standard |

Facial Recognition

Roles:

| <input type="checkbox"/> | Role name | Trusted entities | Last activity |
|--------------------------|---|---|---------------|
| <input type="checkbox"/> | AWSServiceRoleForAPIGateway | AWS Service: ops.apigateway (Service-Linked Role) | - |
| <input type="checkbox"/> | AWSServiceRoleForSupport | AWS Service: support (Service-Linked Role) | - |
| <input type="checkbox"/> | AWSServiceRoleForTrustedAdvisor | AWS Service: trustedadvisor (Service-Linked Role) | - |
| <input type="checkbox"/> | ckiefer_role | AWS Service: lambda | 11 hours ago |
| <input type="checkbox"/> | FacialTest-role-oayrzmsp | AWS Service: lambda | 11 hours ago |

Permissions policies (2) [Info](#)

You can attach up to 10 managed policies.

[Refresh](#) [Simulate](#) [Remove](#) [Add permissions](#)

< 1 > [Settings](#)

| <input type="checkbox"/> | Policy name | Type | Description |
|--------------------------|---|-------------|---|
| <input type="checkbox"/> | AmazonRekognitionFullAccess | AWS managed | Access to all Amazon Rekognition APIs |
| <input type="checkbox"/> | AWSLambdaExecute | AWS managed | Provides Put, Get access to S3 and full ac... |

Meetings with Dr. Silaghi

| Date | Topic |
|-------------------|---|
| November 17, 2022 | Discussion of progress on the assigned tasks and current status of the hardware component and reviewed current difficulties and their possible solutions. |



Milestone 4 Task Matrix

| Task | James | Christopher | Warren | Luke |
|---|-------|-------------|--------|------|
| Implement 2k Camera drivers | 40% | 20% | 20% | 20% |
| Connect Raspberry Pi to server and hardware | 30% | 20% | 20% | 30% |
| Implement Facial Recognition on server | 20% | 40% | 20% | 20% |
| .apk & server connectivity | 20% | 20% | 40% | 20% |
| Finish backend endpoints | 20% | 20% | 20% | 40% |



Thank you. Questions?