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

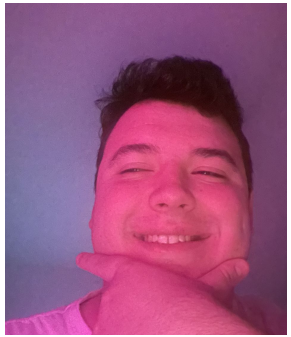
- Raspberry Pi
  - Wrote small programs for the Raspberry Pi and got a feel for integrating it with various hardware such as a camera and a light.
  - Learned to connect it to wif
  - The next step is to connect it to the server and doorlock.
- .apk and server interaction
  - Created a login screen and 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

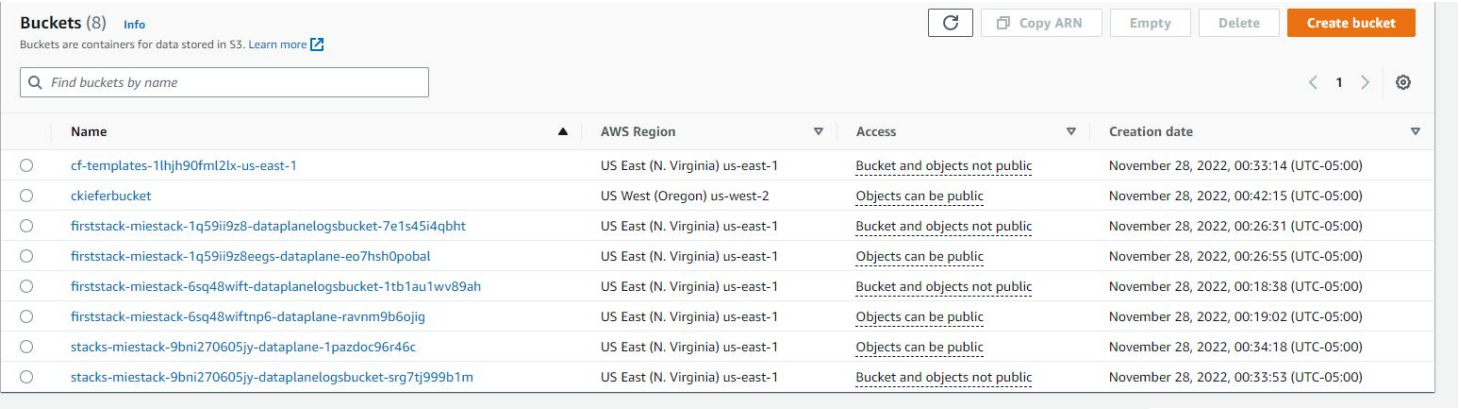
```python
import json
import boto3

def lambda_handler(event, context):
    # TODO implement
    client=boto3.client("rekognition")
    s3= boto3.client("s3")
    fileObj=s3.get_object(Bucket="ckieferbucket",Key="me.jpg")
    file_content=fileObj["Body"].read()
    response=client.detect_labels(Image = {"S3Object" : {"Bucket": "ckieferbucket", "Name": "me.jpg"}}, MaxLabels=3, MinConfidence=70)
    print(response)
    return {
        'statusCode': 200,
        'body': json.dumps('Hello from Lambda!')
    }
```

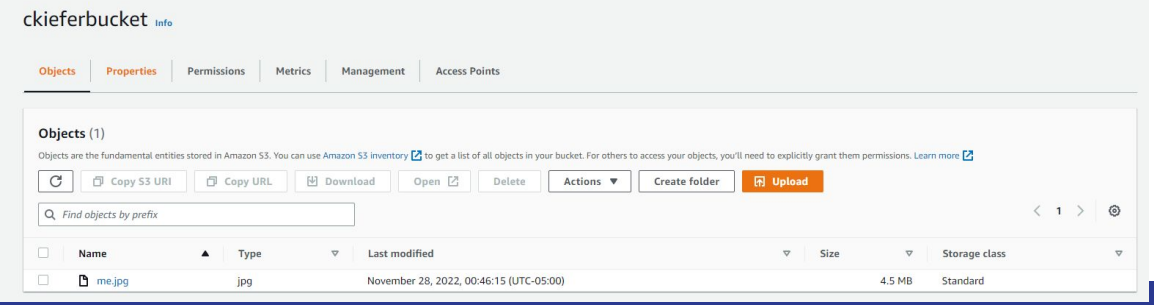


```
START RequestId: 2d21790a-0b44-4d2d-97bd-329f524fbe3b Version: $LATEST
{'Labels': [{'Name': 'Person', 'Confidence': 99.10786437988281, 'Instances': [{'BoundingBox': {'Width': 0.3045912981033325, 'Height':
0.7761309146881104, 'Left': 0.4928624927997589, 'Top': 0.168666809797287}, 'Confidence': 99.10786437988281}], '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:





Facial Recognition

Roles:

Role name	Trusted entities	Last activity
AWSServiceRoleForAPIGateway	AWS Service: ops.apigateway (Service-Linked Role)	-
AWSServiceRoleForSupport	AWS Service: support (Service-Linked Role)	-
AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service-Linked Role)	-
ckiefer_role	AWS Service: lambda	11 hours ago
FacialTest-role-oayrzksp	AWS Service: lambda	11 hours ago

Permissions policies (2) Info

You can attach up to 10 managed policies.

Simulate | Remove | Add permissions

Filter policies by property or policy name and press enter.

1

Policy name	Type	Description
AmazonRekognitionFullAccess	AWS managed	Access to all Amazon Rekognition APIs
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?