Secure Door Lock
Milestone 3 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

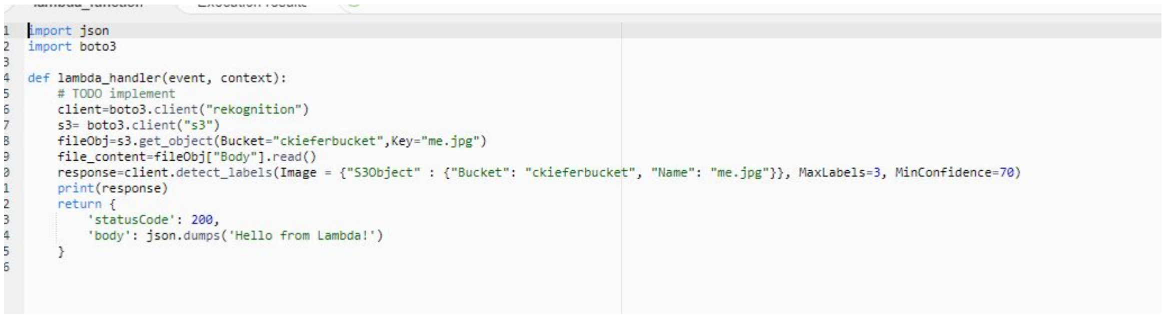
Milestone 3 Task Discussion

- 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

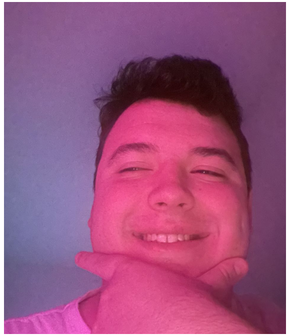
- Backend endpoint development
  - Refined routing for handling incoming requests.
  - Current routes handle Authentication, Login, Dashboard navigation and reAuth.
  - Finished setting up a SQLite database to store the needed information for both user profiles and device information.
  - Finished the 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.

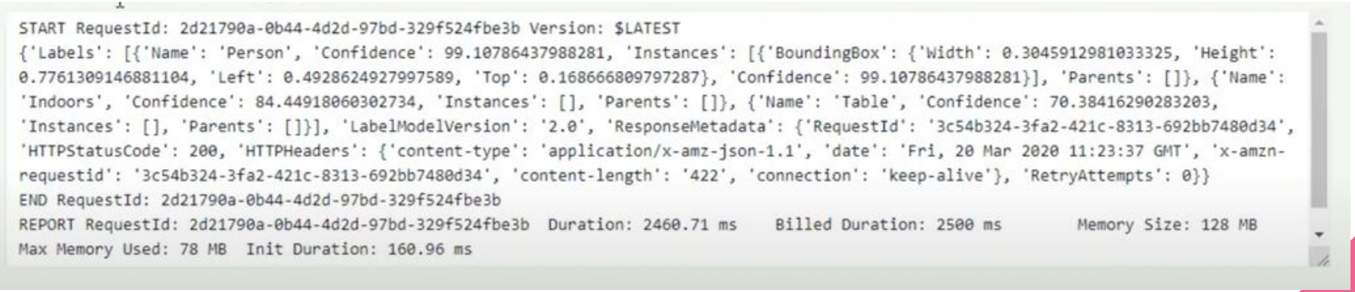
Facial Recognition



```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!')
    }
```

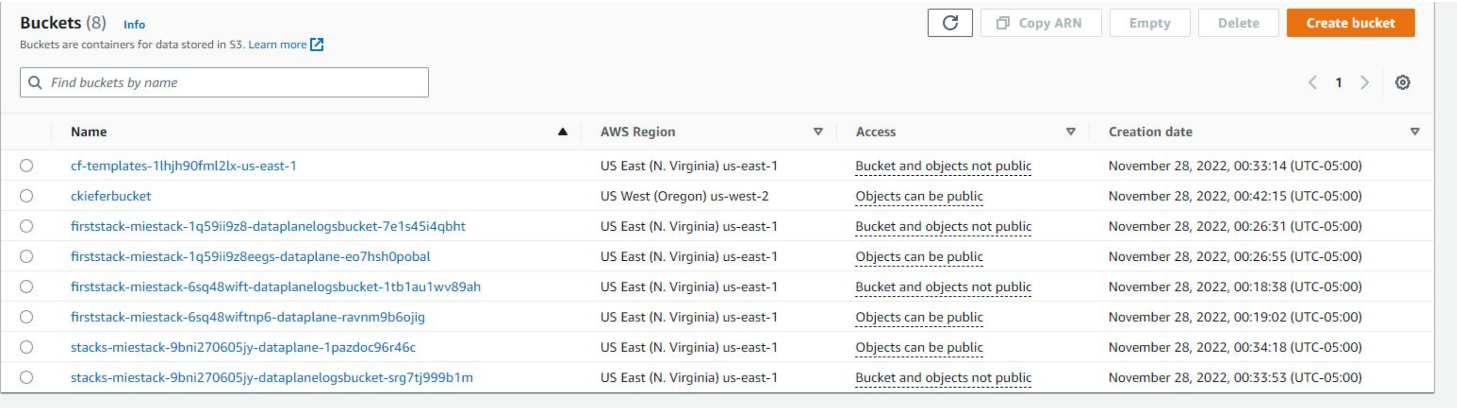




```
START RequestId: 2d21790a-0b44-4d2d-97bd-329f524fbe3b Version: $LATEST
{'Labels': [{'Name': 'Person', 'Confidence': 99.10786437988281, 'Instances': [{'BoundingBox': {'Width': 0.3045912981033325, 'Height':
0.7761309146881104, 'Left': 0.4928624927997589, 'Top': 0.168666809797287}, 'Confidence': 99.10786437988281}], 'Parents': []}, {'Name':
'Indoors', 'Confidence': 84.44918060302734, 'Instances': [], 'Parents': []}, {'Name': 'Table', 'Confidence': 70.3841629028320З,
'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

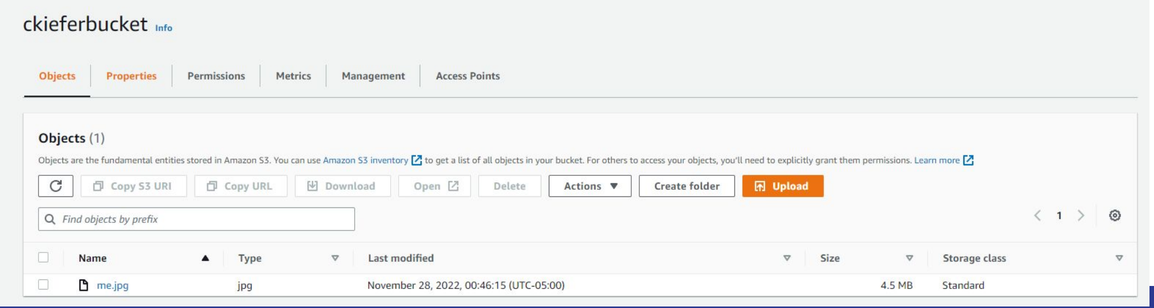
Buckets:



Buckets (8) Info

Buckets are containers for data stored in S3. Learn more

	Name	AWS Region	Access	Creation date
○	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)
○	ckieferbucket	US West (Oregon) us-west-2	Objects can be public	November 28, 2022, 00:42:15 (UTC-05:00)
○	firststack-miestack-1q59ii9z8-dataplanelogsbucket-7e1s45i4qbht	US East (N. Virginia) us-east-1	Bucket and objects not public	November 28, 2022, 00:26:31 (UTC-05:00)
○	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)
○	firststack-miestack-6sq48wift-dataplanelogsbucket-1tb1au1wv89ah	US East (N. Virginia) us-east-1	Bucket and objects not public	November 28, 2022, 00:18:38 (UTC-05:00)
○	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)
○	stacks-miestack-9bni270605jy-dataplane-1pazdoc96r46c	US East (N. Virginia) us-east-1	Objects can be public	November 28, 2022, 00:34:18 (UTC-05:00)
○	stacks-miestack-9bni270605jy-dataplanelogsbucket-srg7tj999b1m	US East (N. Virginia) us-east-1	Bucket and objects not public	November 28, 2022, 00:33:53 (UTC-05:00)



ckieferbucket Info

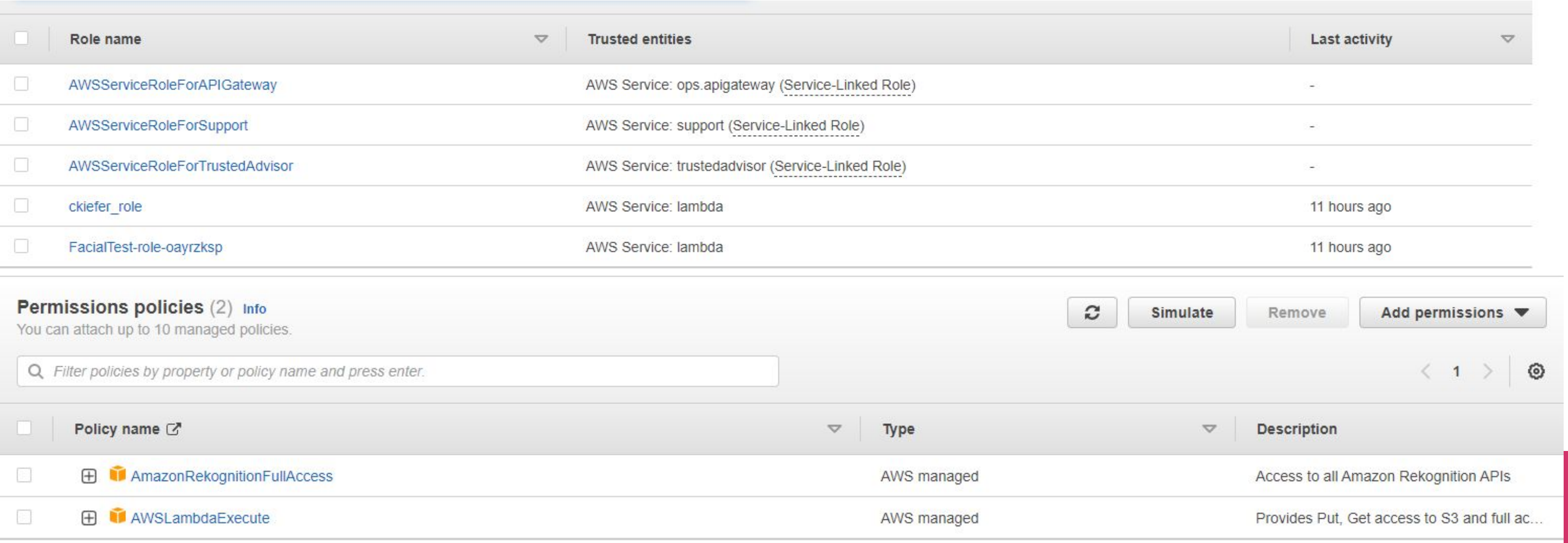
Objects (1)

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

□	Name	Type	Last modified	Size	Storage class
□	me.jpg	jpg	November 28, 2022, 00:46:15 (UTC-05:00)	4.5 MB	Standard

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

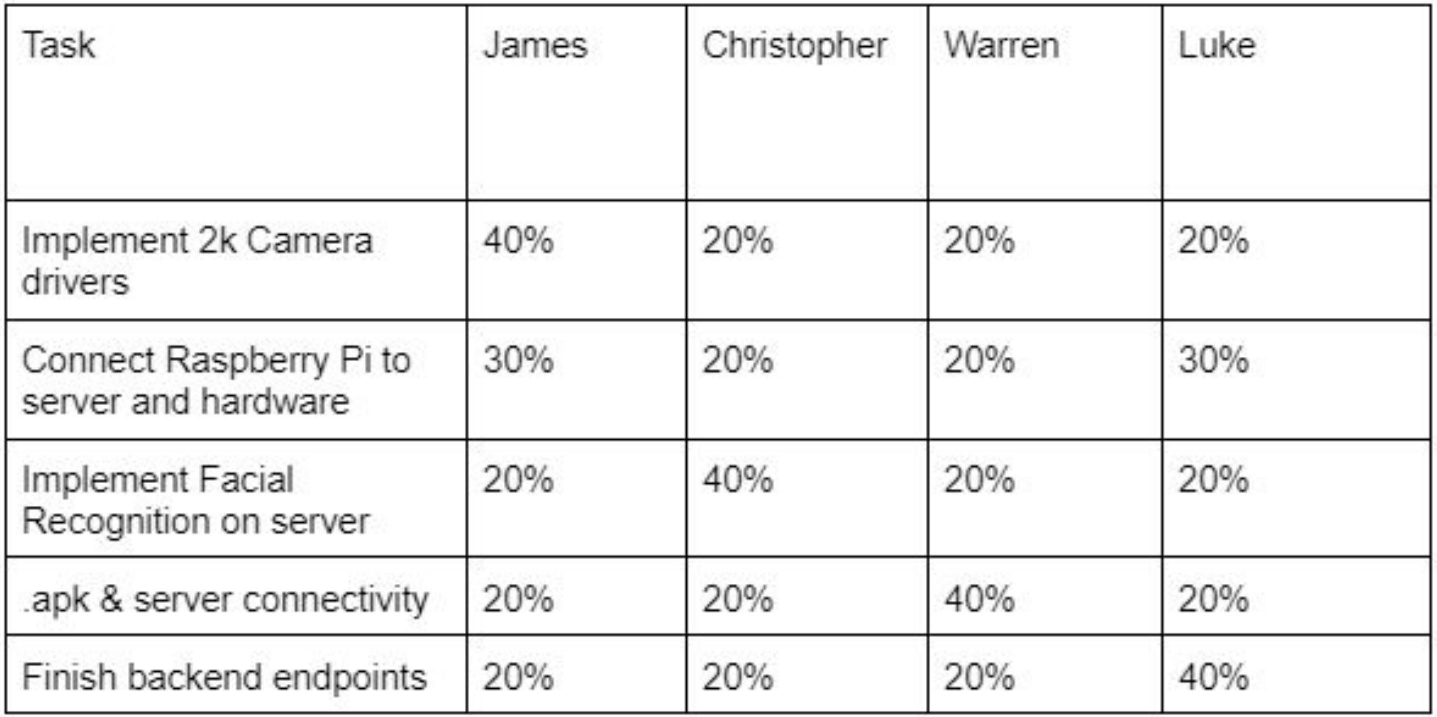
You can attach up to 10 managed policies.

□	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?