



# Secure Door Lock

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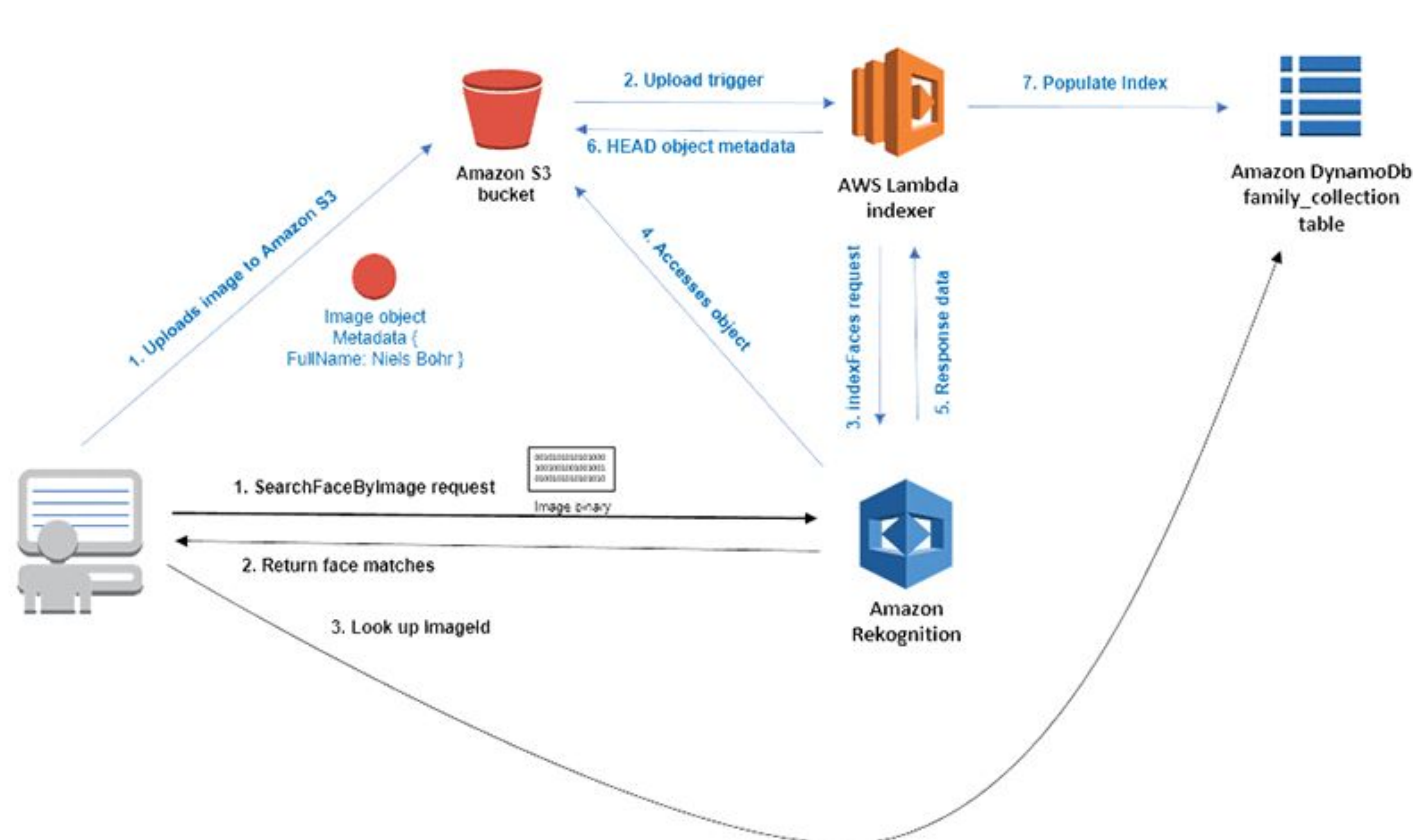
## Motivation

- Currently, there are two common types of smart door locks on the market. There are smart door locks that use a pin and smart locks that use fingerprint biometrics. Those that use a pin are typically unsecure due to limited password size. Those that use fingerprints are not convenient when there is a large group of approved users.

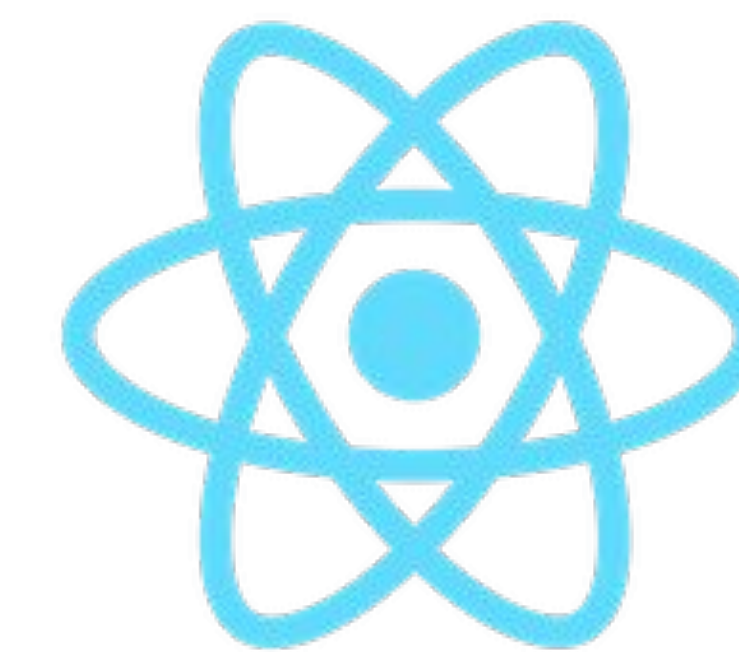
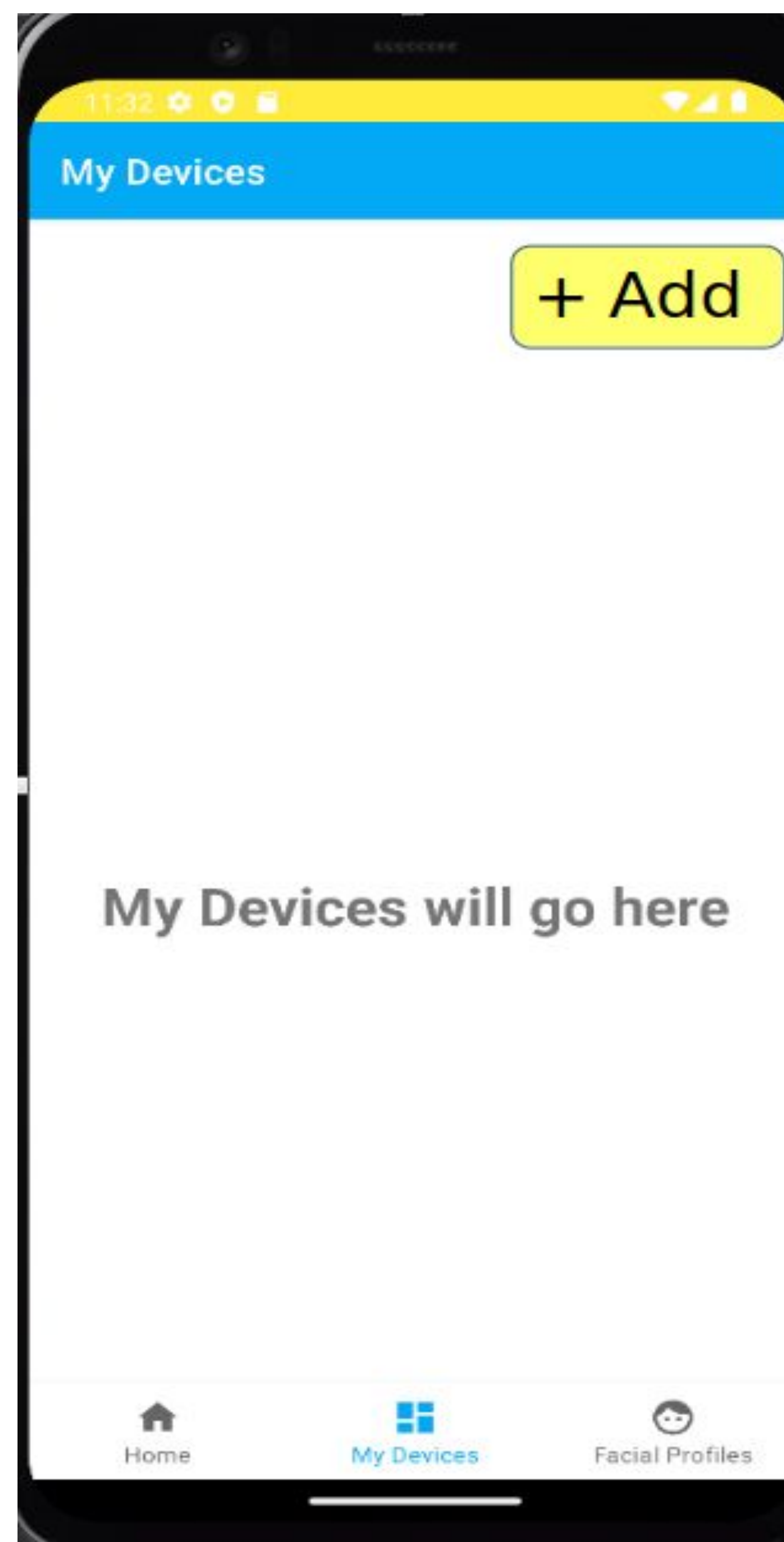
## Features

- Remotely lock or unlock the the connected door with the app.
- Identify the person at your door via live video feed.
- Easily add or delete guests from the approved access list.
- Get notified when a person at your door as well as if they are an approved guest.
- Dual authentication to prevent any unauthorized users from gaining access due to misidentification by the AI.

## Design



## Mobile App



## Goal

- Create a system to help users better manage who has access to their home, making their home both more secure and more accessible.

## Evaluation

- Accuracy, precision, and F-score were used to evaluate the facial recognition component of our system. We weighted precision higher in the evaluation process because avoiding false positives is especially important.
- User feedback and time til task completion were used to determine usability.
- Penetration testing was primary mode of security testing used to evaluate the security of the application.

## Future work

- incorporate the touch pad as a form of dual authentication.
- Build camera into the door lock rather than an add on.
- Make make the door compatible with Ring cameras to allow for more features such as audio through app.

## Conclusion

- Application provides users with the ability to control who goes in and out of their house.
- The lock makes it easier to let guest in and assailants out.

- Approved guest arrives at door
- Camera begins video then uploads video to backend
- AWS labels guest as approved. Video with label is sent to app.
- User sees livefeed with approved label on it.
- User approves which unlocks the door for the guest.