

iSpy

Stop threats at first sight not at first shot

Qumulex 

My Role

UX/UI Designer,
Product Designer

Tools

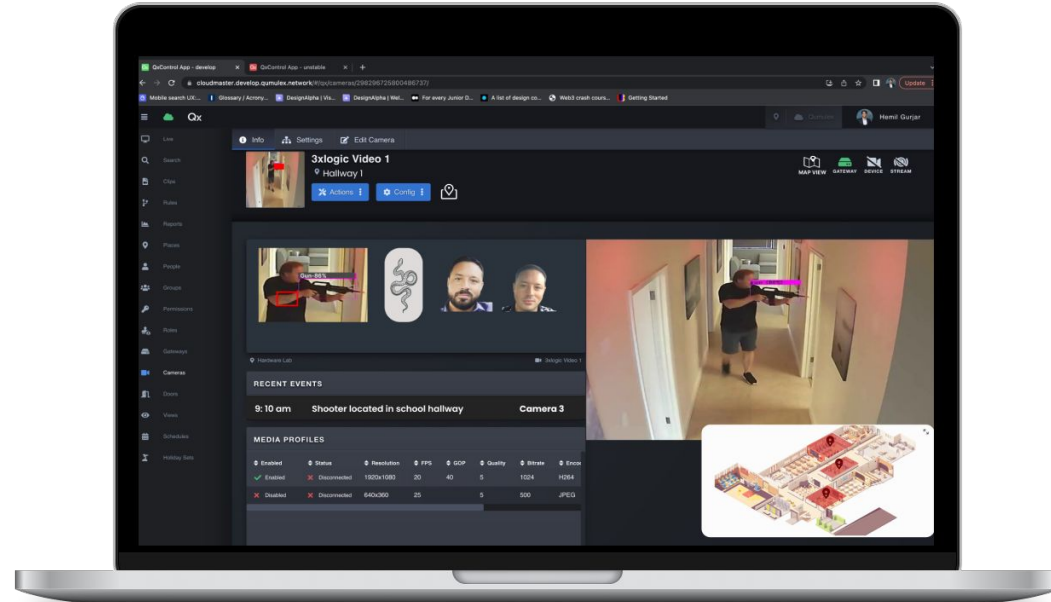
Figma, Miro

UX Methods

Desk Research, User Research,
Competitor Analysis, Wireframing and
Prototyping

Team

2 HCI grad students



Project Background

Client

[Qumulex](#) provides a Unified **Video Management** and **Access Control** platform providing both in a simplified browser-based user interface, with flexible deployment options of All Cloud, All On-Premises, or Both, and is open platform to work with leading camera and access control hardware, with no proprietary-product lock-in.

*Our client wanted us to research about how they can break into the **K-12 education industry** and find an opportunity space such that it can be made profitable to them as well as to these educational institutions.*

Context

Problem

“How might we leverage the existing surveillance systems of Qumulex to tackle issues faced by Public High schools such that it is profitable to both client and customers”

Solution

iSpy is a **surveillance system application** that sends real time **alerts** to school security when it **detects weapons** on campus as well as **identifies distinguishing characteristics** of the offender which can help cops during crisis. It also automatically generates **evacuation plans** so that students can be safely evacuated during emergency situations.

What was my work?

Conceptualize a new Idea to break into K-12 education market.

As a UX/Product Designer, my work was to propose a system that can be **integrated to Qumulex's current platform** so that they can provide **niche features** in the **education domain**.

Desk Research

- What does the current market look like?
 - **83%** public schools use security cameras
 - In 2020, schools could redeem **\$19 million** as a part of state grants
 - The US department of justice provides **\$1 million** to schools under the stop school violence act.
 - Market has **5.2% CAGR**
 - Public school security industry is valued at **\$1.25 billion**
- What are the current key trends or market dynamics in K-12 education industry?
 - **Crime:** School crimes are rising by the day and safety of students is of utmost importance
 - **Monitoring System:** Surveillance is the new normal
 - **Technological Trends:** As technology advances newer features are coming up by making use of Artificial intelligence and Machine learning
 - **Documentation and Evidence:** evidence is very important whenever any crime takes place

Data Collection

Problem Framing

Ideation

Prototyping

Evaluation

User Interview

“..would be helpful to have information about distinguishing characteristics of the shooter and where the hostages are...”

Jill Lees

Division Chief of Police, IUPD

Data Collection

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Pain Points of K-12 education domain:

- School shootings
- Trespassing
- Bullying
- Vandalism
- Limited availability of resources for disabled students
- Adapting to changes after the pandemic
- School building management is a time consuming process

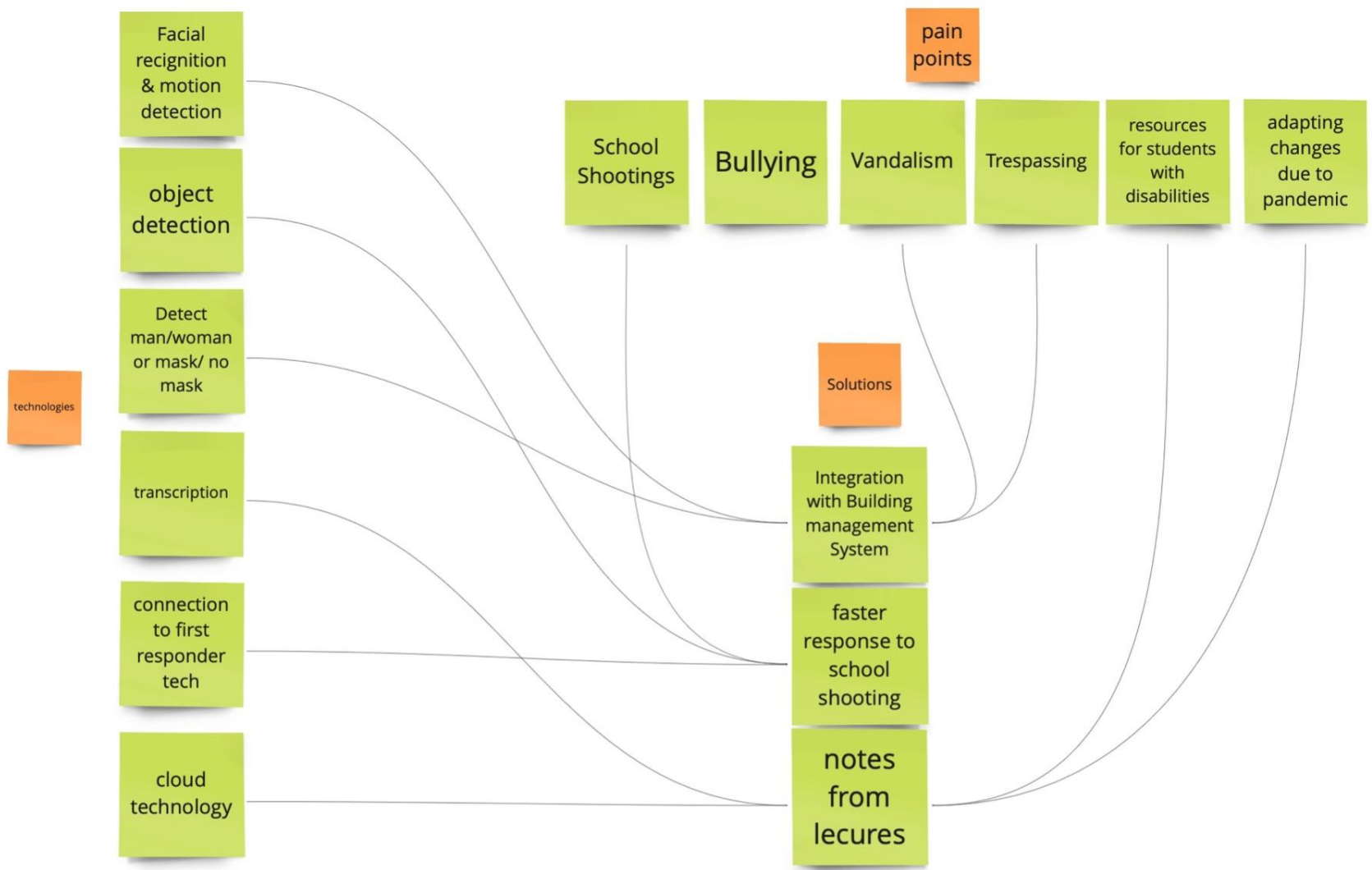
“How might we leverage the existing surveillance systems of Qumulex to tackle issues faced by Public High schools such that it is profitable to both client and customers”

Data Collection
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Brainstorming

- We had multiple brainstorming sessions to find the solution to the problem.
- This process was done by listing out the new and upcoming technologies that is used as well as the pain points of the market
- We then mapped the two to come up with three potential ideas or solutions. The solutions are:
 1. iSpy
 2. iNote
 3. iCon

**How was the Ideation
done?**



pain points

School Shootings

Bullying

Vandalism

Trespassing

resources for students with disabilities

adapting changes due to pandemic

technologies

Facial recognition & motion detection

object detection

Detect man/woman or mask/ no mask

transcription

connection to first responder tech

cloud technology

Solutions

Integration with Building management System

faster response to school shooting

notes from lectures

iSpy



Remote Monitoring

Cloud Computing



Weapon Detection

Smart AI



Evacuate People

Avoid Casualties

Features

- AI detects weapons
- Alert notifications are sent to school security
- Evacuation plans are suggested
- Customization of surveillance screens
- Remote surveillance

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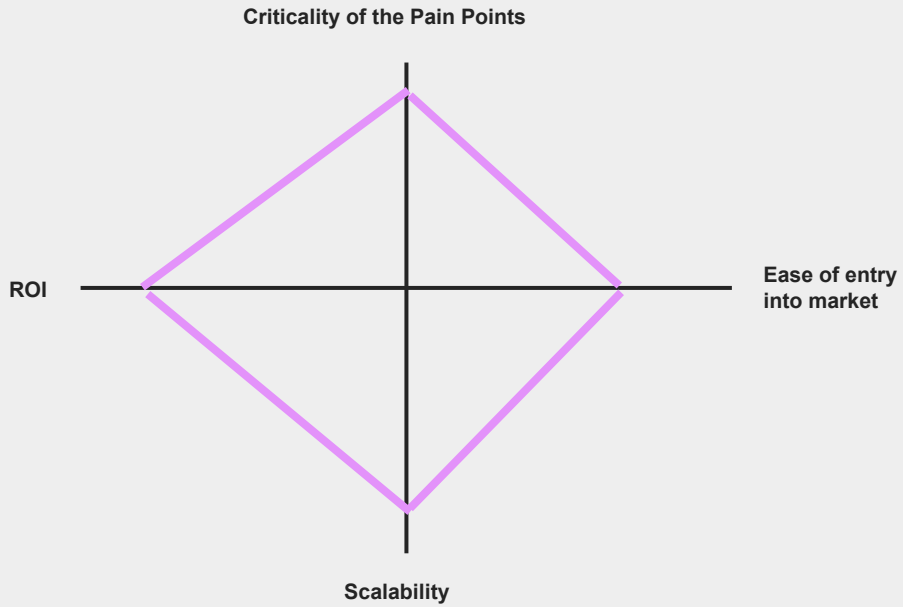
Pain Relievers

- Avoid Casualties
- Transitional Model
- Build upon existing Software
- Remote Surveillance
- Sense of Safety
- Gateway: Data Security
- Monitor Multiple Screens
- Online Training Module

Gain Creators

- Customized alerts
- Personalized screen layouts
- Reduced response time

Evaluation of iSpy



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iNote



Image Capturing

Cloud
Computing



Notes Transcription

Smart AI



Remote Learning

Avoid Students
lagging behind

Features

- Captures image of whiteboard
- Uses image to text algorithms
- Lectures are automatically saved into the cloud
- Students can get remote access

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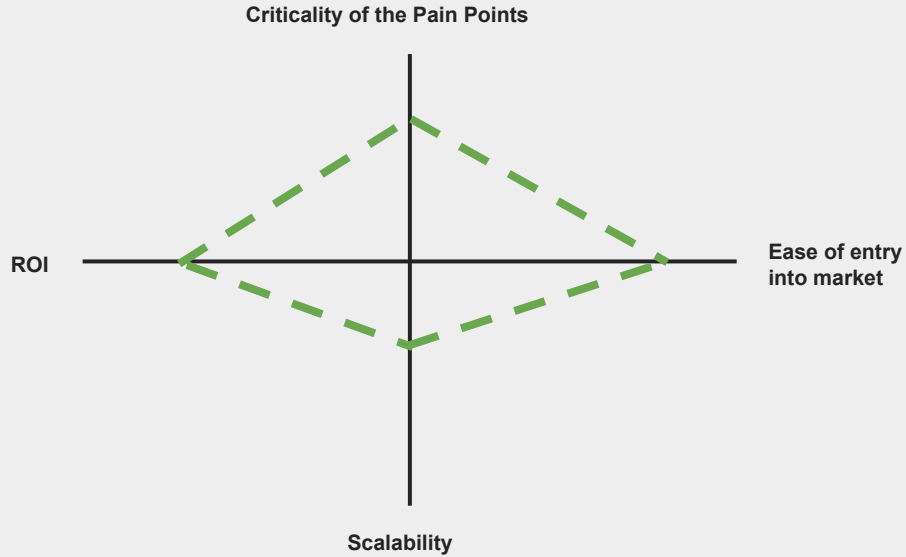
Pain Relievers

- Students don't miss out on classroom work and data
- Online training module
- Build upon the existing hardware
- Remote access

Gain Creators

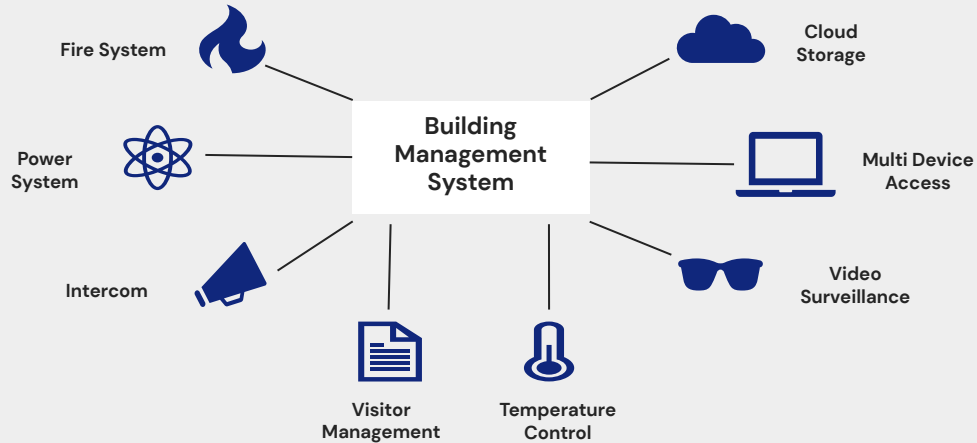
- Transcribed notes are made available in the cloud
- Access for students with disabilities
- Documented evidence of teaching structure
- Notes archive of every class

Evaluation of iNote



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iCon



Features

- Smart AI connects all systems of the building
- Single control system over a secure ethernet
- Energy management
- Visitor management
- Alarms and intercoms
- Remote Video Surveillance
- Access control of building facilities

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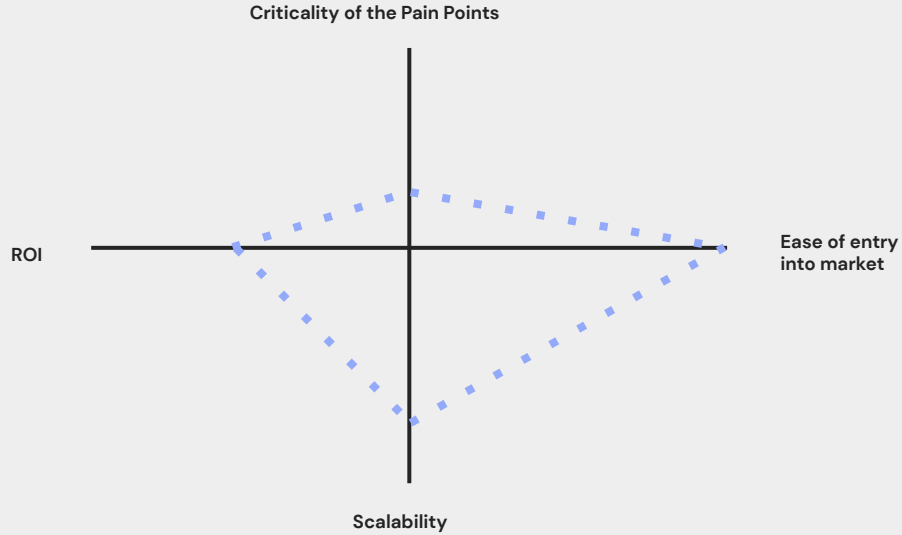
Pain Relievers

- Secure Data
- Decreased dependency on manual monitoring
- Remote access

Gain Creators

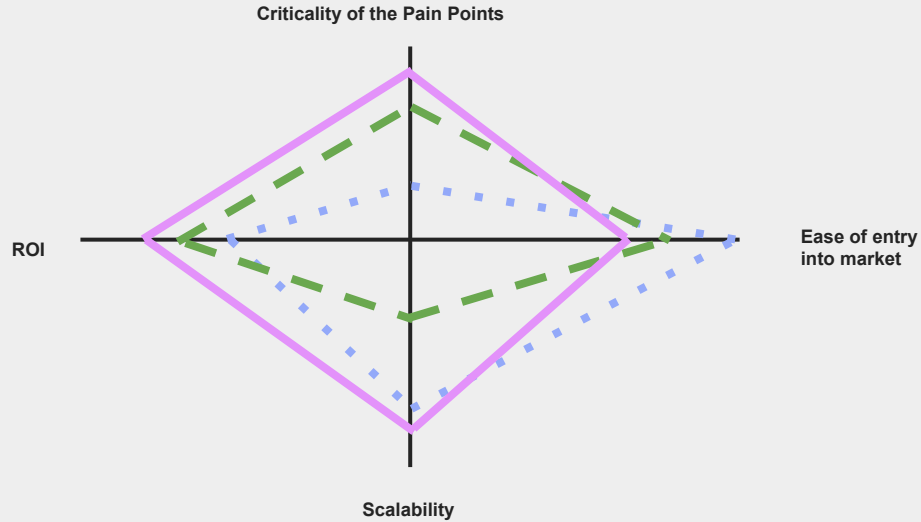
- Electronic paper trail of visitors
- One stop shop for school building controls
- Support during crisis
- Customized alerts
- Access control of doors, windows and gates

Evaluation of iCon



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Downselection: Final Design Direction

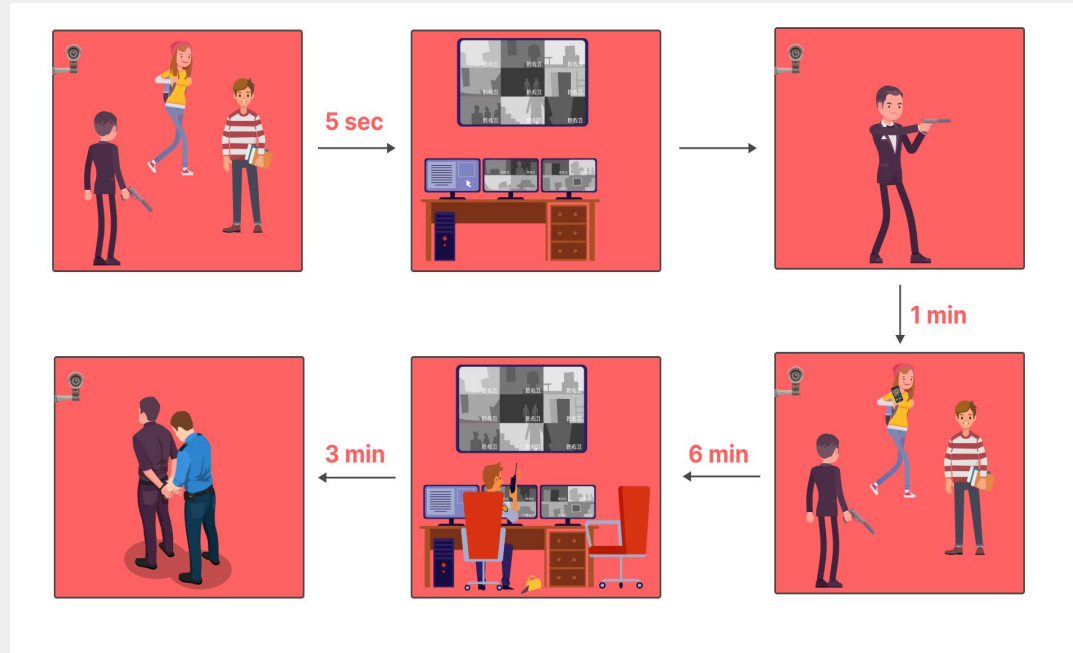


- iSpy
- iNote
- iCon

“iSpy” is the clear winner!!

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Current Process



- Delayed response time
- No constant monitoring
- Chaotic evacuation

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Security Manager: Customer Profile



Jobs



Pains



Gains



Surveillance



**Data Interpretation
during crisis**



Remote Monitoring



**Coordinating
Evacuation**



**Multiple Screen
Monitoring**



**Accessible
Training Material**



**Keeping the
campus secure**



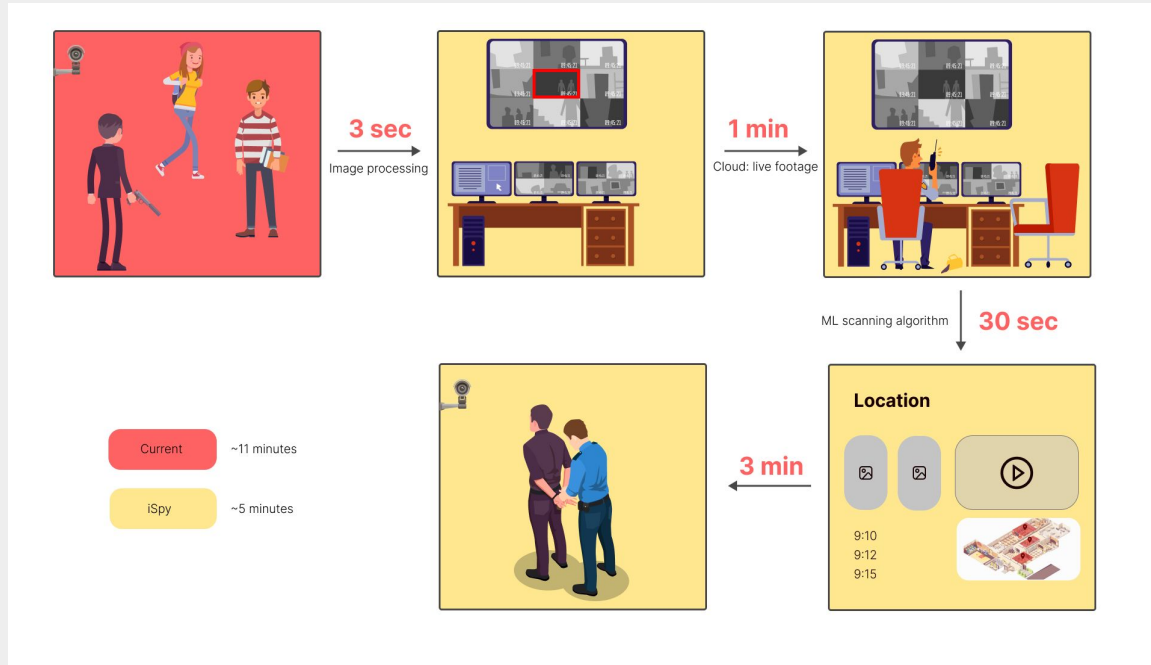
**Setting Access
for visitors**



Customization

Data Collection
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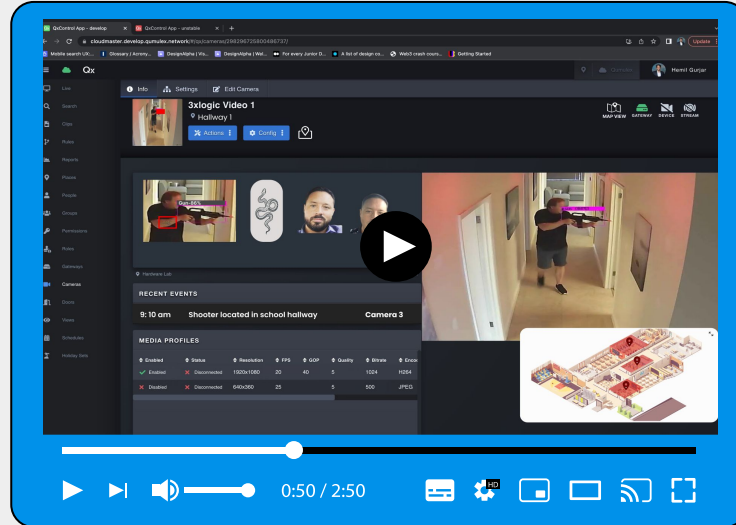
Process after integration of iSpy



- Automatic alert when weapon detected
- Distinguishing characteristics captured
- Evacuation plan provided

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High Fidelity Prototype



<https://www.figma.com/proto/FNKlMyDYLvs10AJq8rpBVk/loT-qu-mulex---Team-FunAF?node-id=121%3A2&scaling=min-zoom&page-id=0%3A1&starting-point-node-id=121%3A2>

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Strengths

- Integration into current system
- Flexible Deployment
- Leverage Integrators and their clients
- Anti lock in
- Experienced Founders

Weakness

- Exploring new domain: Highly competitive
- Hardware Dependency

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Threats

- Competitors like Xeoma, Solink, Rhombus and Verkada
- Privacy Policies

Opportunities

- Recurring revenue streams
- Software scalable to multiple domains/verticals
- Capability to provide multiple unique features through machine learning

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Desirable for Customers



Technically Feasible



Economically Viable



Ease Of Use



Make use of Existing resources



Licensing IP



Integration to Current System



Leverage Relations with Integrators



Company Acquisition



Sense of Safety



Reduced Response Time

Interested to see my business pitch?

https://docs.google.com/presentation/d/1k9r_IElBm7JTKNQcyzmcD6T2eUysnwF6o3IL2Q-DkGk/edit?usp=sharing

Contact me for a walk through of the
ppt: apnagesh@iu.edu

Thank You!

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