Situational Awareness Platform Connectivity to the Events at Robb Elementary School, Uvalde, Texas
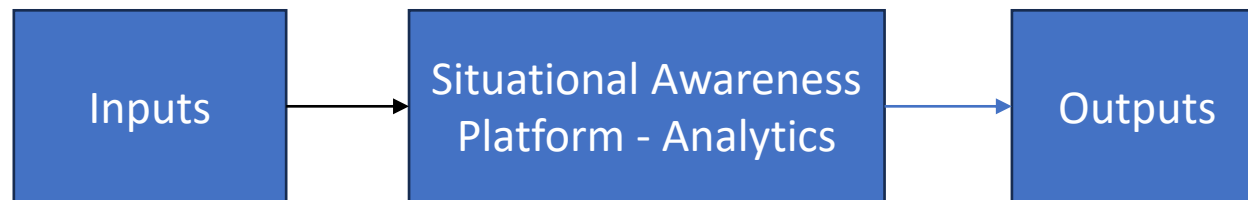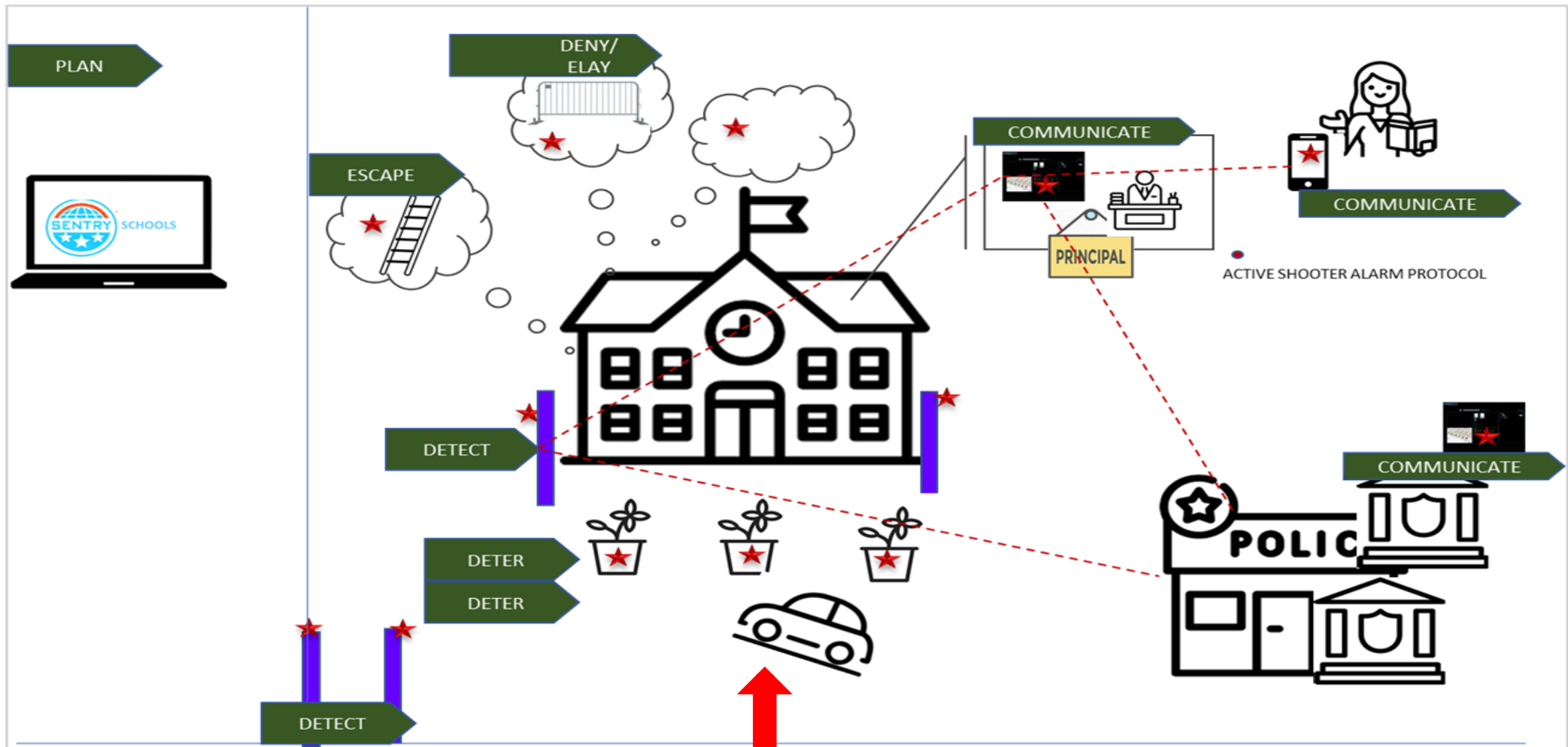
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November 14, 2023

So What? Who Cares? (Problem Version)

- Mission: Protecting soft targets (reducing morbidity and mortality)
- Problems needing solutions
  - Balancing protection with stakeholder compliance and cost
- Methods
  - We are going to brainstorm today about development and application of situational awareness platforms
  - Case study: Robb Elementary School, Uvalde, Texas

PLAN

DENY/ELAY

ESCAPE

COMMUNICATE

COMMUNICATE

PRINCIPAL

ACTIVE SHOOTER ALARM PROTOCOL

DETECT

DETER

DETER

POLICE

COMMUNICATE

DETECT

Inputs → Situational Awareness Platform - Analytics → Outputs

Upper figure: Lisa Dolev, Qylur

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Robb Elementary School, Uvalde, Texas

- "Investigative Committee on The Robb Elementary Shooting - Interim Report 2022."
  - However, given the information known about victims who survived through the time of the breach and who later died on the way to the hospital, it is plausible that some victims could have survived if they had not had to wait 73 additional minutes for rescue
- "Robb Elementary School Attack Response Assessment and Recommendations," Advanced Law Enforcement Rapid Response Training (ALERRT), Texas State University. (ADSA26, also, presentation)

Robb Incident

- Shooter crashes car near school
  - Mortuary calls 911
- Climbs fence (seen by video and guards?)
- External doors not locked
- Attack initially dismissed as Border Patrol "breakout"
- Barricaded in classroom
- Keys missing to classrooms
- First responders chaos, communication, and control issues
- 73 minute delay

Brainstorming

• Technology basically worked, cameras, police were alerted, school ignored it. It appears that the human response factor was the issue. Better differentiation of the alerts. Shooter carrying a camera. Border Patrol does this all the time better communication amongst Police, school and Border patrol.

• Why weren't the doors locked? Interoperability none knew who was in charge, communication chaos. Need a platform to sort out who is in charge, make communications clear. Localize shooter, alert others where shooter is.

• Alerting when a reloading is going on, it is a time when you will not be shot.

• Failure who was in charge, who was the commander on the ground, lack of communication. Even if we give them all the analytics this

• From law enforcement we were trained on active shooter, etc. There has been a lot of sole searching for not responding, acting, etc. Mentality changed from let's sit and wait. After Columbine, need to be proactive and get in three and do something. Fiscal security is not enough, shot through the door if locked.

Brainstorming

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• Shutting and locking a door. You can have all the analytics and SOCKS (socket secure network protocol) you want and you are not getting a whole lot. Shot through glass. Delay folks. Technology analytics, weapons detection, send automatic 911, alert the facility to lock all doors, etc.

• What about the human element, what is your opinion. Humans are fickle. Another piece of technology, door position status, tied into access control. Alert is your phone or desktop. What doors are open, closed, don't shut properly. Send this to SOCKS for analytics. Security signage is a big deterrent. Turn everyone into a set of many eyes, see something say something. The threat evolves and the threat reacts to what you do to counteract them. Create a situation of every one in a lock down and then the threat creates a fire. Pull fire alarms and shoot at them next.

Brainstorming

- Situational awareness, in a locked room you have no information for what is going on.

- The cell service in the facility was spotty at best, so the teachers were not aware of what was going on. If we have the situation awareness, where does it go, does it get there? Protocol and procedures has not been addressed and is critical.

- Often missing is the timeline.

- Nomenclature commonality.

- How do we address the protocols, etc. Others have done this before; we should adapt the protocols of others from

- Crisis communications needs to be bidirectional. Instead of situational awareness. What about situational communication, knowledge, etc. Focus on TRL 1-3 how do we move it to be transitioned. How do we define the problem set and what should we work on.

Brainstorming

- There is a communications group within DHS S&T. May do more with best practices, etc. We got to DICOS through working groups.

- There is a group working with SENTRY for data processing, communications, etc. at Notre Dame. Working group discussion to lead to a task order, etc.

- Unlike explosives detection, not all alarms are created equal. Can we automate the triage of alarms to raise high urgency ones (or "odd" ones) to better respond to non-standard alarms?

Carl's Suggestions

- Lockdown school: lock doors; communicate with staff and students; direct people to shelter in place or exit facility; execute automated voice and video directions.
- Communicate with local law enforcement and first responders.
- Communicate with staff, students, and first responders using cell phone application.
- Confirm with Border Patrol that a breakout event was not occurring.
- Use video analytics to: track person leaving car, over fence and to the building.
- Build identify of attacker using facial recognition and reading license plate on crashed truck.
- Scrape social media for attacker.
- Confirm presence of weapons using stand-off metal detectors.
- Initiate virtual command and control center.
- Open digital twin for locating resources and attackers

Carl's Suggestions (Robb) (continued)

- Communicate with first responders as they arrive.
- Detect and locate gun shots.
- Provide video, infrared and audio surveillance inside of school
- Connect to subject matter experts (e.g. ALERRT).
- Execute an inference engine (AI) to determine how to neutralize attacker.
- Provide up to the minute reports to first responders.
- Communicate with hospitals.
- Coordinate internal and external diversions and deterrents.
- Direct drone surveillance and counter-attacks.

Next Steps - Recommend

- Establish requirement specifications for situational awareness platforms
  - Requirement is *not* engineering design spec
  - Use case studies
  - Involve multiple stakeholders
  - Assume that inventions can be made, engineering performed, and money not an issue
- Socialize invention needs
- Write engineering design spec
- Implement

Backup

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  - Case 1: STEM School Highlands Ranch (Penny Eucker's presentation)
  - Case 2: Robb Elementary School, Uvalde, Texas

STEM School Highlands Ranch

- https://en.wikipedia.org/wiki/2019_STEM_School_Highlands_Ranch_shooting ... May not be accurate

- At 1:53 pm, 18-year-old Devon Erickson and 16-year-old Alec McKinney entered the school carrying handguns and other weapons hidden in guitar cases.[6] They opened fire in two separate locations, shooting several students.[13] The school proceeded to announce a lockdown,[6] and the Douglas County Sheriff's Office issued a warning via Twitter to avoid the area, describing it as an "unstable situation".[14] Police responded to the school two minutes after the first 911 call and a bomb disposal robot was brought to the school after tactical gear was found inside one of the suspects' vehicles.[15] A direct two-way radio link from the school to Douglas County Sheriff's dispatch center is credited with the prompt response; the STEM School is one of only a few so equipped

Carl's Suggestions

- High PD, low PFA detection of gun at multiple locations in school
  - Digital dog nose to detect oil?
  - Integrated video and audio
- Interoperability (communication) for stakeholders include students and teachers
- Perpetrator localization and neutralization
- Automated locks, signage, loud speakers
  - Lock outs and ins
- Command and control center