

CSC 6585 Homework II

Blaine Swieder

10 September 2024

1 Homework II

1.1 Question 1

Example 1.1. Pick a physical system with security, such as a car or house, and consider the functions Detect, Deter, Delay, Respond, and Neutralize. For each of the five functions, answer the following.

- If your chosen security system addresses that function, how does it address that function?
- If your chosen security system does not address that function, could it be modified such that it does address it? If so, how could it be modified?

Really give some thought to each of the functions and whether or not each is implemented.

1.2 Answer

Let us consider a house security system and discuss how it addresses the functions Detect, Deter, Delay, Respond, and Neutralize.

1.2.1 Detect

The following is how a house security system addresses the function:

- Security Cameras: These are strategically placed around the house in order to monitor any suspicious activity.
- Motion Sensors: These are intended to detect movement within the house or around its perimeter and trigger alarms or notifications if the need arises.

Modification if not addressed: If the system lacks the ability to detect, then it would be in the interest of the home owner to add security cameras and motion sensors that would be able to detect intrusions.

1.2.2 Deter

Same as above. The following is how "deter" could be used in the home security system:

- Visible Security Cameras: With cameras around the house, it will deter potential intruders.
- Warning Signs: If there are signs that state there is a security system will deter criminal activity.
- Outdoor Lighting: If there are well-lit areas around the house, then it will be less likely to have criminal activity.

Now, if add modifications such as visible cameras, warning signs, and outdoor lighting around the house, then its deterrence factor will increase.

1.2.3 Delay

How it addresses this function:

- Reinforced Doors and Windows: These will make it more challenging for intruders to gain entry.
- Security Gates and Fences: These will allow for increased protection, as it will slow down any attempts to breach the property.

If add modifications such as upgrade your doors and windows to reinforced versions, as well as installing security gates and fences will help delay intruders.

1.2.4 Respond

This is how "respond" is addressed in this function:

- Alarm Systems: These will alert the homeowners and/or security company when a breach is detected.
- Smart Home Integration: These systems can notify the homeowner via their smartphone should be notified in real-time.

Consider the following modifications. Now, we could add alarm systems and integrate the security system with IoT technology can enhance the response capability and enhance the home security.

1.2.5 Neutralize

Next, let us determine how this system incorporates "neutralize":

- Security Personnel: If there are on-site or on-call security personnel, then it would be easier for them to intervene and neutralize threats.

- Automated Systems: If there are advanced systems, then it would be possible to lockdown certain areas of the house in order to contain the intruder.

Consider the following modifications. If there are hired security personnel on the property or automated lockdown features installed in the house, then threats from malicious adversaries can be neutralized effectively.