GOD'S EYE

World's first security system for convenience stores and banks enabling user to track (or immobilise) perpetrators without human intervention

(Store interior)

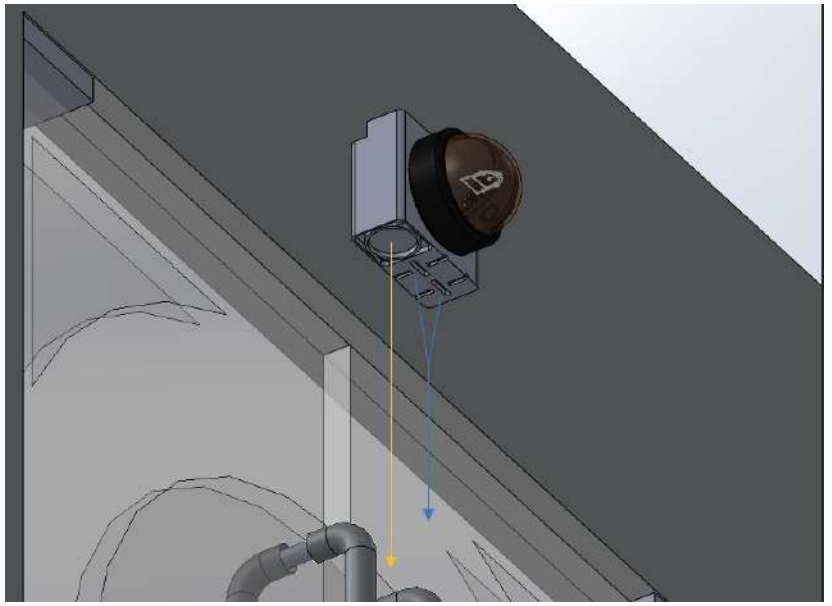
About God's eye

Convenience stores are popular targets for a variety of crimes, especially shoplifting and robbery. The main dangers are that almost all convenience stores only have one person working at night, most transactions are in cash, and the products on sale can be resold easily. According to the United States' National Retail Federation, retail theft is an almost $95 billion problem! Statistics are hard to come by for other countries, however, anecdotal evidence suggests that this is a massive threat to life and economic activity in most parts of the world.

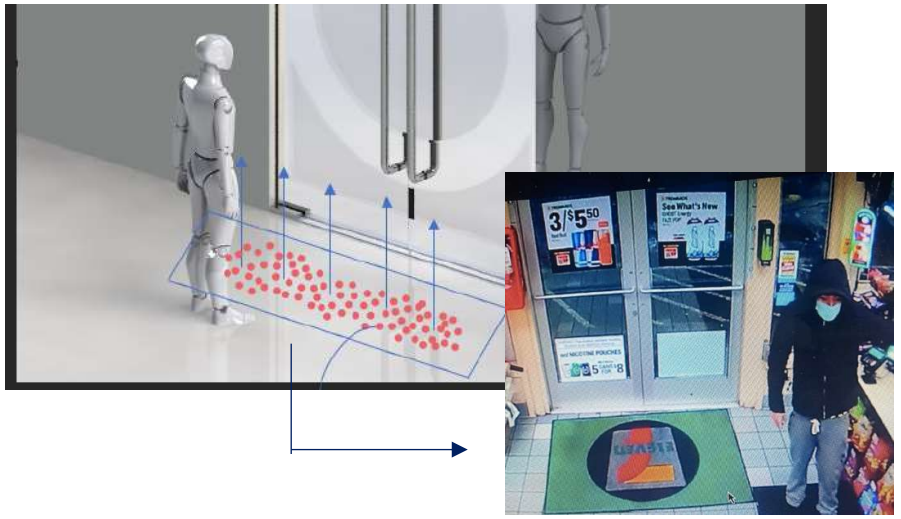
God's Eye helps apprehend armed robbers **without shopkeeper intervention**, invariably reducing cashier mortality rate.

Functioning – God's eye is a revolutionary security system that functions as a regular security camera until our onboard threat detection system (imbedded into camera

micro-computer) detects an ongoing robbery . Once detected, our emergency protocol (GEP) initiates and follows a two pronged approach: (next slide)



(first renders for Gods Eye-2022)



1.1)

- G.T.D.S. (God threat detection system) detects ongoing robbery and G.E.P. (God Emergency Protocol) is initialised

- Cashier complies with demand

- GodAI detects SINGULAR PERPETRATOR approaching the exit and

- G.M.T. (God micro Tracker) is ejected via the GPS ejector mat or The upper section and detects perpetrator unnoticed

- **Authorities are automatically alerted** instantaneously and are provided with tracking information to apprehend the robber

1.2)

- G.T.D.S. (God threat detection system) detects ongoing robbery and G.E.P. (God Emergency Protocol) is initialised

- Cashier complies with demand

- GodAI detects SINGULAR PERPETRATOR approaching the exit and

is tased by an electrified projectile, leaving the perpetrator immobilised.

- Authorities are informed automatically

2)

In case perpetrator count exceeds 1 nos.

- God-AI detects a group of PERPETRATORS

- Cashier complies with demand

- G.M.T. (God Micro Tracker) is ejected via the GPS ejector mat or The upper section and detects perpetrator unnoticed

- Authorities are alerted instantaneously and are provided with tracking information to apprehend the perpetrators.

Main component list

(refer to the respective points for subcomponents)

1) Upper section

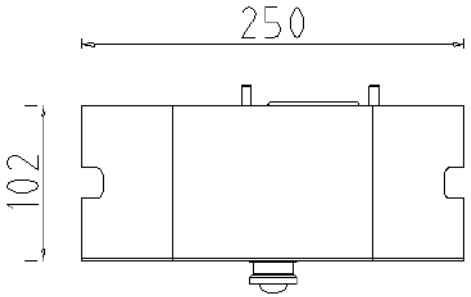
1.1) Camera assembly
1.2) Camera box (Including Taser, GPS ejector, Sensors)
1.2.1) Taser
1.2.2) upper GPS ejector
1.2.3) Sensors

2. GPS ejector mat

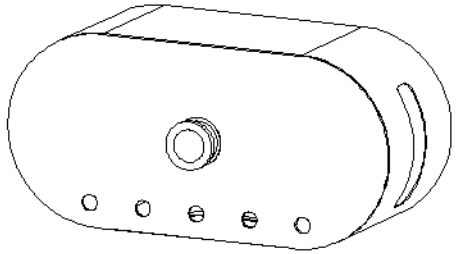
(4 iterations)
2.1) Micro gps tracker assembly (G.M.T.)

1. Upper Section MECHANISM

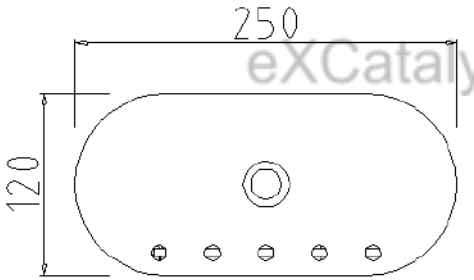
1. Upper section / camera casing



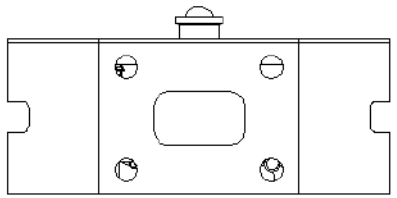
TOP VIEW



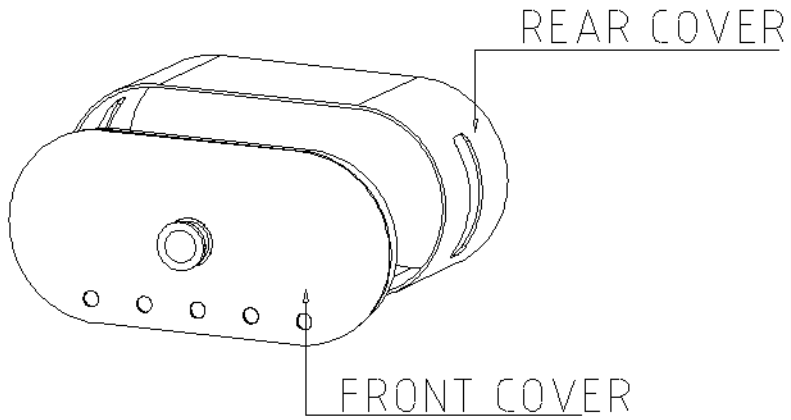
ISOMETRIC VIEW



FRONT VIEW

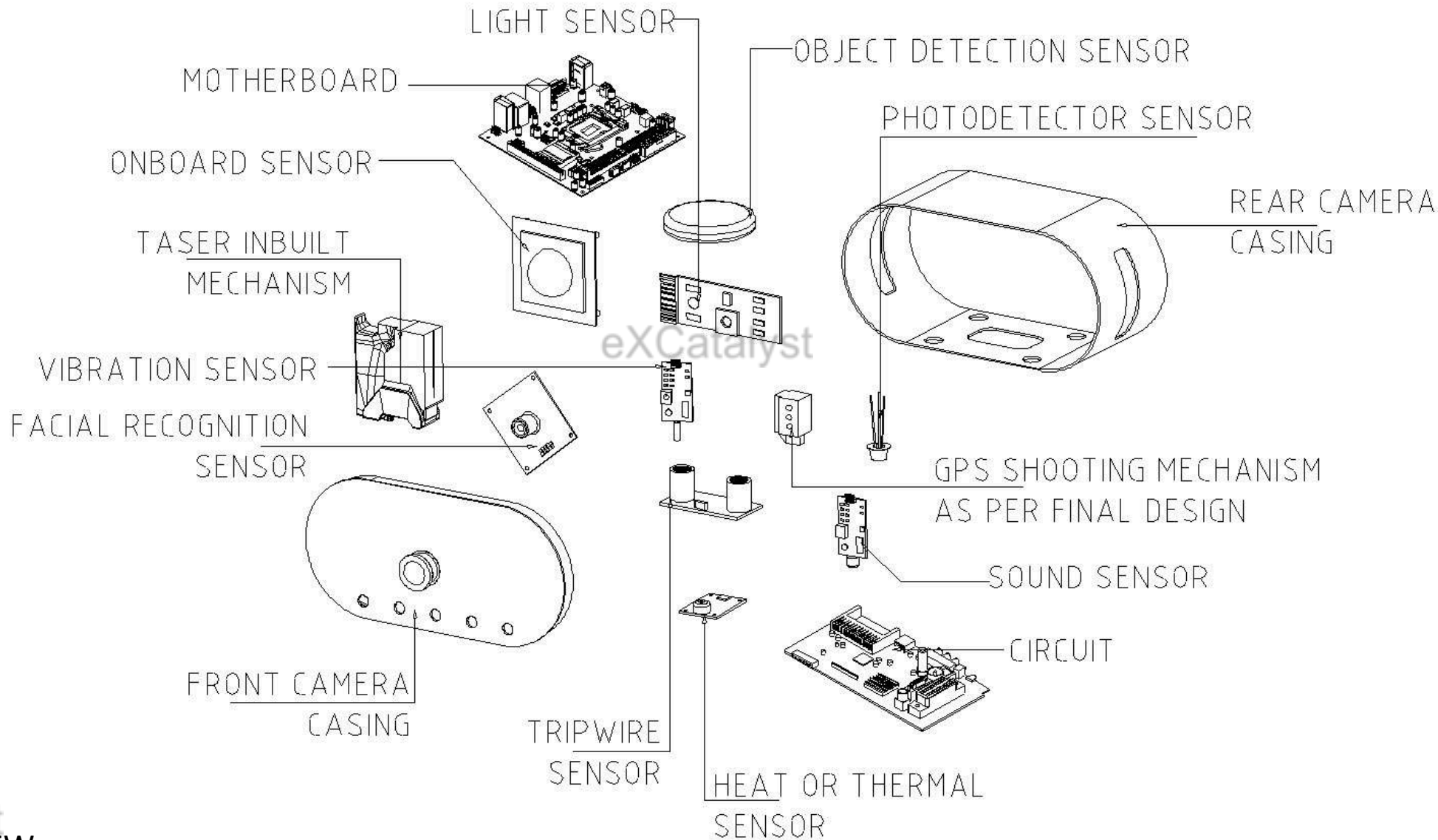


BOTTOM VIEW



EXPLODED VIEW

1. Upper section / camera casing



EXPLODED VIEW

1.1. CAMERA ASSEMBLY

Component list

1. Camera Lens: The lens is responsible for focusing light onto the camera's image sensor, allowing it to capture the video. The lens determines the field of view and the level of zoom capability of the camera.
2. Image Sensor: The image sensor is a crucial component that converts light into an electronic signal. There are two main types of image sensors used in security cameras: CCD (Charge-Coupled Device) and CMOS (Complementary Metal-Oxide-Semiconductor). These sensors capture the video footage and transmit it for further processing.
3. Processor: The processor, often referred to as the camera's "brain," handles various tasks, including video compression, image enhancement, and encoding. It processes the raw video data from the image sensor and prepares it for transmission and storage.
4. Housing: The housing is the external casing that protects the camera's internal components from weather conditions, vandalism, and other potential hazards. It also helps in mounting the camera securely.
5. Infrared (IR) Illuminators: Many security cameras include built-in IR illuminators or IR LEDs. These components emit infrared light that is invisible to the human eye but can be detected by the camera's image sensor. IR illuminators enable the camera to capture clear images in low-light or complete darkness.
6. PTZ (Pan-Tilt-Zoom) Motors: Some security cameras, particularly those used for surveillance in larger areas, feature PTZ capabilities. PTZ motors allow the camera to pan (move horizontally), tilt (move vertically), and zoom in or out, providing flexibility in monitoring a wide range of areas.
7. Video Encoder: The video encoder converts the analog or digital video signal from the camera into a compressed digital format, such as H.264 or H.265. Compression reduces the file size for efficient storage and transmission of video data.
8. Network Interface: This component allows the security camera to connect to a network, typically using Ethernet or Wi-Fi. It enables remote access to the camera's video feed and allows for integration with a broader security system or video management software.

9. Power Supply: Security cameras require a power source to operate. They may be powered by an electrical outlet (AC power) or use Power over Ethernet (PoE) technology, which allows both data and power to be transmitted through a single Ethernet cable.
10. Storage: Security cameras often include onboard storage, such as an SD card slot, or support external storage devices like Network Video Recorders (NVRs) or cloud-based storage. These storage options enable the camera to store recorded video footage for later review or retrieval.
11. Audio Recording: Some security cameras have built-in microphones or audio input ports that allow them to record audio along with video. This feature can be useful for capturing conversations or other sound-related events.
12. Two-Way Audio: Certain security cameras have speakers and audio output ports that enable two-way audio communication. This feature allows users to listen to the audio captured by the camera and also speak through it, facilitating real-time communication with individuals on the camera's location.

1.2. CAMERA BOX

(Including Taser, GPS ejector, Sensors)`

1.2.1 Taser

1. Power supply: lithium-ion for req charge
2. Capacitor: responsible for storing the electrical charge that is delivered to the target. When the trigger is pulled, the charge from the capacitor is released through the electrodes.
3. Trigger mechanism: used to activate the device and deliver the shock. When the trigger is pulled, it completes an electrical circuit that allows the charge to flow from the capacitor to the electrodes.
4. Electrodes: two metal prongs that make contact with the target. When the trigger is pulled, the electrodes are propelled towards the target and deliver the shock.
5. Control circuitry: responsible for managing the electrical charge and ensuring that the device is operating correctly. It can also include safety features like automatic shut-off and low battery indicators.

1.2.2 GPS Ejector

Option 1) spring mechanism –

Trigger activation: When the trigger mechanism is engaged (e.g., a lever is pulled or a button is pressed), it releases the plunger or piston, allowing it to move forward.

Spring release: As the plunger or piston moves forward, it applies force on the spring, causing it to expand or unwind. This release of the stored potential energy in the spring generates a force in the opposite direction.

Projectile launch: The expanding spring pushes against the plunger or piston, which, in turn, transfers this force to the attached projectile. The projectile is propelled forward with a certain velocity determined by the force exerted by the spring and the design of the mechanism.

Resetting: After the projectile is launched, the spring will return to its original compressed state, ready to be compressed again for the next launch. This can be achieved by manually resetting the plunger or piston or by incorporating an automatic resetting mechanism

Option 2) Pneumatic cannon-

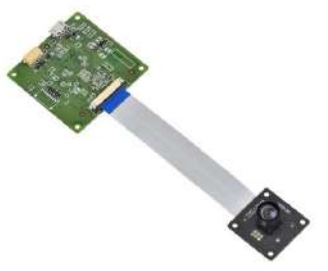
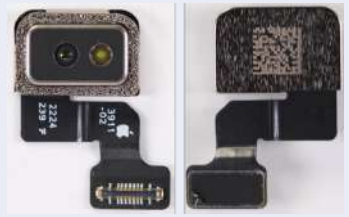
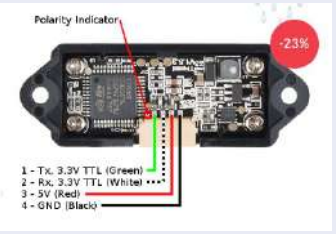
Release mechanism: To launch the projectile, a release mechanism is activated. This mechanism can be a valve that opens to allow the compressed air or gas to flow from the pressure chamber into the barrel. Alternatively, a burst disk mechanism can be used, where a thin membrane ruptures to release the stored pressure.

Propulsion: As the compressed air or gas is released into the barrel, it applies force on the projectile, propelling it forward. The high-pressure air rapidly expands and creates a pressure differential that accelerates the projectile out of the barrel.

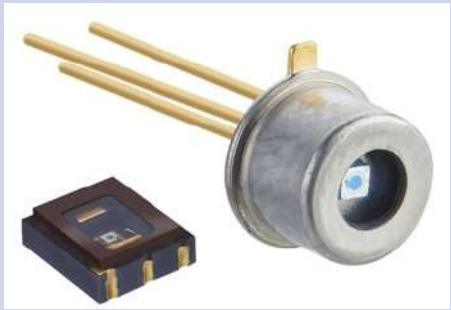
Resetting: After the launch, the pressure chamber needs to be recharged with compressed air or gas for subsequent shots. This can be done by refilling the chamber with air manually or using an automated filling system if available

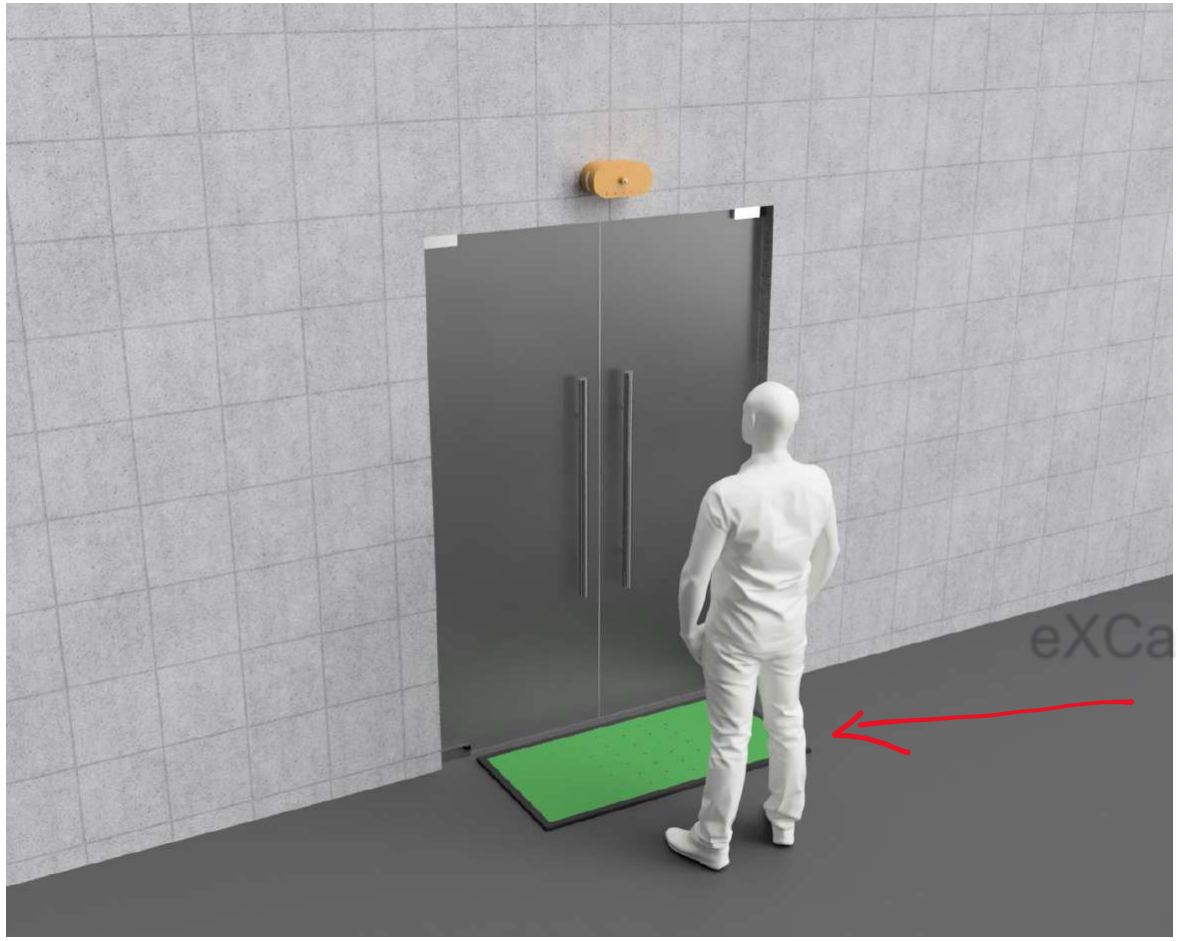
1.2.3 ONBOARD SENSORS

Sr. No.	Sensor name	Description	Image
1.	Motion Sensor	Motion sensors detect movement within the camera's field of view. When motion is detected, the camera can trigger actions such as recording, sending alerts, or activating other security measures. This sensor helps reduce false alarms and ensures that important events are captured.	 Passive Infrared (PIR) Sensor
2.	Light Sensor	Light sensors measure the ambient light level in the camera's surroundings. They can automatically adjust camera settings, such as exposure and shutter speed, to optimize image quality based on the lighting conditions. Light sensors ensure clear and well-lit video footage in various lighting environments.	
3.	Heat or Thermal Sensor	Thermal sensors, also known as heat sensors, detect heat signatures emitted by objects or individuals. They can differentiate between objects based on their temperature differences. Thermal sensors are particularly useful for detecting human presence in complete darkness or low visibility conditions.	
4.	Sound Sensor	Sound sensors or microphones capture audio signals. They can detect and record sounds within the camera's range, such as conversations, alarms, or other audio events. Sound sensors add an additional layer of information to the recorded video footage.	

5.	**Vibration Sensor**	**Vibration sensors can detect physical vibrations or movement of the camera itself. They help identify tampering or attempts to disrupt or damage the camera. Vibration sensors can trigger alarms or send notifications when unauthorized movement or tampering is detected.**	
6.	Facial Recognition Sensor (will be inbuilt in camera):	Facial recognition sensors use specialized technology, such as depth-sensing cameras or 3D sensors, to capture detailed facial data. These sensors enable accurate facial recognition capabilities, allowing the camera to identify individuals based on their unique facial features.	
7.	Object Detection Sensor	Object detection sensors use advanced algorithms and sensors like LiDAR (Light Detection and Ranging) or radar to detect and track objects within the camera's view. These sensors can identify and categorize objects such as vehicles, people, animals, or packages, enhancing the camera's situational awareness.	 (big sensor)  (reference – apple)  

8.	**Ultrasonic Proximity Sensors**	**Ultrasonic sensors use ultrasonic waves to detect the proximity of objects. They emit high-frequency sound waves and measure the time it takes for the waves to bounce back after hitting an object. By calculating the time of flight, the sensor determines the object's proximity.**	
9.	Photoelectric Proximity Sensors	Photoelectric sensors use light beams to detect objects. They emit a light beam and measure the intensity of the reflected or interrupted light. When an object enters the sensor's range and interrupts the light beam, the sensor detects the proximity of the object.	
10.	Accelerometers	Accelerometers measure acceleration or changes in velocity. They can be employed to detect the sudden acceleration or deceleration of a target area caused by the ejection or impact of a projectile. When a projectile is ejected, it imparts a significant force or acceleration, which can be captured by an accelerometer and used to trigger an event or action.	
11.	Force Pressure Sensors (can be placed on mat)	Pressure sensors detect changes in pressure within a specific area. In the context of projectile ejection, pressure sensors can be integrated into the surface or target area to measure the impact pressure exerted by the projectile. A sudden change in pressure indicates the ejection or impact event.	

12.	**Tripwire Sensors**	**Tripwire sensors utilize infrared beams to create virtual tripwires or boundaries. When a projectile or any object crosses the tripwire, it breaks the IR beam, triggering an event or action. This can be employed to detect projectile ejection or monitor specific areas for projectile presence.**	 
13.	Photodetector sensor	When it comes to detecting the ejection or presence of projectiles, specialized sensors are often used. One commonly employed sensor for projectile ejection detection is an optical sensor, specifically a photodetector or photogate.	

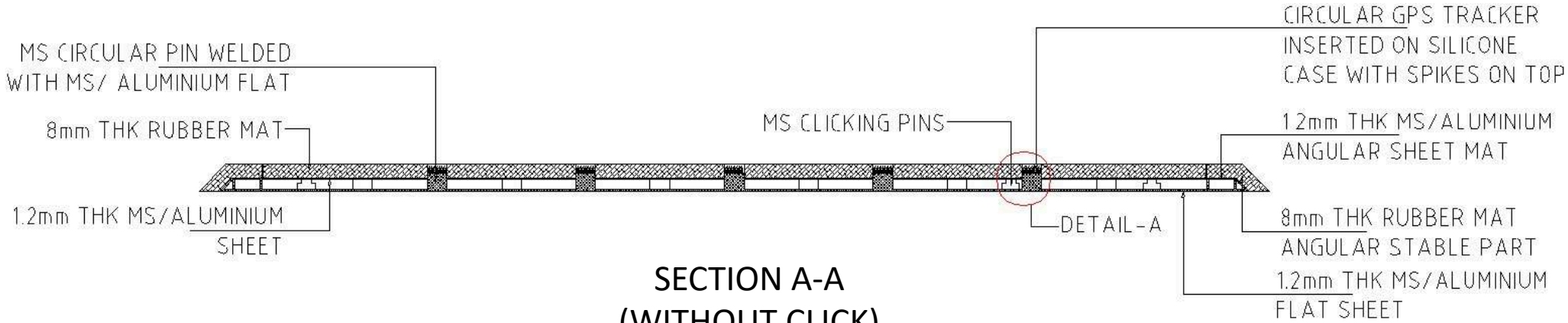


2. MAT MECHANISM OPTIONS

MAT MECHANISM OPTION-1 : HOW IT WORKS

- Emergency protocol is triggered via the onboard robbery detection system.
- Pushdown mat is triggered motor
- Top of Micro GPS Ejector Mat is lowered via the actuatuar/small motor inside the mat to expose micro GPS tracker with spikes/adhesive
- Perpetrator steps on mat while exiting the store
- GPS tracker is attached to bottom of perpetrator's footwear
- Tracking information is automatically sent to authorities for spontaneous response and apprehension.

OPTION-1



SECTION A-A
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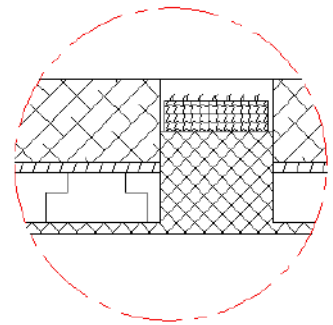
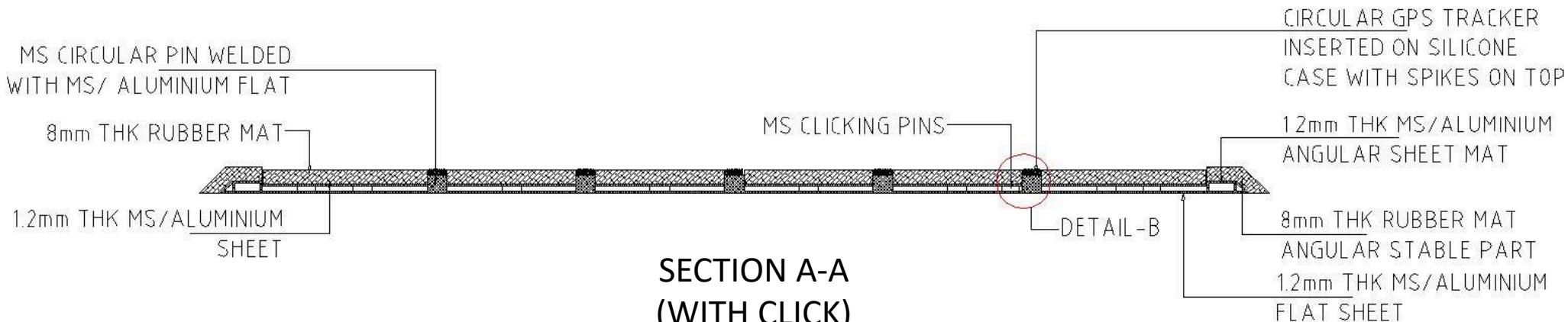


DETAIL-A
(WITHOUT CLICK)



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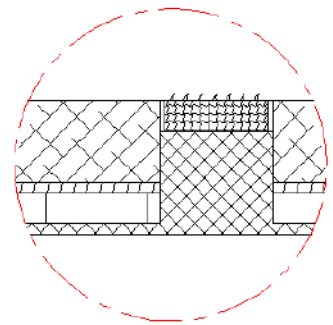
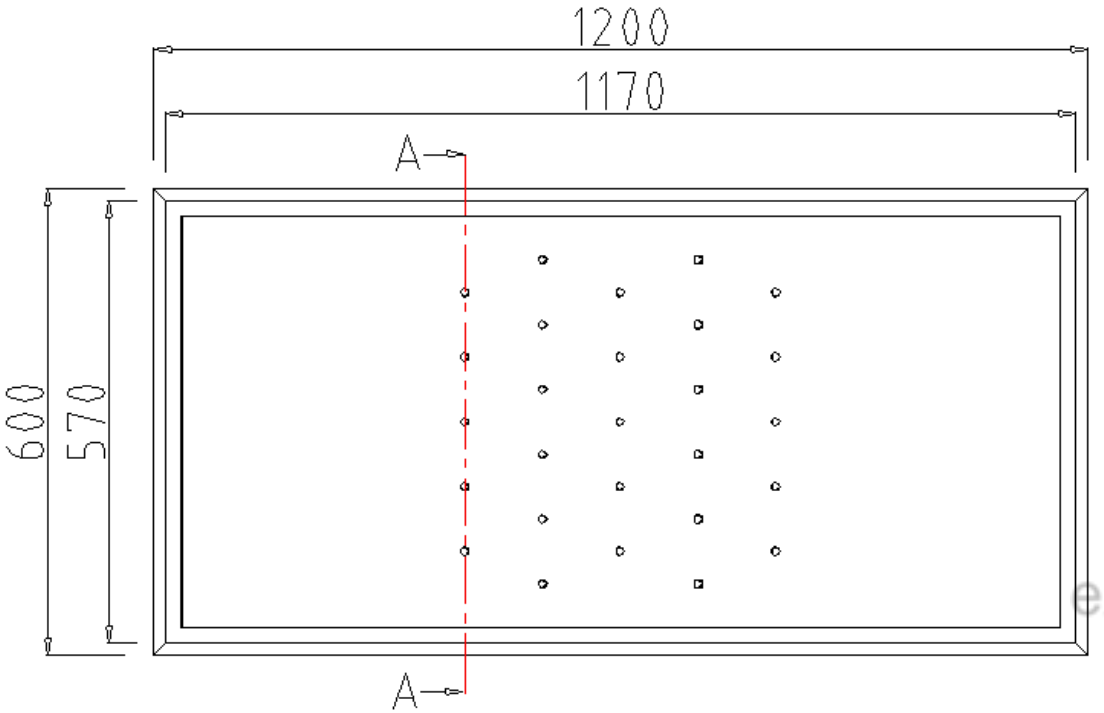
(WITH CLICK)

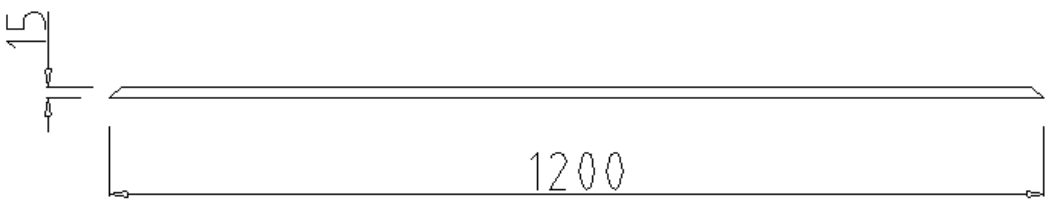


DETAIL-A
(WITH CLICK)

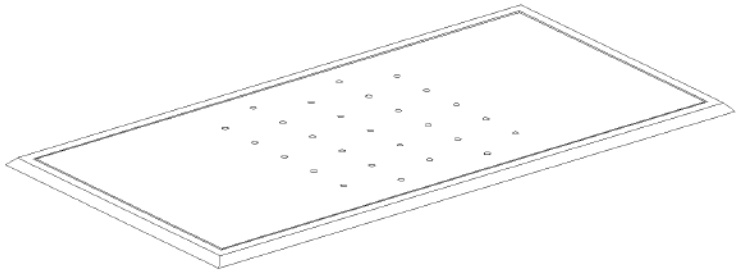
OPTION-1



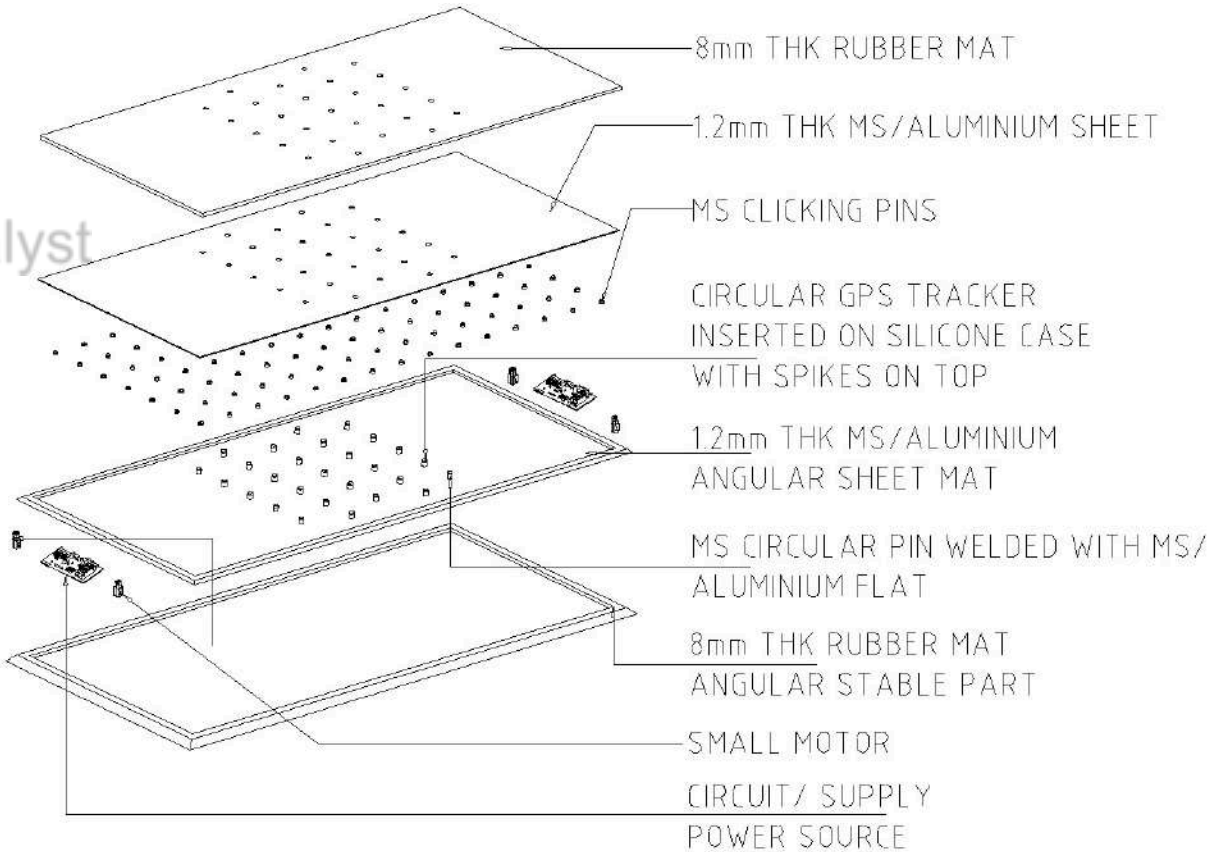
TOP VIEW



FRONT VIEW



ISOMETRIC VIEW

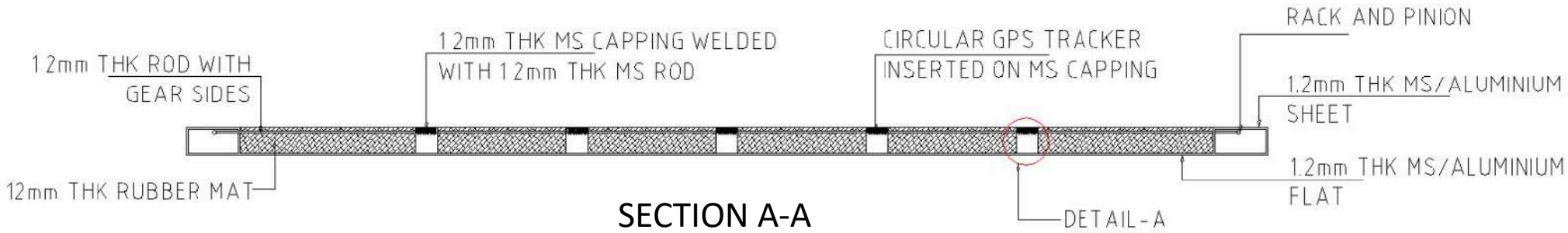


EXPLODED VIEW

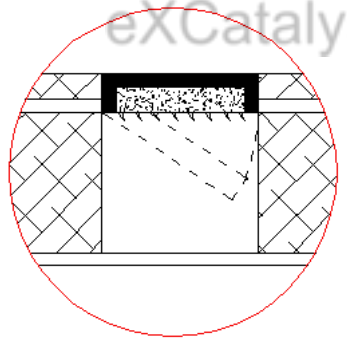
MAT MECHANISM OPTION-2 : HOW IT WORKS

- Emergency protocol is triggered via the onboard robbery detection system
- mat is triggered
- rack and pinion gear Rod mechanism with circular micro Gps trackers is spun 180 degrees with a gear to expose the spiked side of the GPS trackers
- Perpetrator steps on mat while exiting the store
- GPS tracker is attached to bottom of perpetrator's footwear
- Tracking information is automatically sent to authorities for spontaneous response and apprehension.

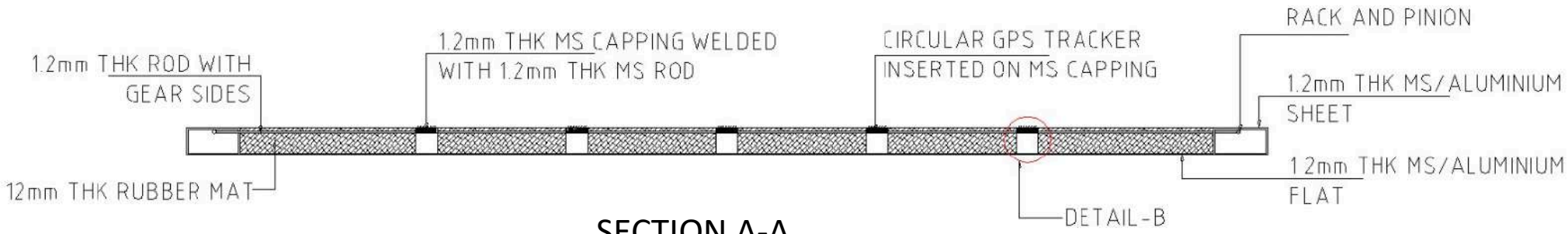
OPTION-2



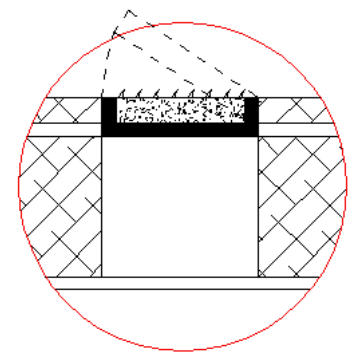
SECTION A-A
(INITIAL POSITION)



DETAIL-A
(INITIAL POSITION)

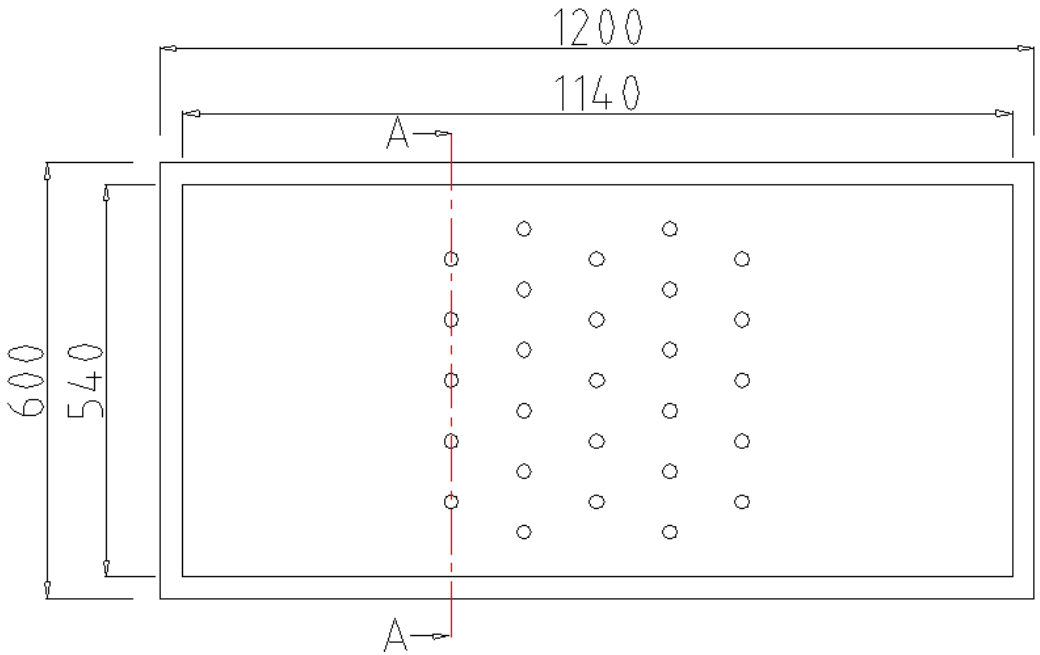


SECTION A-A
(ROTATED POSITION)

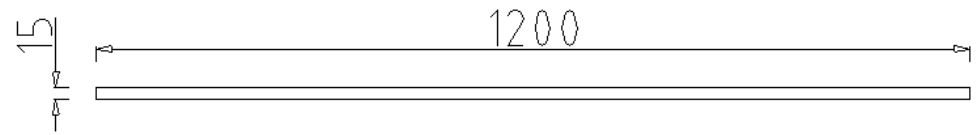


DETAIL-B
(ROTATED POSITION)

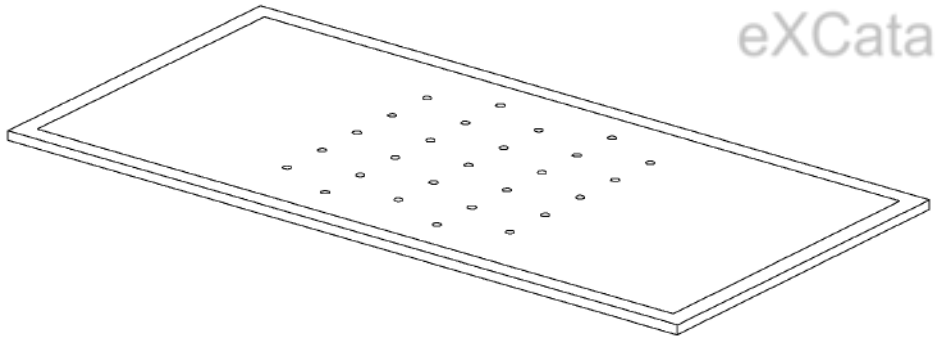
OPTION-2



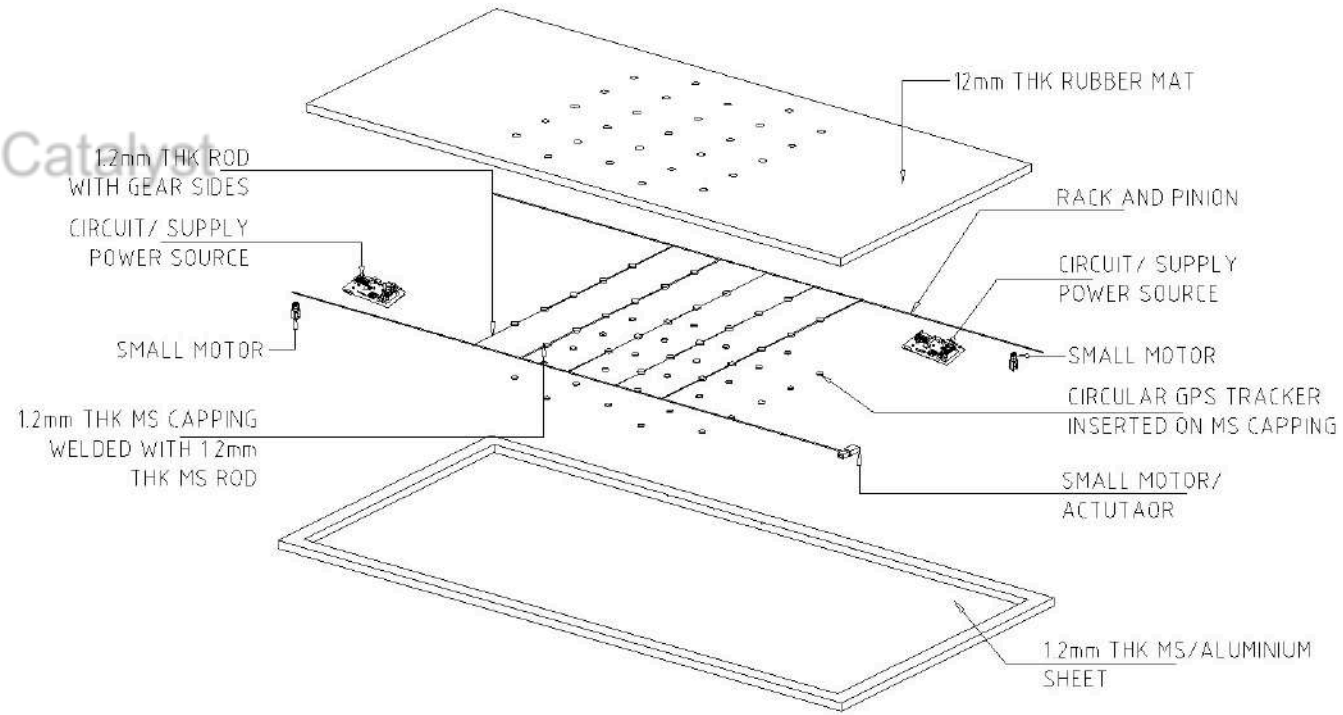
TOP VIEW



FRONT VIEW



ISOMETRIC VIEW

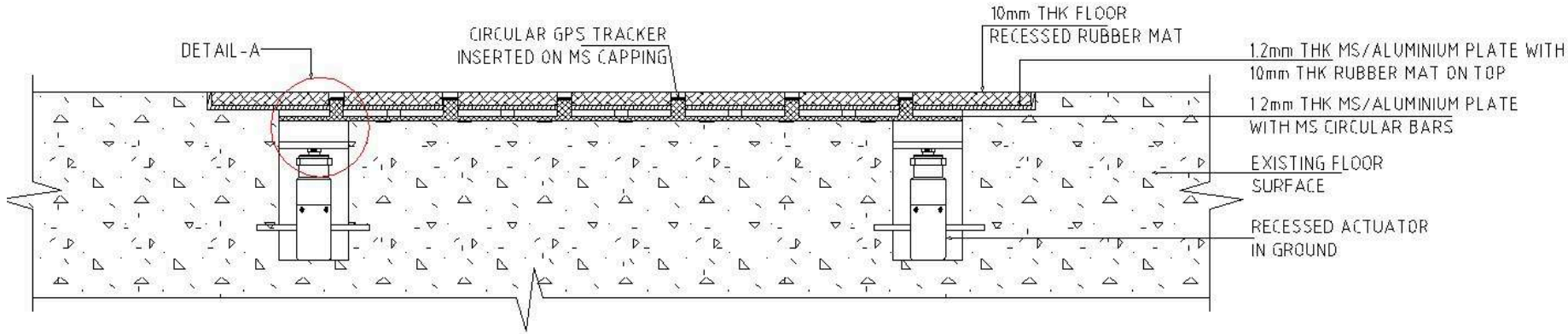


EXPLODED VIEW

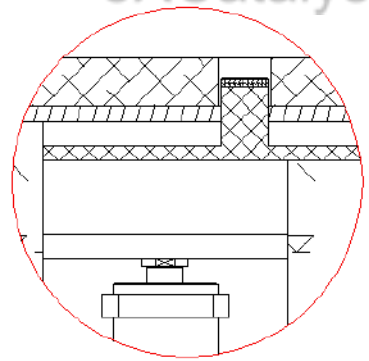
MAT MECHANISM OPTION-3 : HOW IT WORKS

- Emergency protocol is triggered via the onboard robbery detection system.
- Push-up mat is triggered
- Top of Micro GPS Ejector Mat is lifted with an actuator to expose micro GPS tracker with spikes /adhesive
- Perpetrator steps on mat while exiting the store
- GPS tracker is attached to bottom of perpetrator’s footwear
- Tracking information is automatically sent to authorities for spontaneous response and apprehension.

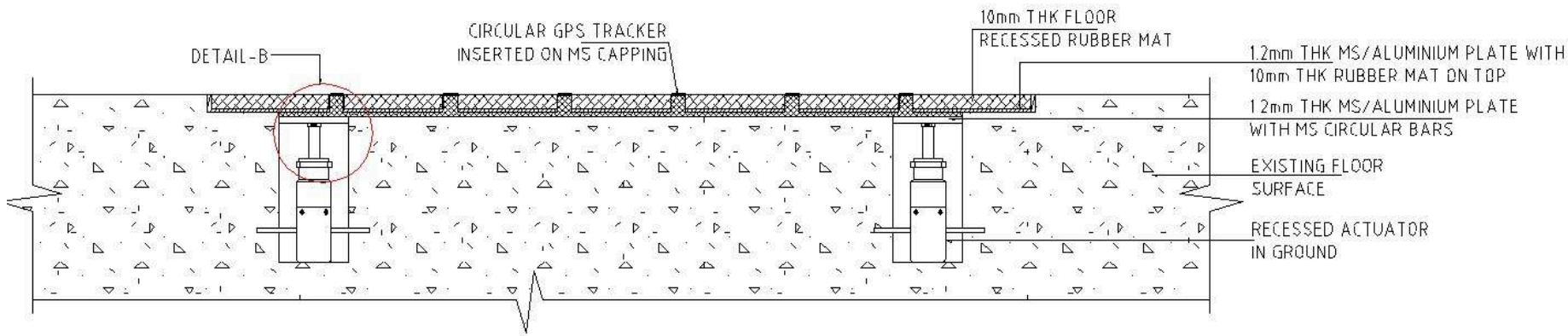
OPTION-3



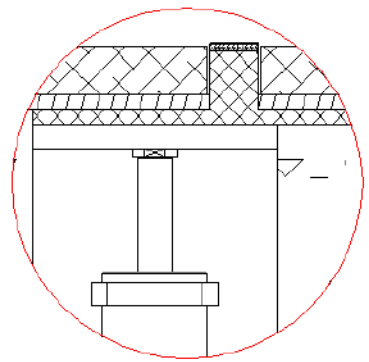
SECTION A-A
(ACTUATOR REST POSITION)



DETAIL-A
(ACTUATOR REST POSITION)

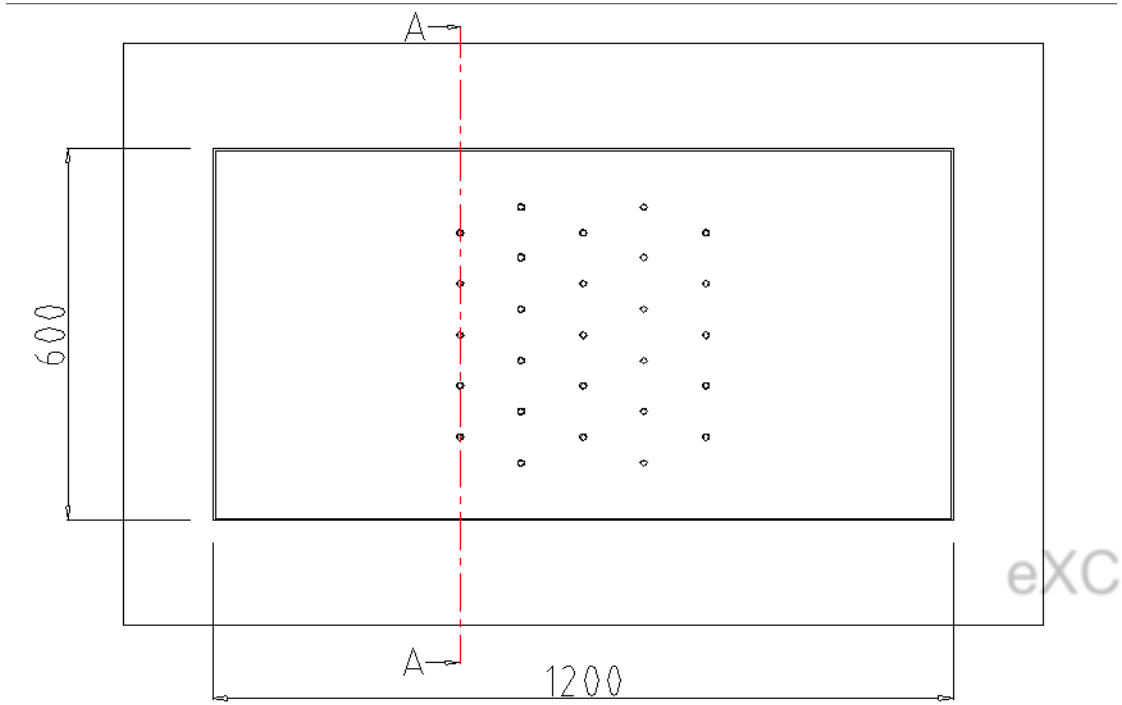


SECTION A-A
(ACTUATOR MOVING POSITION)

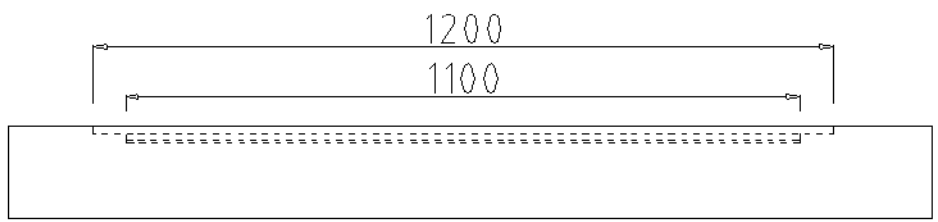


DETAIL-B
(ACTUATOR MOVING POSITION)

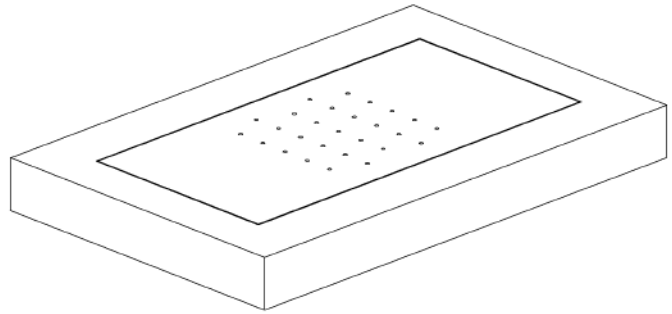
OPTION-3



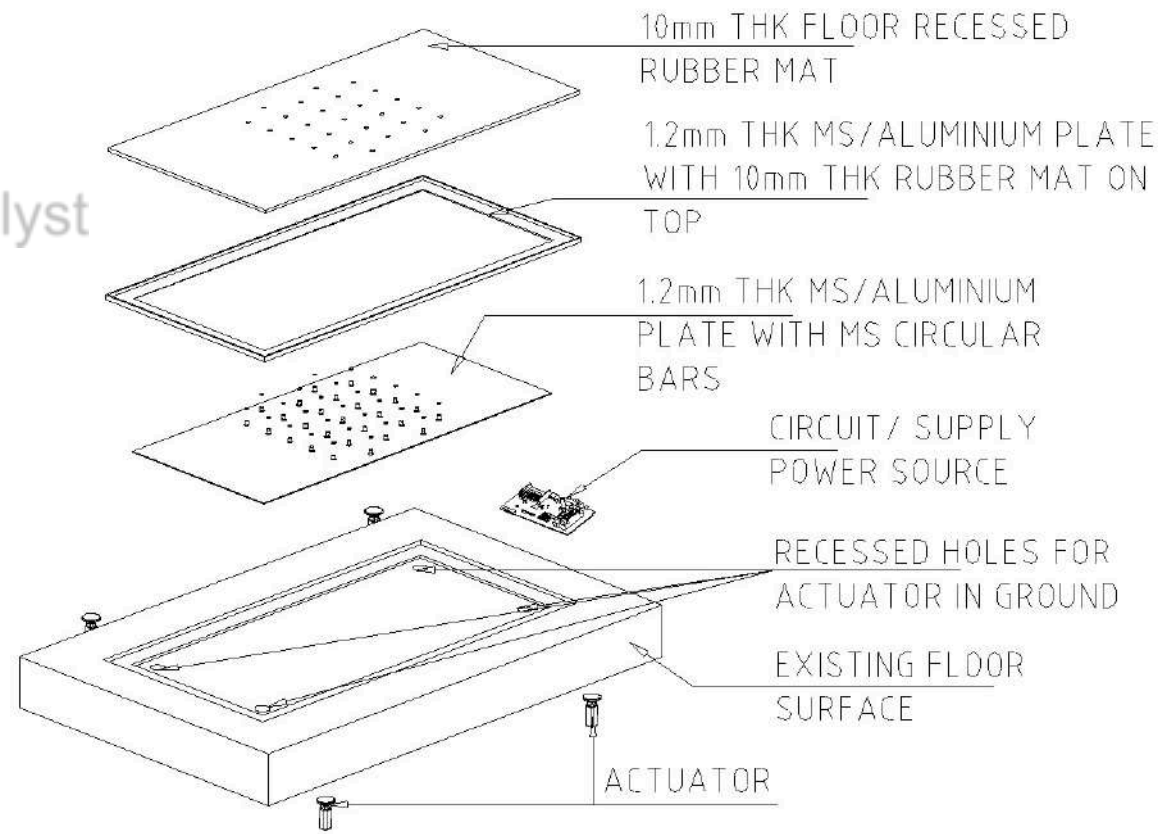
TOP VIEW



FRONT VIEW



ISOMETRIC VIEW

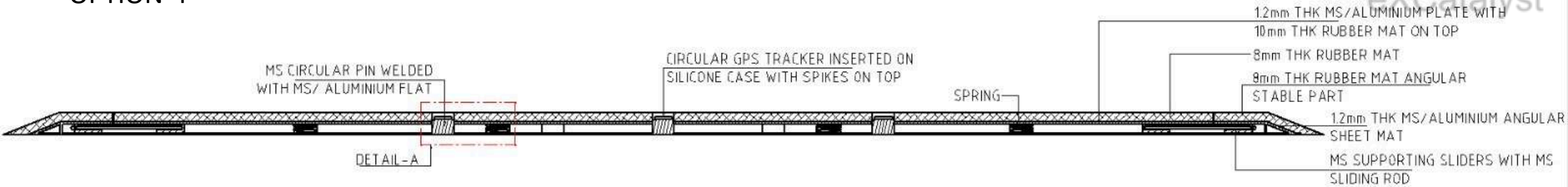


EXPLODED VIEW

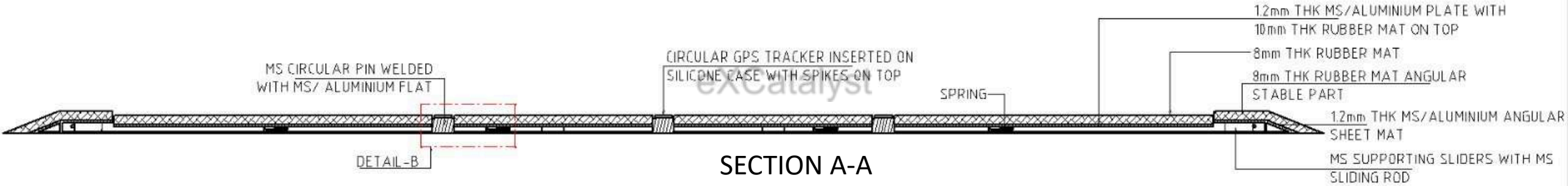
MAT MECHANISM OPTION-4 : HOW IT WORKS

- Emergency protocol is triggered via the onboard robbery detection system.
- Moving sliders are shifted via a motor
- Springs in the Micro GPS Ejector Mat are pushed down with the weight of the mat and the top of the mat is pushed down
- the micro GPS trackers are exposed.
- Perpetrator steps on mat while leaving the store
- GPS tracker is attached to bottom of perpetrator's footwear
- Tracking information is automatically sent to authorities for spontaneous response and apprehension.
- Easy mat reset via re-pressing the top of the mat (like a retractable click pen with spring)

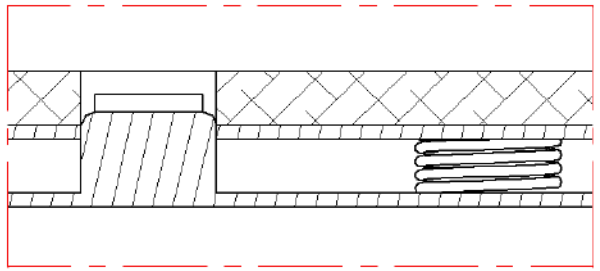
OPTION-4



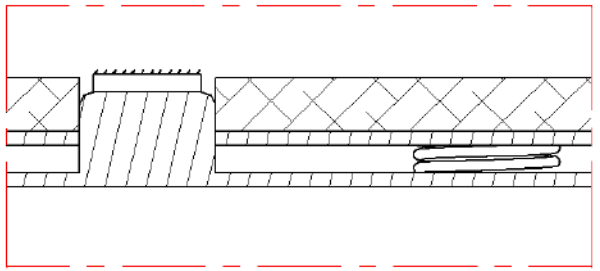
SECTION A-A
(WITHOUT MOVING FLANGE MECHANISM)



SECTION A-A
(WITH MOVING FLANGE MECHANISM)

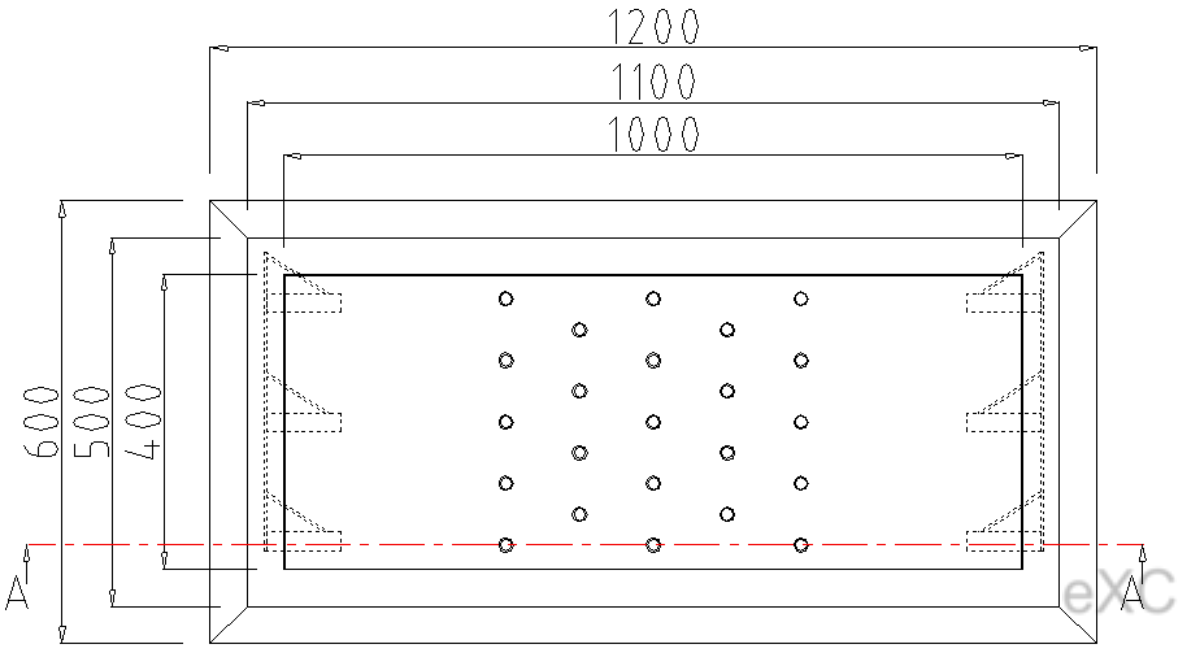


DETAIL-A
(WITHOUT MOVING FLANGE MECHANISM)

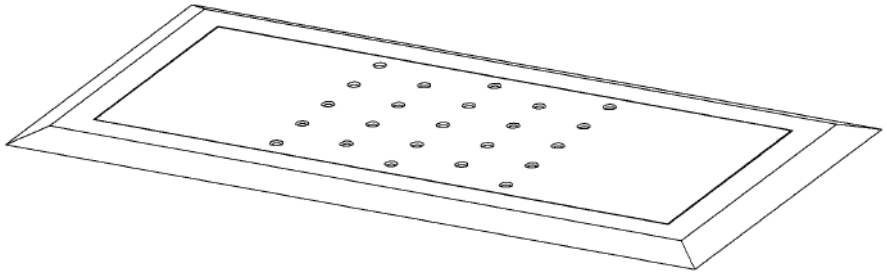


DETAIL-B
(WITH MOVING FLANGE MECHANISM)

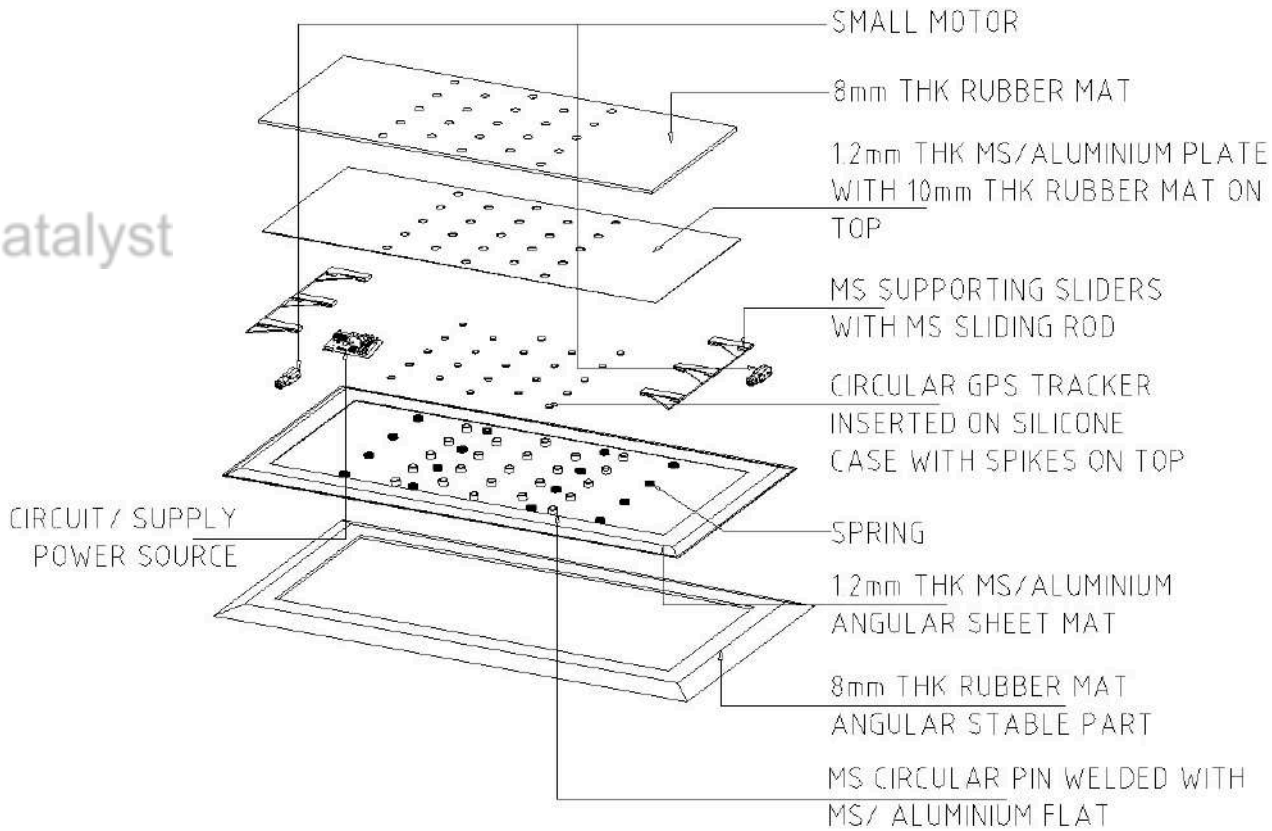
OPTION-4

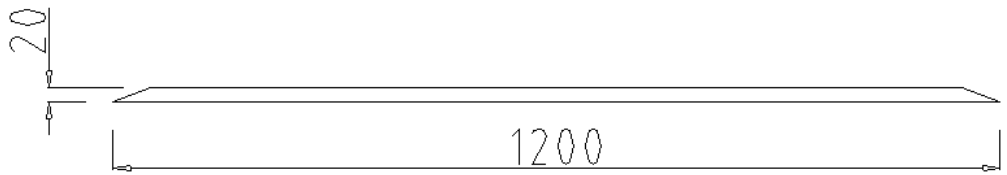


TOP VIEW



ISOMETRIC VIEW

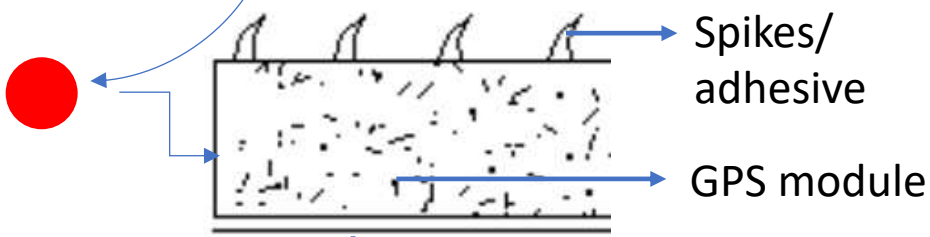


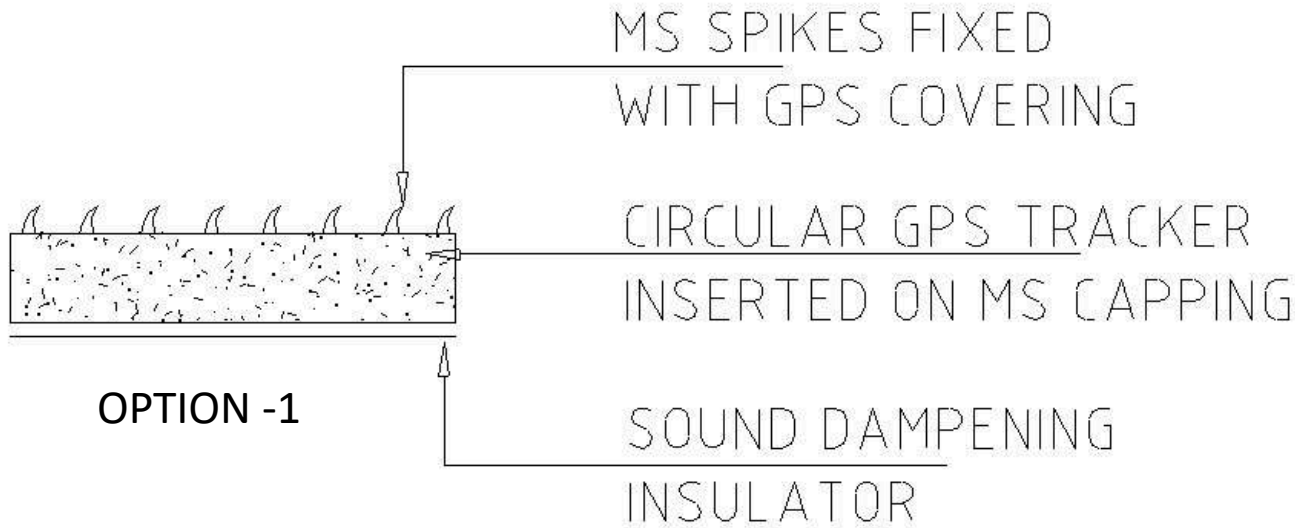


FRONT VIEW

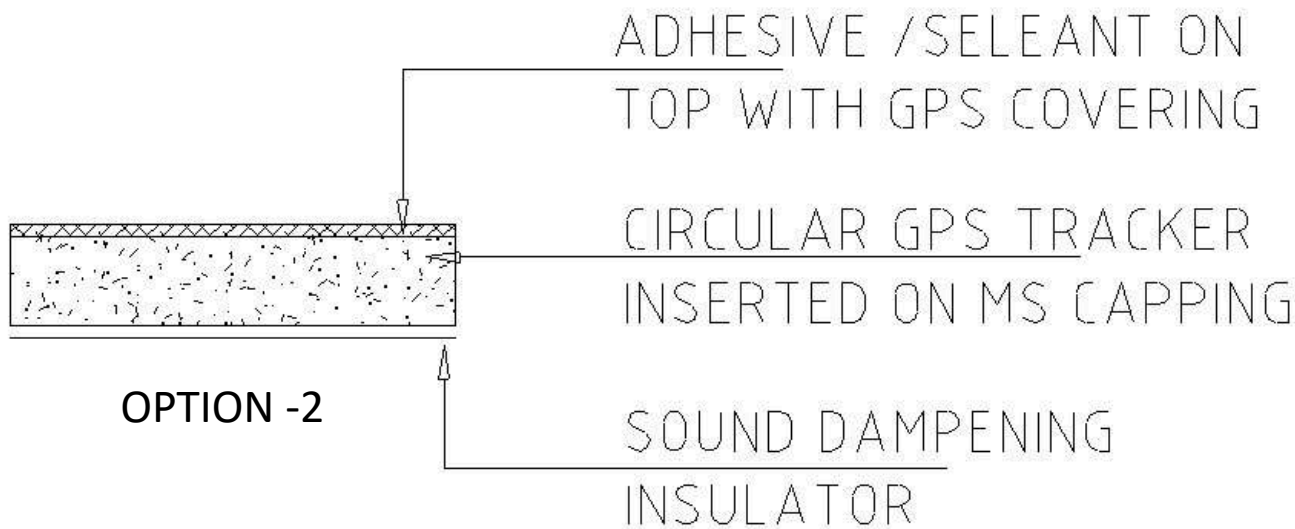
EXPLODED VIEW

2.1) GOD MICRO GPS TRACKER & FITTINGS (G.M.T.)





OPTION -1



OPTION -2