

GTA Online Spy Satellite DLC – Component View – Military Services – Aerial Attack Drones – Reaper or Predator Drones – Engaging Target – Firing Missiles – Homing and Non-Homing

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Hypothetical DLC concept created for GTA Online. Concept is titled *GTAOnline Spy Satellite DLC*.

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- Concept creator: Ed Orejel, MSCS



Brief Disclaimer

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This software development project is a sample presentation for interview purposes.

To understand the contents of this presentation, please view the media on my LinkedIn page titled *GTA Online Spy Satellite DLC - Software Development Project - Latest Update!!*

The targeting system for the Reaper or Predator drone is currently being designed from a top-level conceptual view.

The key assumption is that all weapons must know when a player is not inside and not out of reach of the weapons. If the weapon's targeting system is designed accordingly, it can cover all possible scenarios that involve weapons and modes of targeting, with little modification to accommodate other weapons.

I think Rockstar Games designed their weapon's targeting system to accomplish this task. The targeting system in this presentation intends to accomplish this task. There is no code or consulting with Rockstar Developers in the making of this targeting system.

The colors used in the shapes do not hold significance. The shapes are aligning with software development flowchart standards.

Brief Disclaimer Continued

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If you see an image of a concept from the video game called GTA Online, it is safe to assume that Rockstar Games owns the concept presented in the image.

I am only using concepts from GTA Online to help illustrate some of the concepts found in this presentation.

I am the sole developer of this DLC concept. Please do not distribute this presentation.

Thank you.

Sincerely,

Ed Orejel, MSCS

Vision Statement

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Single Missile



In examining GTA Online's missile targeting system, it is discovered that many components from GTA Online all use the same or the similar targeting system, along with using the same or similar explosion. That is, the explosion of a missile impact, is also the same explosion of a vehicle explosion regardless of whether the vehicle explodes from a missile impact or through other means.

I am currently deconstructing (learning) GTA Online's Targeting and Explosion System to adapt it to some components found in the *GTA Online Spy Satellite DLC*. Specifically, I will adapt GTA Online's Targeting and Explosion System to the Reaper or Predator Aerial Attack Drones, the Enhanced Missiles, the New Smart Vehicle consisting of an EMP vehicle, and the Ruiner 2000 Jet Car variant that also serves as a Loyal Wingman Drone.

Missile Barrage



In this presentation, however, I will only focus on the Reaper or Predator Aerial Attack Drones that are part of the *GTA Online Spy Satellite DLC*. The aerial attack drones will have the following attacks:

- Single Missile Homing and Non-Homing Attack
- Barrage of Non-Homing Missiles Attack
- Kamikaze Non-Homing or Homing Attack

All three attacks will use GTA Online's Targeting, Homing, and Explosion System. GTA Online targeting and homing system is being deconstructed only from the user's perspective. I am not looking at any actual C++ code or other type of code that belongs to Rockstar Games.

Kamikaze Strike



Thank you.

GTA Online Spy Satellite DLC – Military Services – Aerial Attack Drones – Reaper or Predator Drones – GTA Online Homing System – General Information

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Hydra Aircraft



Oppressor



Oppressor MKII



Homing Launcher



Currently working on the homing system.

GTA Online appears to use similar homing systems for the following vehicles and weapons:

- Hydra aircraft
- Homing launcher
- Oppressor
- Oppressor MKII
- Ruiner 2000

Some informative slides are shown in this presentation to help illustrate the concept of a homing system.

A slight variation in the accuracy of the Oppressor MKII missiles and the Ruiner 2000 missiles exists in that the missile types from these two vehicles are more precise than other variants. Further, Rockstar Games added a modification to the Oppressor MKII missiles in that they are no longer as precise.

Ruiner 2000 missiles remain unchanged in their precision.

Ruiner 2000



Ruiner 2000



GTA Online Spy Satellite DLC – Military Services – Aerial Attack Drones – Reaper or Predator Drones – Homing System – General Information – Javelin Missile Launcher – M202 Flash Rocket Launcher

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Javelin Missile Launcher



The Javelin missile launcher is possibly too unique to add into GTA Online current homing system mechanism.

If the particular motion that the Javelin creates upon launch is not included with the weapon's video game equivalent, then it is not a Javelin missile system. The motion the Javelin missile makes upon fire should be included in any type of video game simulation.

Perhaps the Javelin missile launcher will be included in GTA6, but I think it might be in GTA7. Once again, the firing sequence is really unique.

The homing system for GTA6 should also be different from the current system found in GTA Online.

M202 Flash Rocket Launcher



The M202 Flash Rocket Launcher might also prove a bit too unique for GTA Online's current homing system.

The M202 should be in GTA6.

GTA Online Spy Satellite DLC – Military Services – Aerial Attack Drones – Reaper or Predator Drones – Homing System – General Information – Ruiner 2000 Missile Fired Image

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Ruiner 2000 Missile Fired

The image shows a missile that has been fired from the Ruiner 2000.

While the Ruiner 2000 and Hydra aircraft might use the same targeting system, it appears there is a variation for precision.

The Ruiner 2000's missiles are very precise.



 Watermarkly

GTA Online Spy Satellite DLC – Military Services – Aerial Attack Drones – Reaper or Predator Drones – Homing System – General Information – Hydra Missile Lock-On System – No Target In Sight

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Hydra Missile Lock-On System

Hydra missile lock-on shown.

The system does not detect any threats.

There is no lock-on activity.

The lock-on system can be turned on and off.

Turning off the system results in missiles being fired without a guidance system.



GTA Online Spy Satellite DLC – Military Services – Aerial Attack Drones – Reaper or Predator Drones – Homing System – General Information – Hydra Missile Lock-On System – Target On Sight – Target Detected

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Hydra Missile Lock-on System

Hydra missile lock-on shown.
The system is targeting the larger aircraft.

This is the beginning of the missile lock-on process.



GTA Online Spy Satellite DLC – Military Services – Aerial Attack Drones – Reaper or Predator Drones – Homing System – General Information – Hydra Missile Lock-On System – Target On Sight – Target Locking On

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Hydra Missile Lock-on System

Hydra missile lock-on shown.
The system is targeting the larger aircraft.

This is the intermediate stage of the lock-on process.



GTA Online Spy Satellite DLC – Military Services – Aerial Attack Drones – Reaper or Predator Drones – Homing System – General Information – Hydra Missile Lock-On System – Target On Sight – Target Locked

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Hydra Missile Lock-on System

Hydra missile lock-on shown.
The system is targeting the larger aircraft.

This is the final stage of the lock-on process.



Homing System – General Information – Electromagnetic Wave (EMW) Homing System

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Electromagnetic Wave (EMW) Homing System

The system shown here is an electro-magnetic wave homing system.

There are various ways to home in on an aircraft.

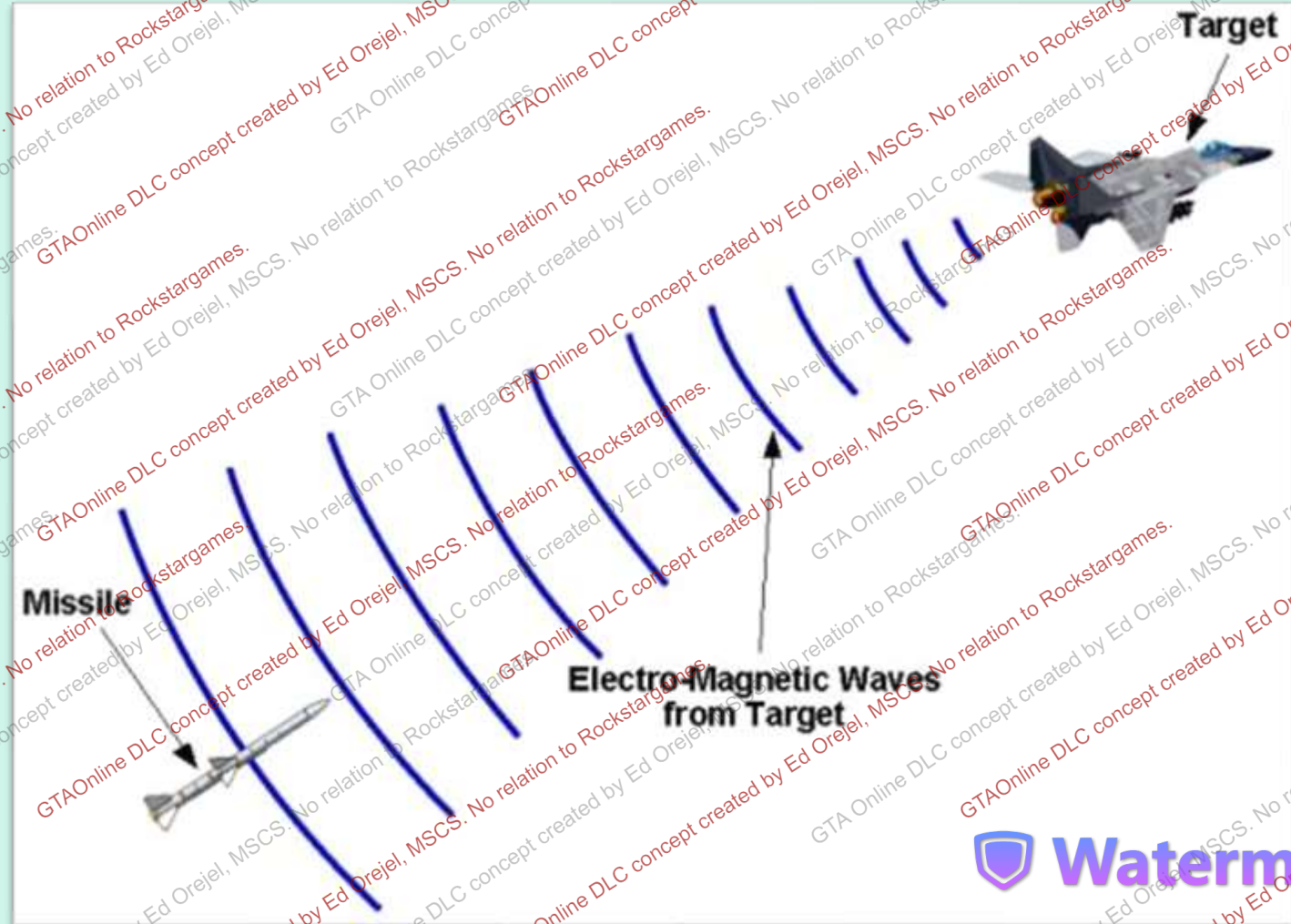
Aircraft, by me, are thought to emit certain signals that can be detected by other systems.

From the image, I assume that aircraft emit electro-magnetic waves that can be detected by systems inside of missiles.

I assume all aircraft and missiles emit other types of signals that can be tracked and targeted by other systems.

The image was found online. I am not sure if this ability is possible to implement.

The ability does not sound impossible to implement.



Homing System – General Information – Infrared-Guided Missile Homing System – Image One

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Infrared-Guided Missile (Heat Seeker)

The system shown here is an infrared-guided missile system.

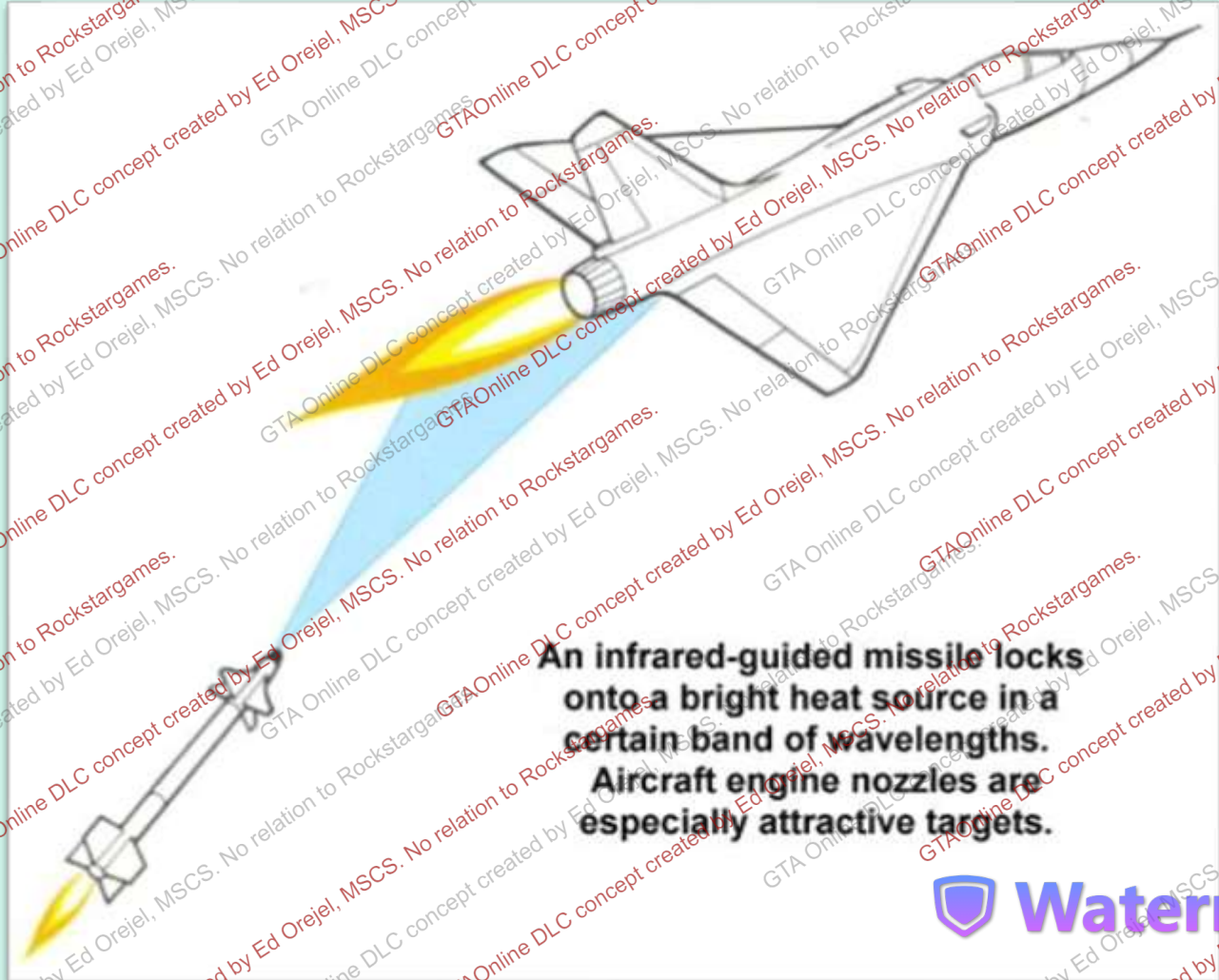
This missile is commonly known as the heat seeker missile system.

The heat seeker missile system detects an aircraft's heat signature and uses it as a targeting point.

Other variations of heat seeker missiles can be achieved using the heat seeker system's abilities.

The image was also found online.

The ability can be implemented.



An infrared-guided missile locks onto a bright heat source in a certain band of wavelengths. Aircraft engine nozzles are especially attractive targets.

Homing System – General Information –

Infrared-Guided Missile Homing System – Image Two

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Infrared-Guided Missile (Heat Seeker)

The system shown here is an infrared-guided missile system.

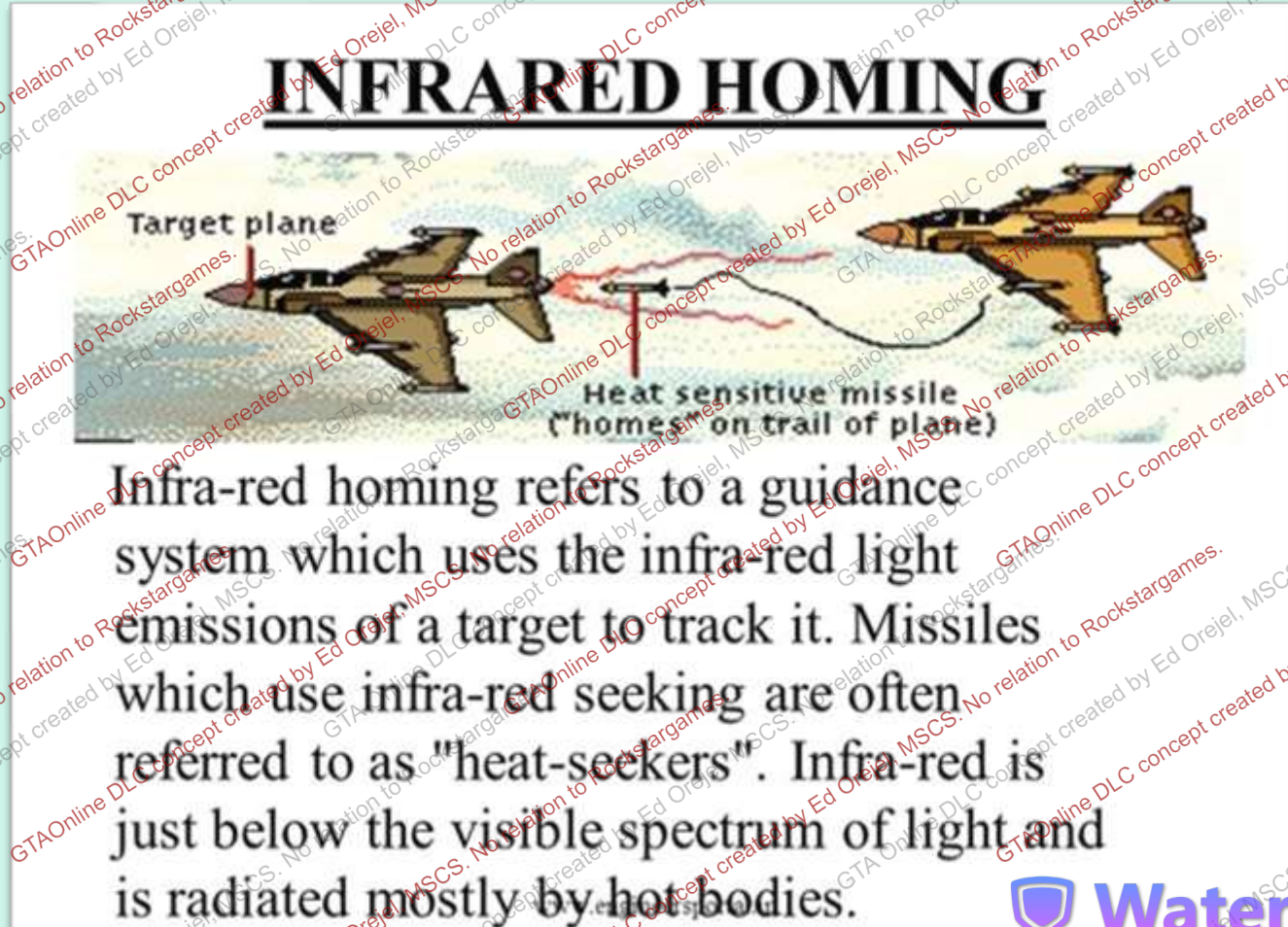
This missile is commonly known as the heat seeker missile system.

The heat seeker missile system detects an aircraft's heat signature and uses it as a targeting point.

Other variations of heat seeker missiles can be achieved using the heat seeker system's abilities.

The image was also found online.

The ability can be implemented.



Homing System – General Information – Infrared-Guided Missile Homing System – Image Three

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Missile Homing Against a Target

The end result of a missile equipped with the ability to lock-on and home in on targets is impact on the target aircraft.

Presumably, the missile is a heat seeker missile.

It is homing in on the aircraft shown in the image.

Impact can be avoided if the heat seeking missile's abilities are thwarted.



Explanation for Notes

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Missile Ignition Distance & Missile Impact Distance

Missile ignition distance cannot equal missile impact distance without the player experiencing the effects of this action.

Considerations have to be made for when the missile ignition distance and the missile impact distance are close in proximity.

A blast radius must be established at the missile impact point with consideration given to the missile ignition point. The blast radius must be enabled on all explosions.

Missile ignite location and missile impact location must also be known.

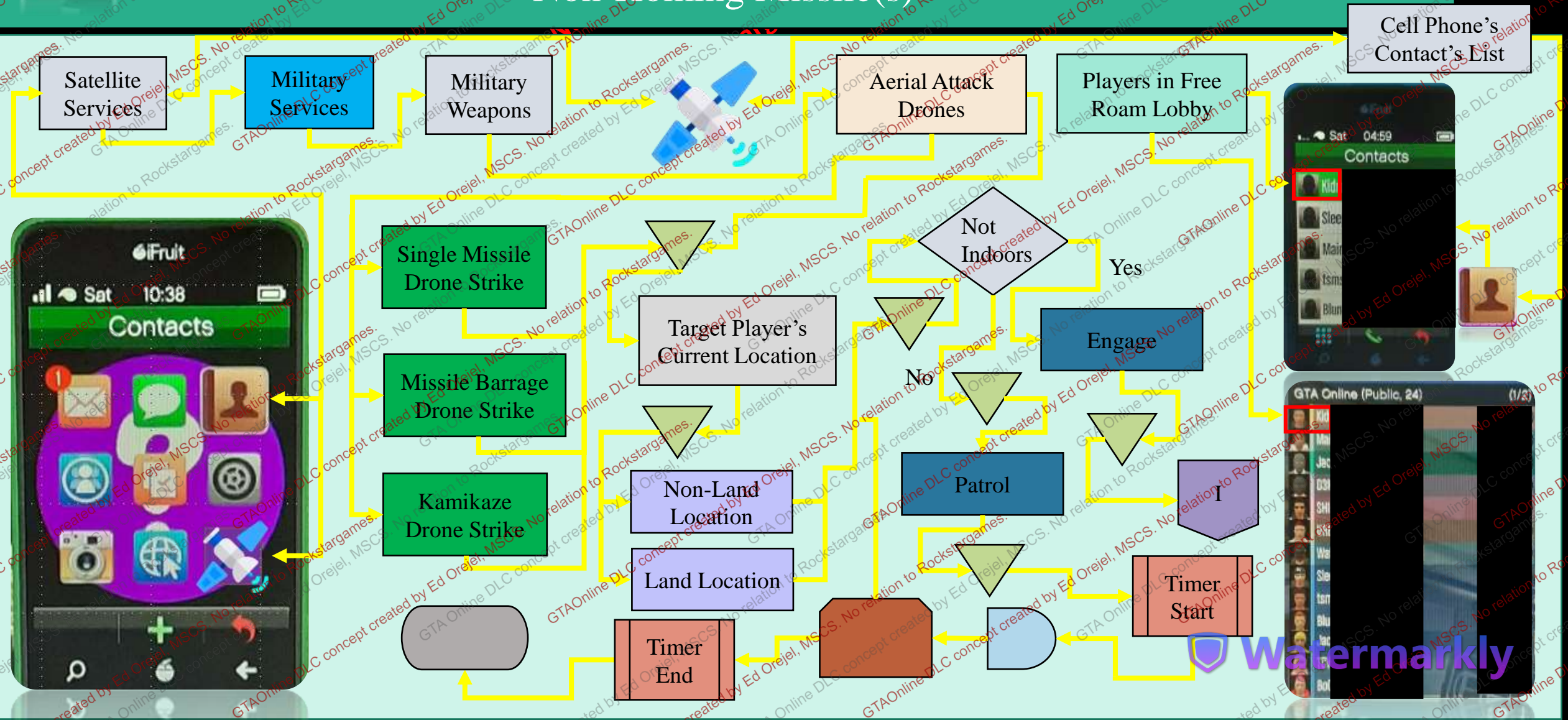
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Military Services – Aerial Attack Drones – Reaper or Predator Drones – All Missile Attack Types – Engaging Target – Firing Non-Homing Missile(s)



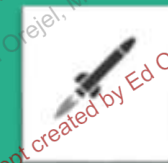
17



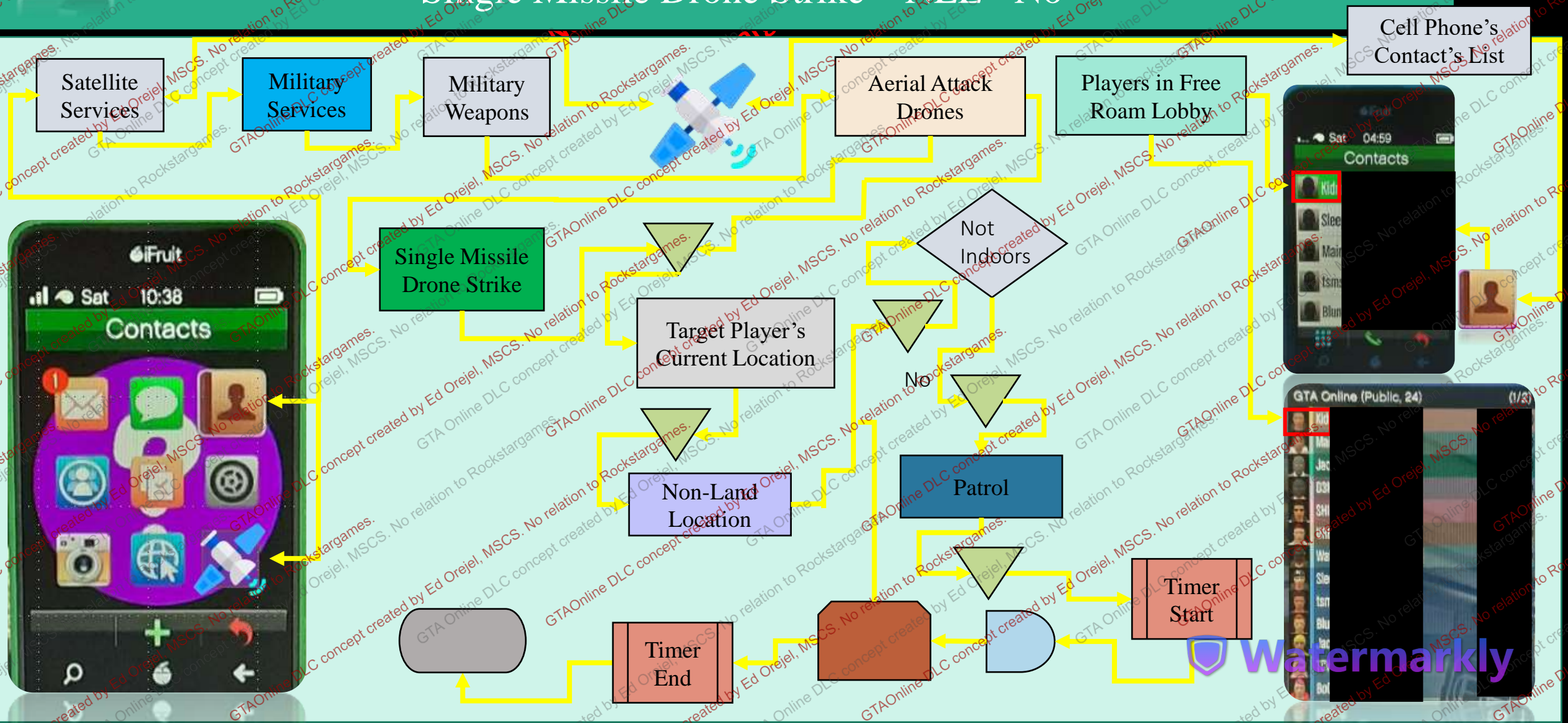


Top-Level Conceptual Sub-Component View – Military Services

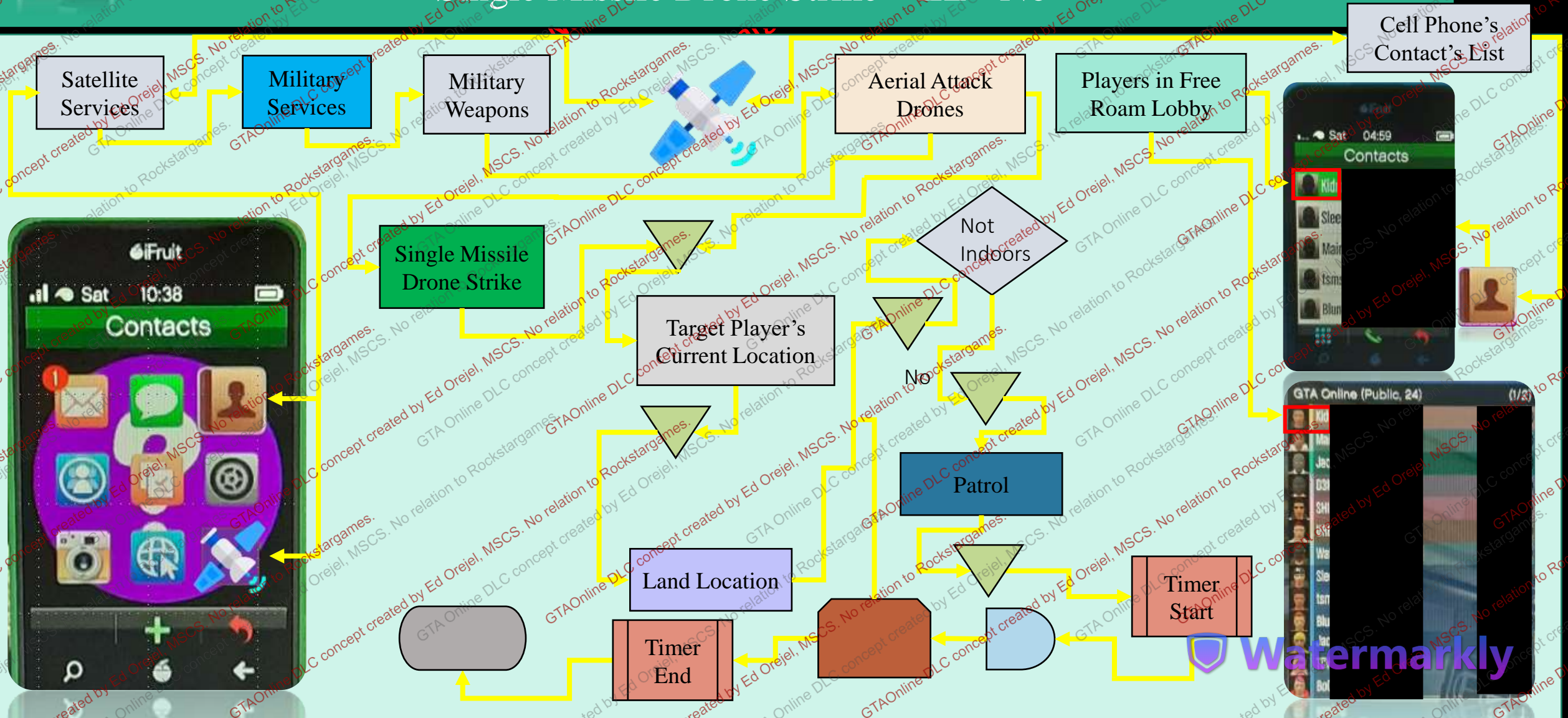
- Aerial Attack Drones – Reaper or Predator Drones
- Single Missile Drone Strike – NLL - No



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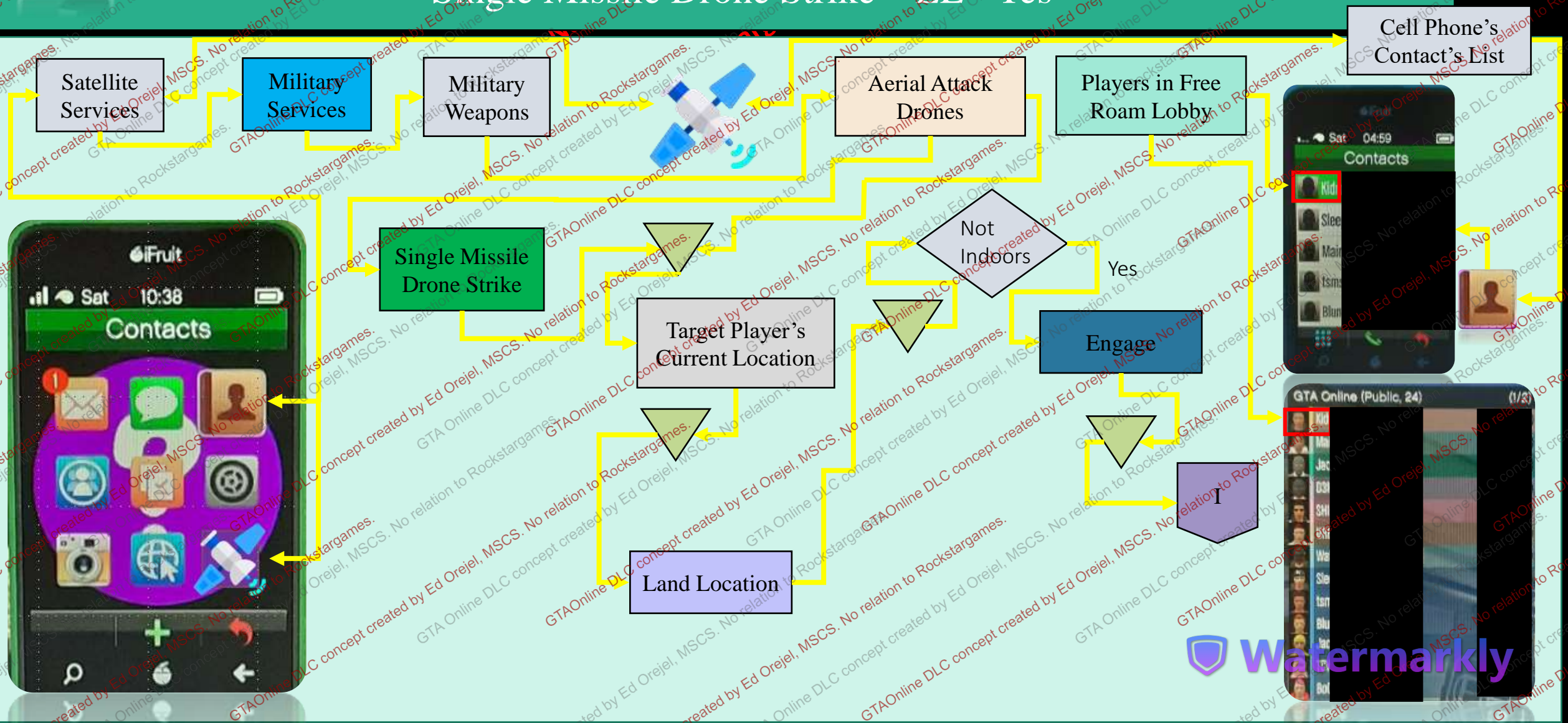




Top-Level Conceptual Sub-Component View – Military Services
Aerial Attack Drones – Reaper or Predator Drones
– Single Missile Drone Strike – LL – Yes

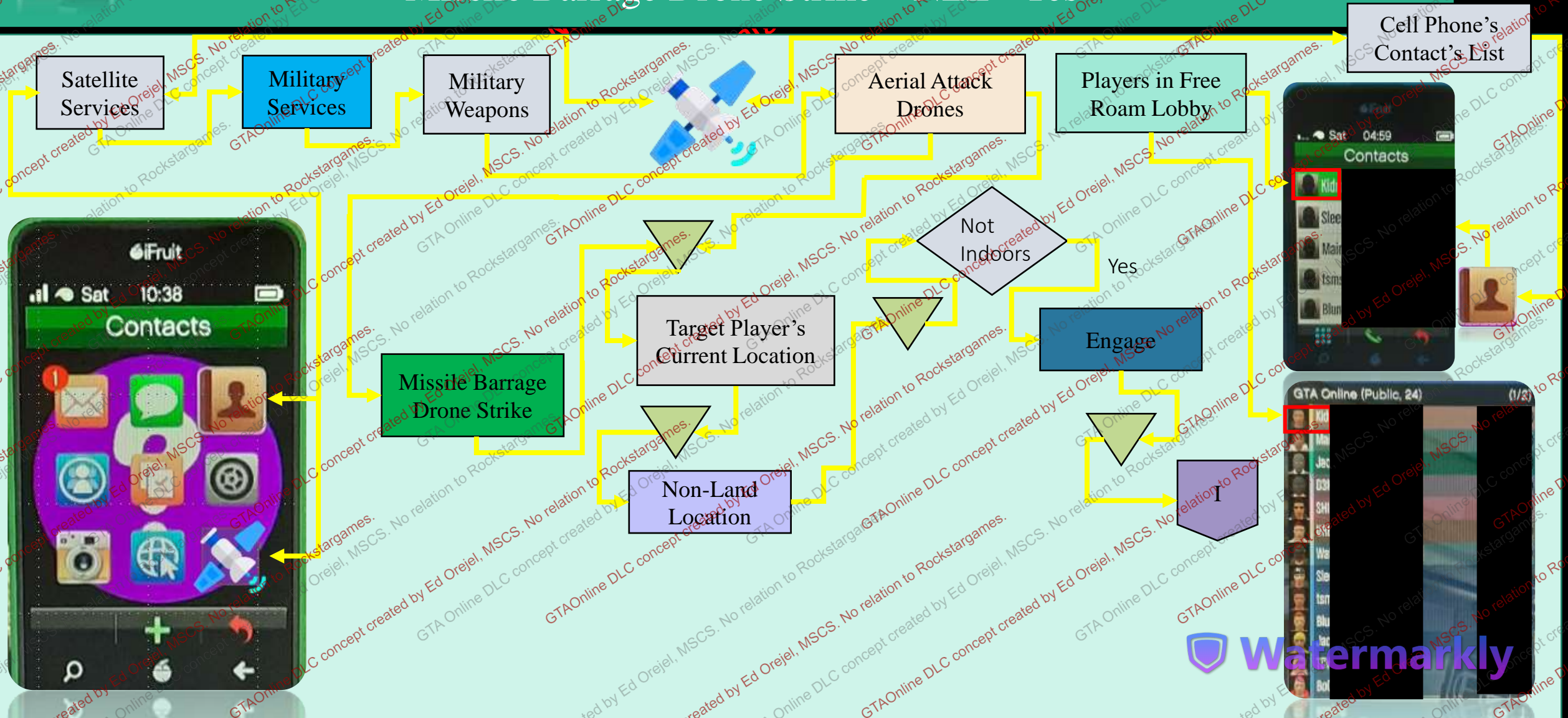


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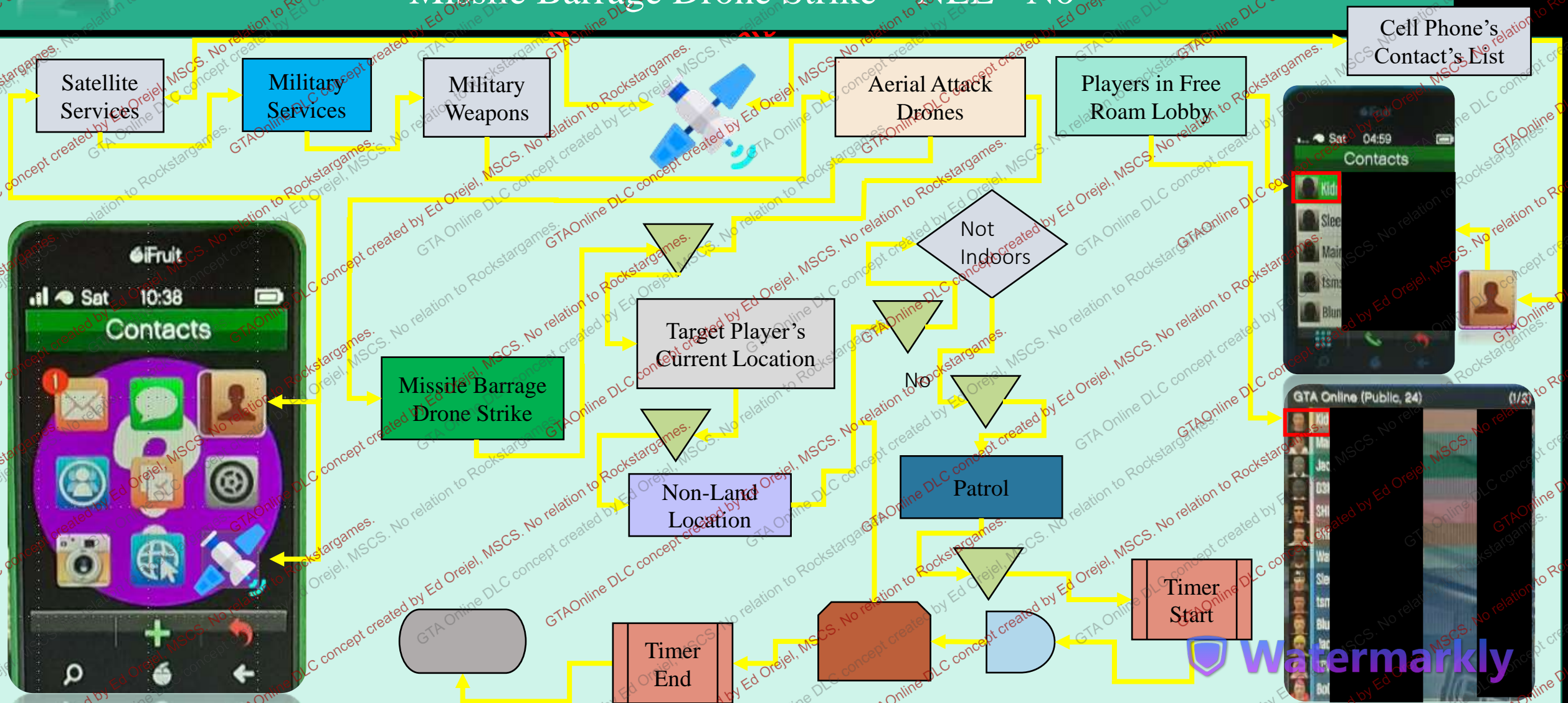


Top-Level Conceptual Sub-Component View – Military Services

- Aerial Attack Drones – Reaper or Predator Drones
- Missile Barrage Drone Strike – NLL - No



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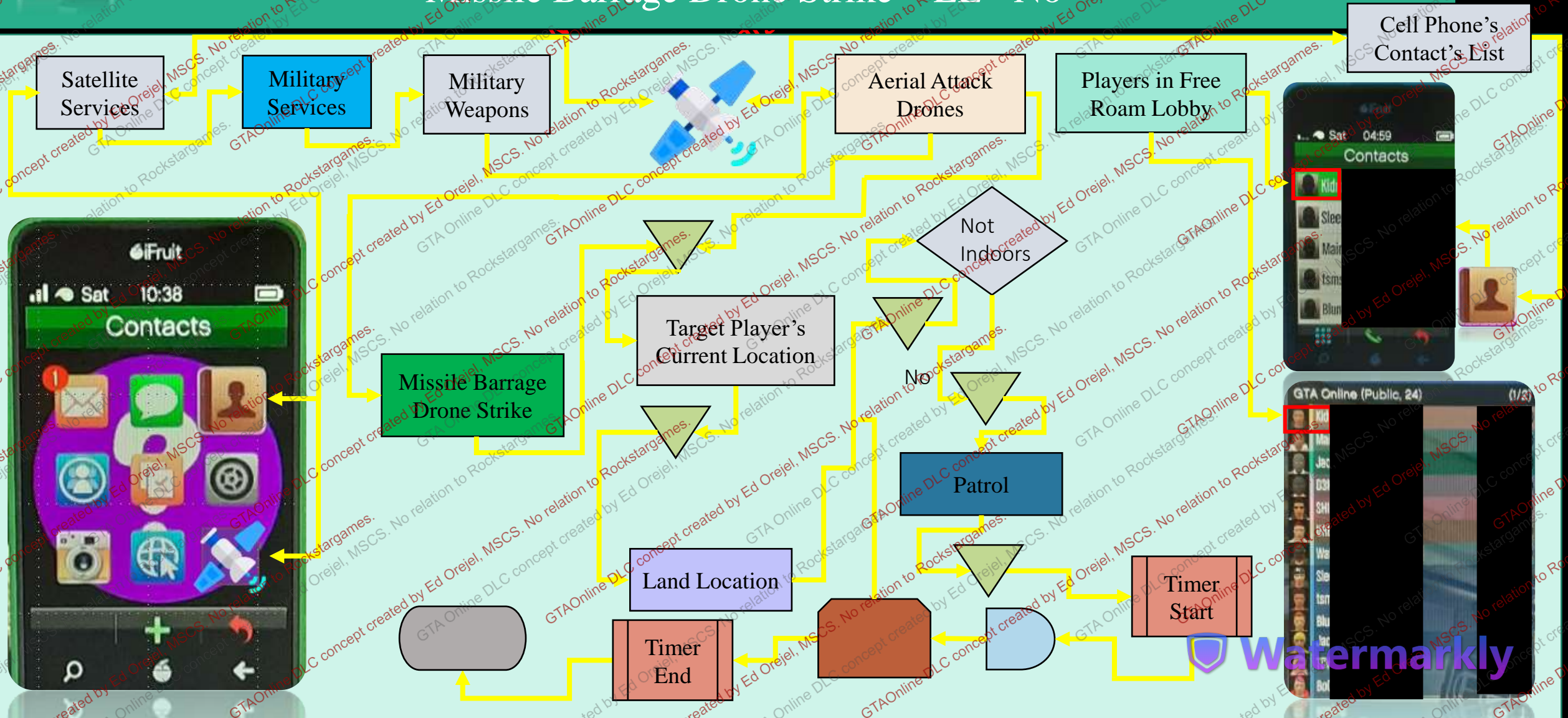
Top-Level Conceptual Sub-Component View – Military Services –

Aerial Attack Drones – Reaper or Predator Drones

– Missile Barrage Drone Strike – LL - No



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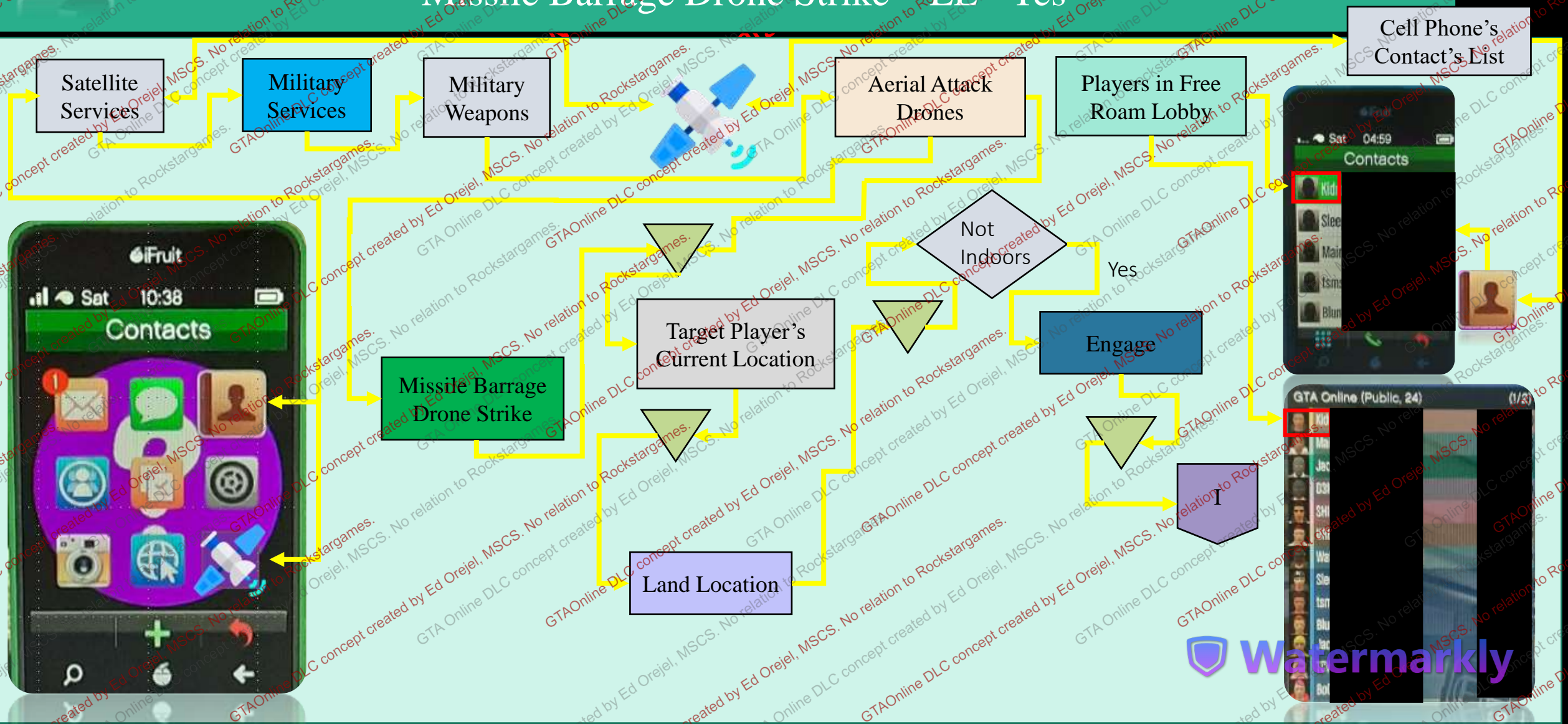




Top-Level Conceptual Sub-Component View – Military Services –
Aerial Attack Drones – Reaper or Predator Drones
– Missile Barrage Drone Strike – LL - Yes



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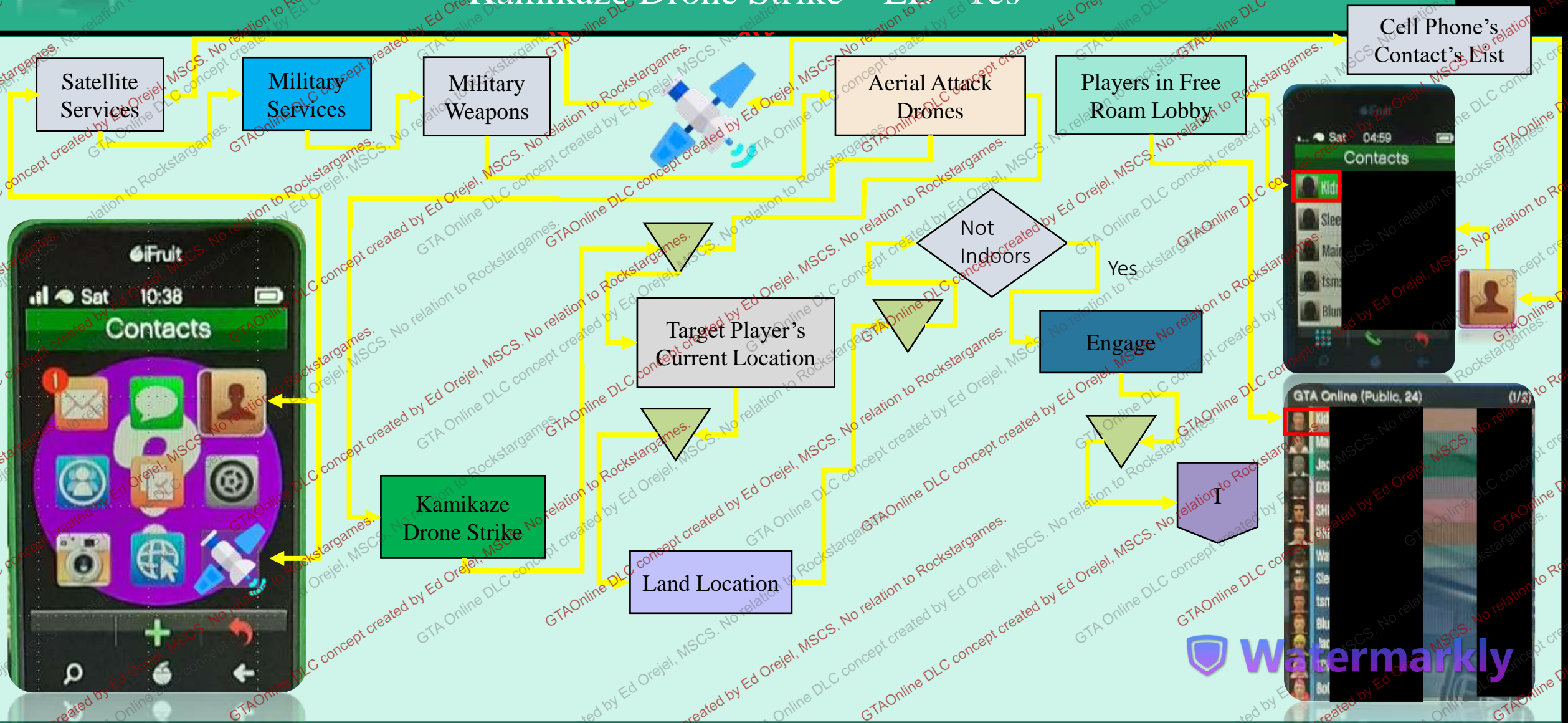




Top-Level Conceptual Sub-Component View – Military Services
Aerial Attack Drones – Reaper or Predator Drones
– Kamikaze Drone Strike – LI - Yes



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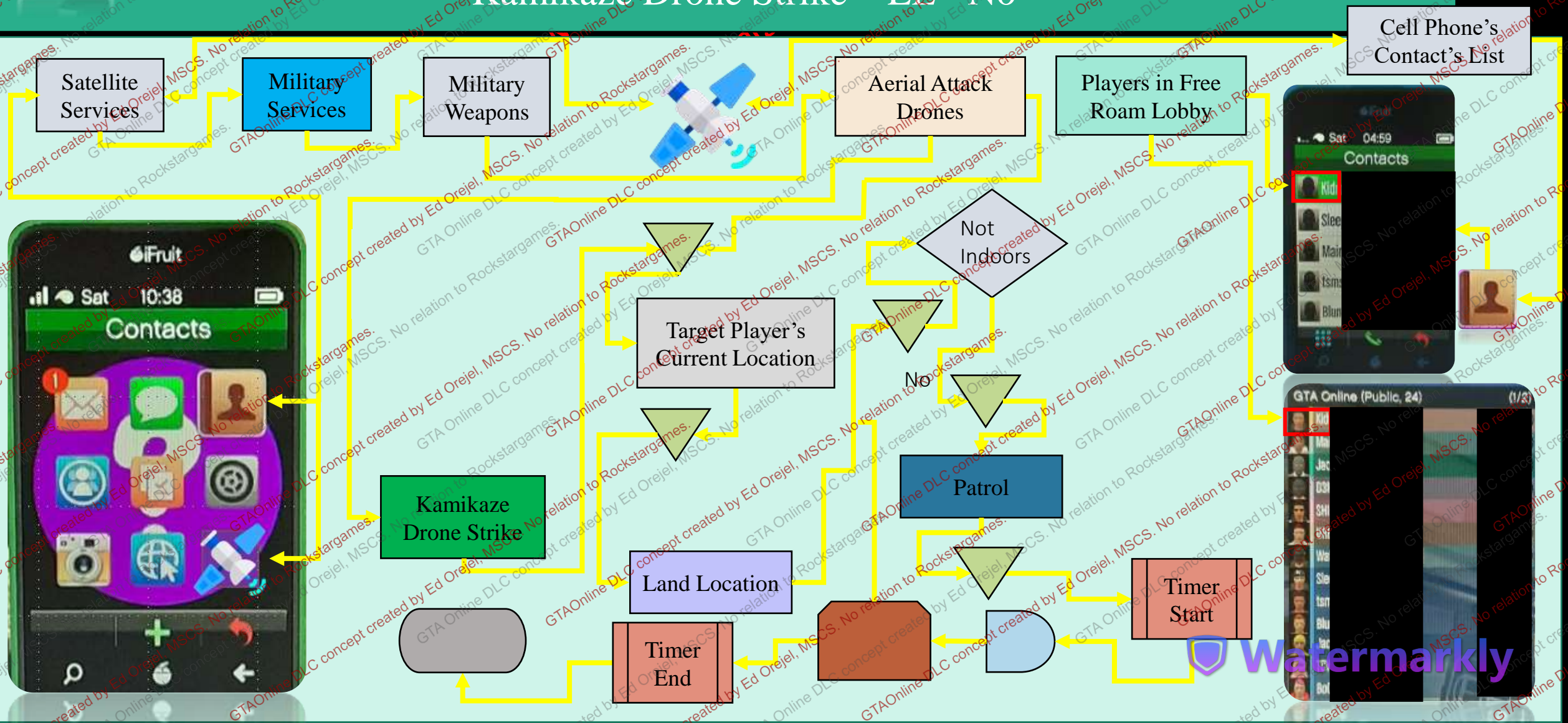
Top-Level Conceptual Sub-Component View – Military Services

Aerial Attack Drones – Reaper or Predator Drones

– Kamikaze Drone Strike – LL - No



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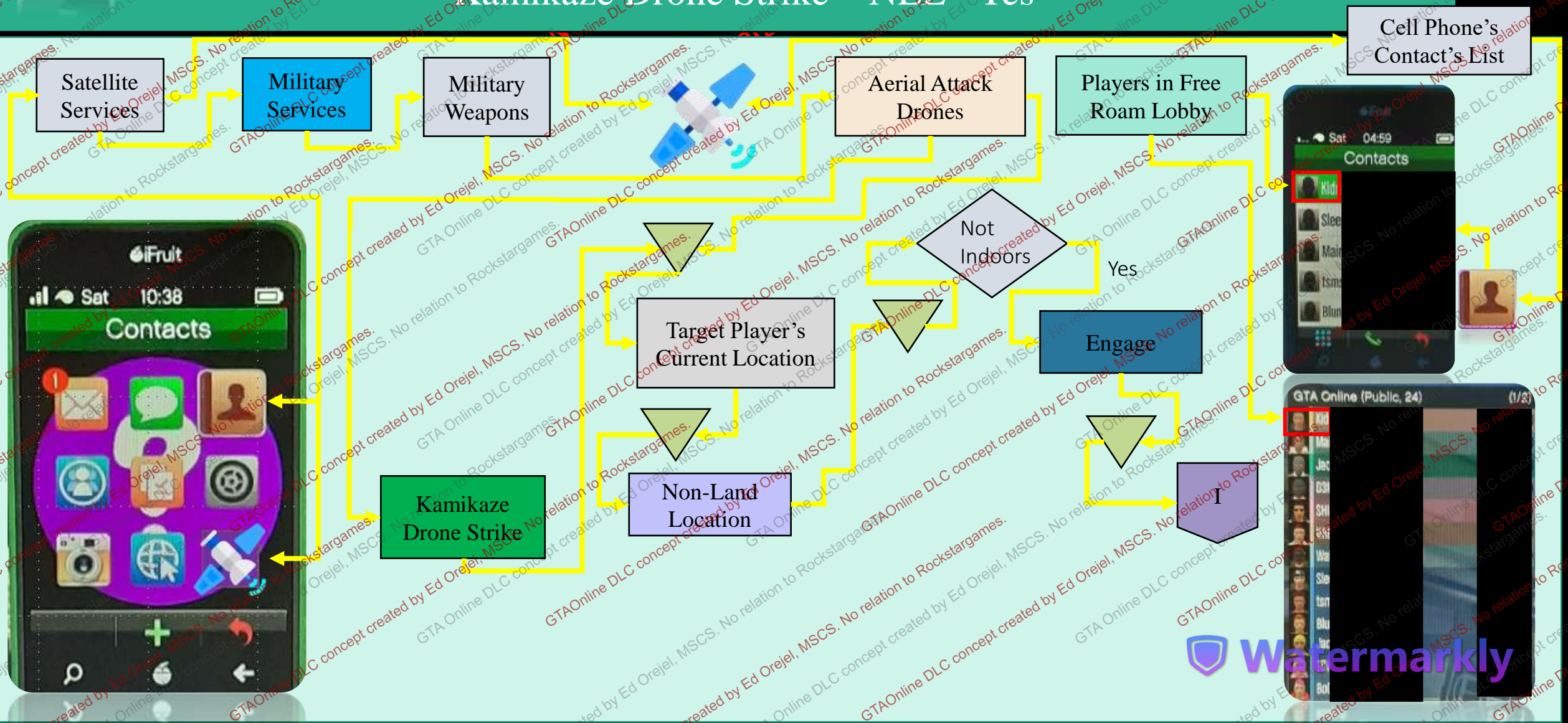




Top-Level Conceptual Sub-Component View – Military Services
Aerial Attack Drones – Reaper or Predator Drones
– Kamikaze Drone Strike – NLL - Yes



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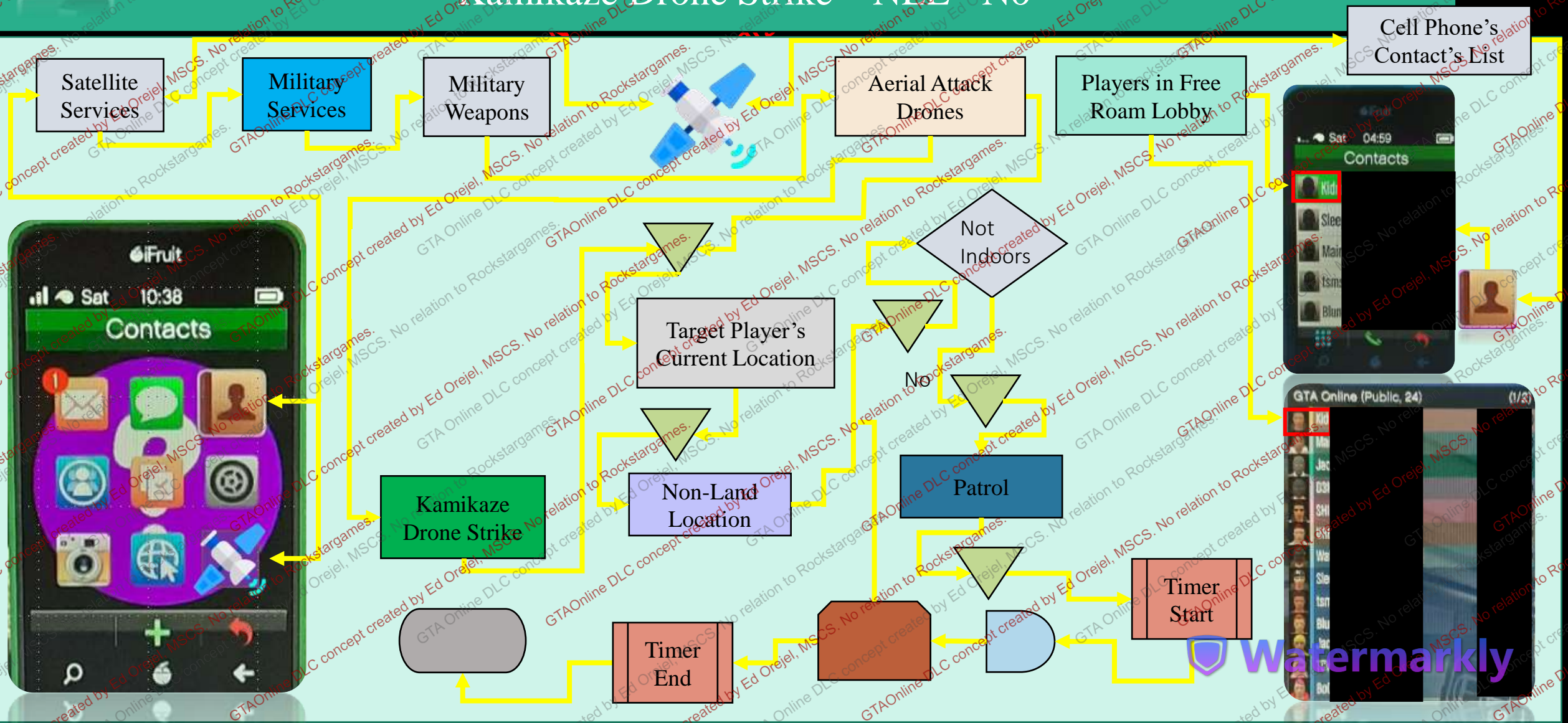




Top-Level Conceptual Sub-Component View – Military Spy
Services – Aerial Attack Drones – Reaper or Predator Drones
– Kamikaze Drone Strike – NLL - No



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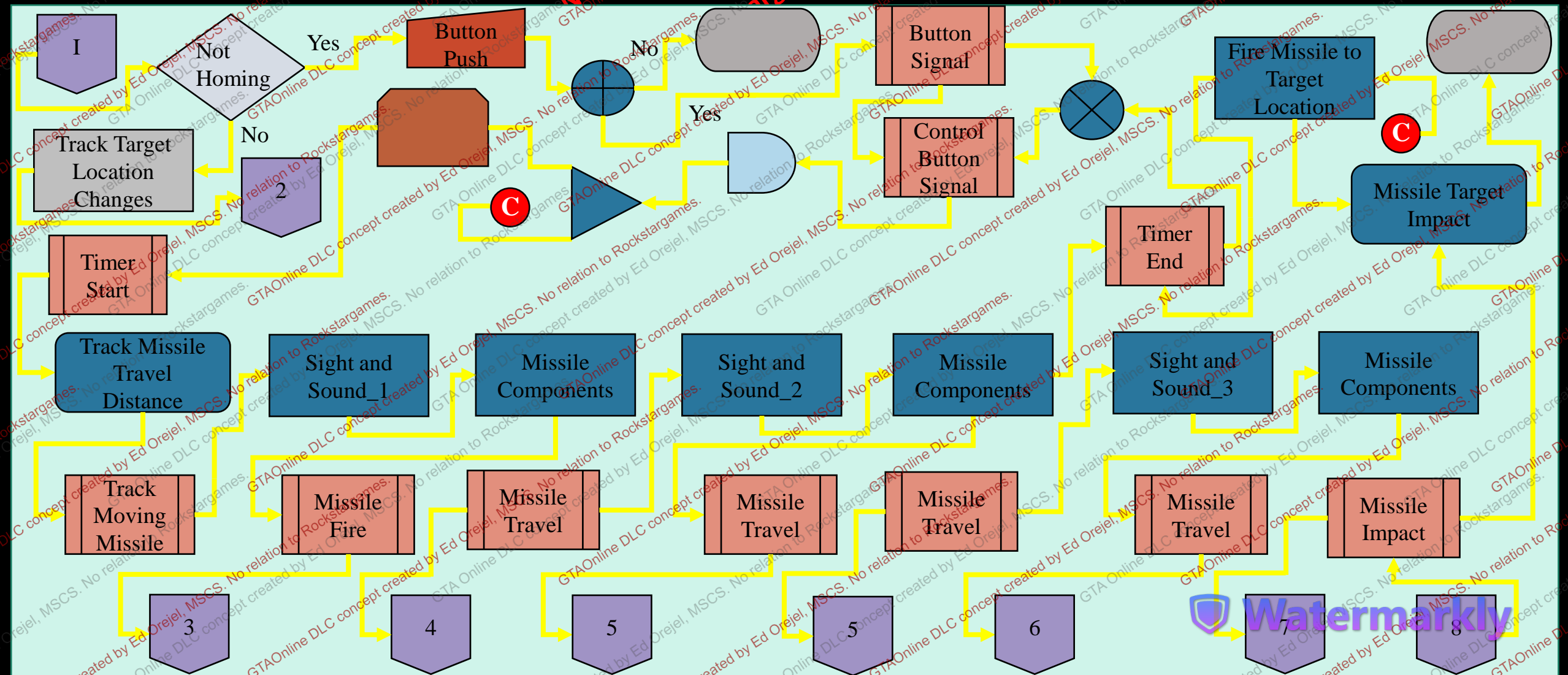


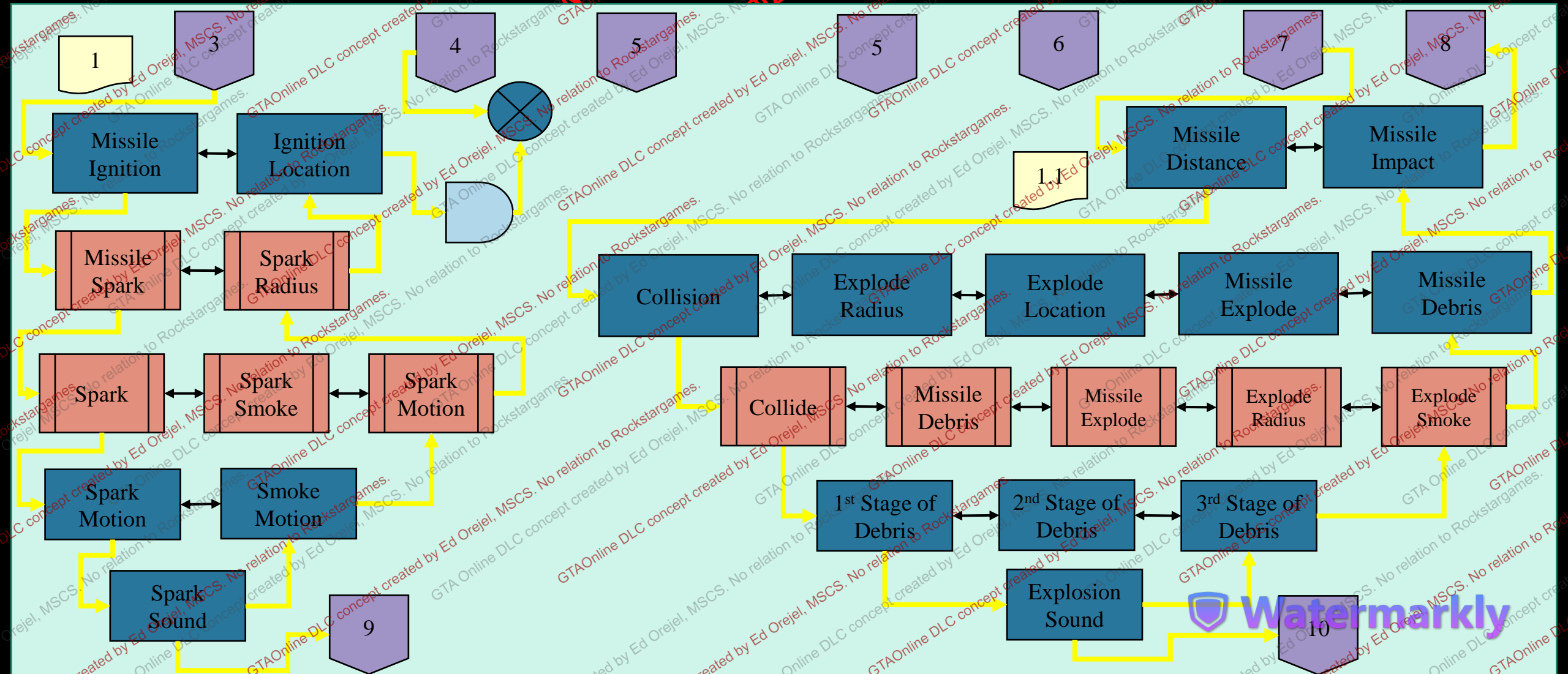


Military Services – Aerial Attack Drones – Reaper or Predator

Drones – Engaging Target – Firing Non- Homing Missile(s) – Mapping Out the Process

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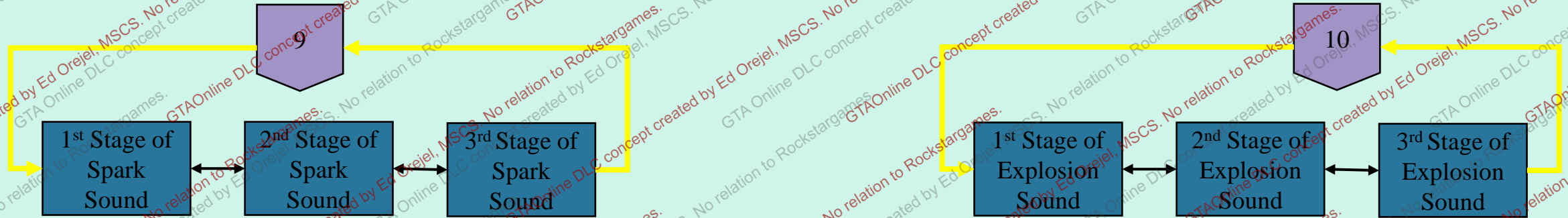






Military Services – Aerial Attack Drones – Reaper or Predator Drones – Engaging Target – Firing Non- Homing Missile(s) – Mapping Out the Process Continued

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Military Services – Aerial Attack Drones – Reaper or Predator Drones – Engaging Target – Firing Homing Missile(s) – Mapping Out the Process Continued

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