Vector Randomization Module

History/Conception

Noting efforts to conserve resources, and the ineffectiveness of using sheer speed to outrun Mishhu vessels (as he encountered first-hand while serving on the YSS Sakura), Kage Yaichiro got the idea to use not just the maximum speed of the CDD to move in one direction, but to change speeds at a rate not possible through manual means between 1c and the maximum speed of the vessel being used upon. Also, it can randomly change direction within predefined limits. Because of its ability to shift speed and direction, the creation was to be dubbed the Vector Randomization Module.

However, early in its development, Yaichiro realized that the inertial dampening systems of most Star Army vessels could not tolerate the rapid shifting patterns which the VRM was designed for without causing harm to the occupants, and that a pilot could just as easily manage within the tolerances of the ship and serve the same task. Because of this, the project became an effort to upgrade unmanned combat drones or unmanned vessels, so that yhey would be less likely to be shot down, and more effective.

Purpose

The reason for the VRM is simply to make it more difficult to hit a Star Army Combat Drone, even if the enemy vessel is moving at a superior speed. This is done by changing speeds and direction in an unpredictable manner, though the attributes can be set by a pilot if specific goals are necessary.

Because of the simplicity of the unit, it means a drone need not outrun a vessel. Not only will most drones be more evasive, but it means that using resources on higher speed engines are not as necessary.

Modes of Operation

The VRM acts as a buffer between IES/WARMS and CDD control, and has two modes:

Static (Passthrough) Mode: This is the normal non-combat configuration for a drone, going directly to coordinates at the normal speed. This is how most drones operate without any VRM at all.

Dynamic (Randomized) Mode: In this mode, the pilot remotely inputs data on the destination/direction to the computer. The drone's IES then tells the VRM to go in that general direction, but randomly changing the vector at a random interval between 5 and 50 ms. Data from WARMS and sensors is fed into the system for offensive, defensive, and navigation purposes. This way the VRM can use semi-random vectors that evade stars, planets and attacks. This setting is unlikely for use in combat, but may prove useful in an intelligence gathering setting.

Control (Specified) Mode: This is like Dynamic Mode, but places limits on the VRM. Such attributes are:

- *Space Restrictions* – Travel only in a specific volume of space or avoid specific volumes of space
- *Planar Restrictions* – Travel in only two dimensions, setting one of the dimensions as a static value.
- *Speed Average* - The speed in the direction of the general vector must average out to this speed, making the speed fluctuations only quasi-random.
- *Shifting Frequency* – The remote pilot can set the vector shifting interval to occur every 5 ms to every 50 ms.

Design

The VRM can assume two modes; Buffer and Software. The type used depends on the processing power available to the core system.

Buffer: The original prototype VRMs were physical computer buffers that acted as an intermediatry between AIES and CCD control. They are more difficult to produce and require physical installation.

Software: In standard Kessaku Electronics variants, the entire system is often software based. Due to the lack of hardware, this requires no more resources than the initial design and testing of this variant, and any research for future upgrades. The code is also optimized to run on IES systems.