

**Project Goal: Develop a Simulator which simulates an array of Access Points and Tags (for people and assets) as part of a Stanley HealthCare surveillance system**

## Background

Aeroscout solution for people and assets surveillance is composed from the following components:

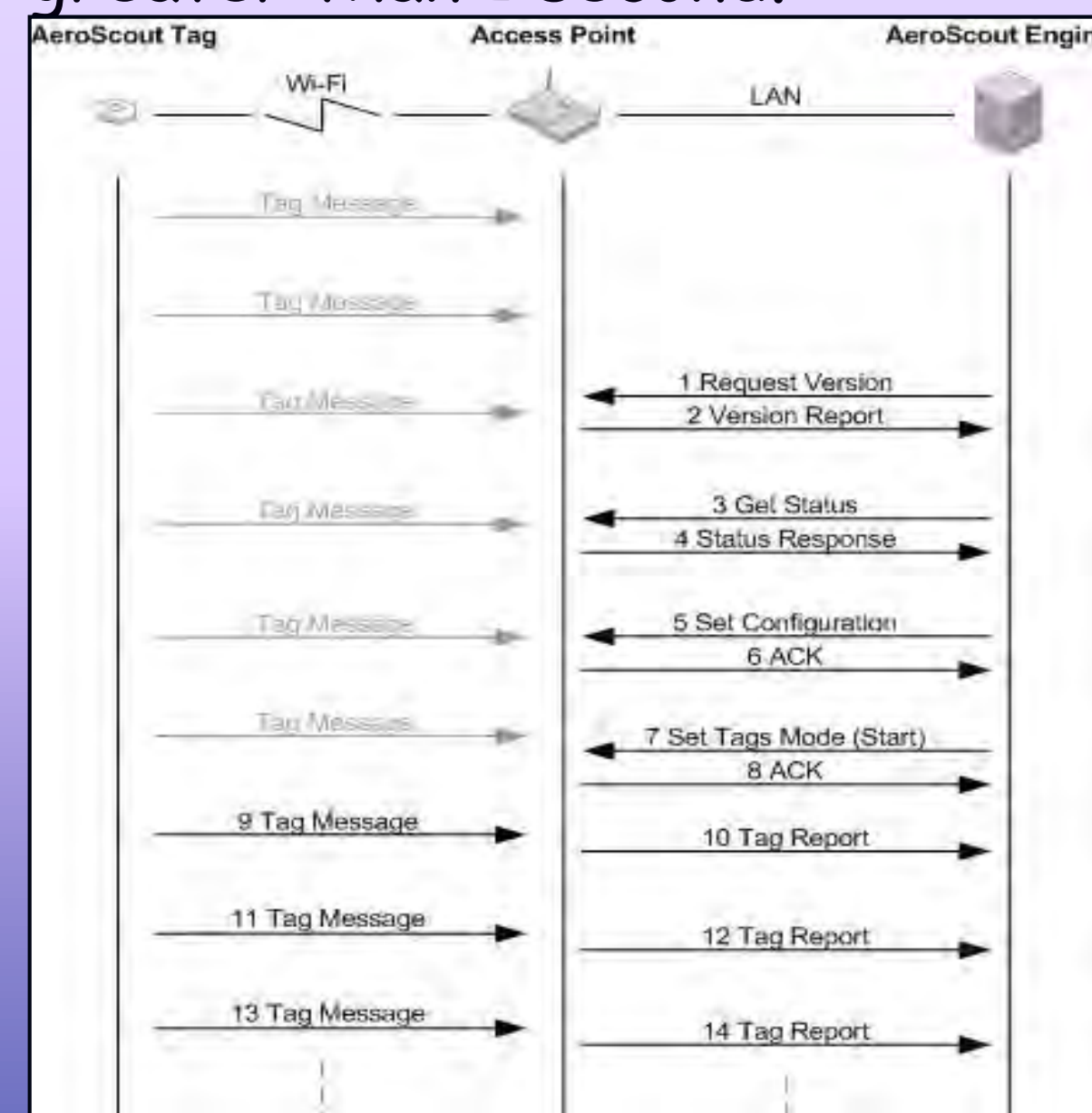
- **Tags** - carried by the people and transmit signal over Wi-Fi with unique identification.
- **Readers** - also known as access points (AP's), receive the tags signals, measure the signal strength (RSSI) and send the information over Ethernet to the engine.
- **Engine** - receives the information from AP's and calculate the tags' location using triangulation.
- **MobileView** - Aeroscout command and control system. Provides AP's and tags representation over map.

## Simulated part

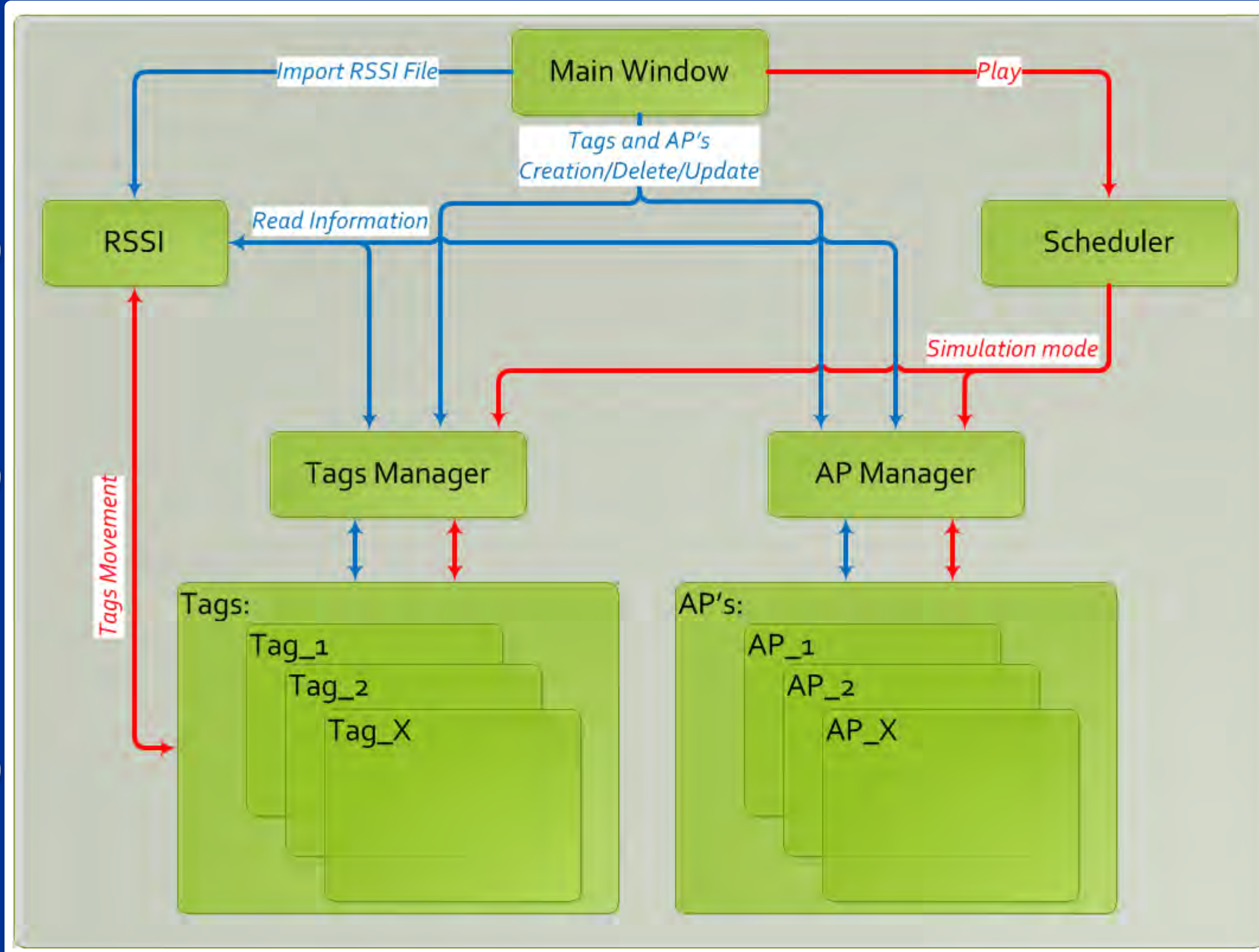


## Main Specifications

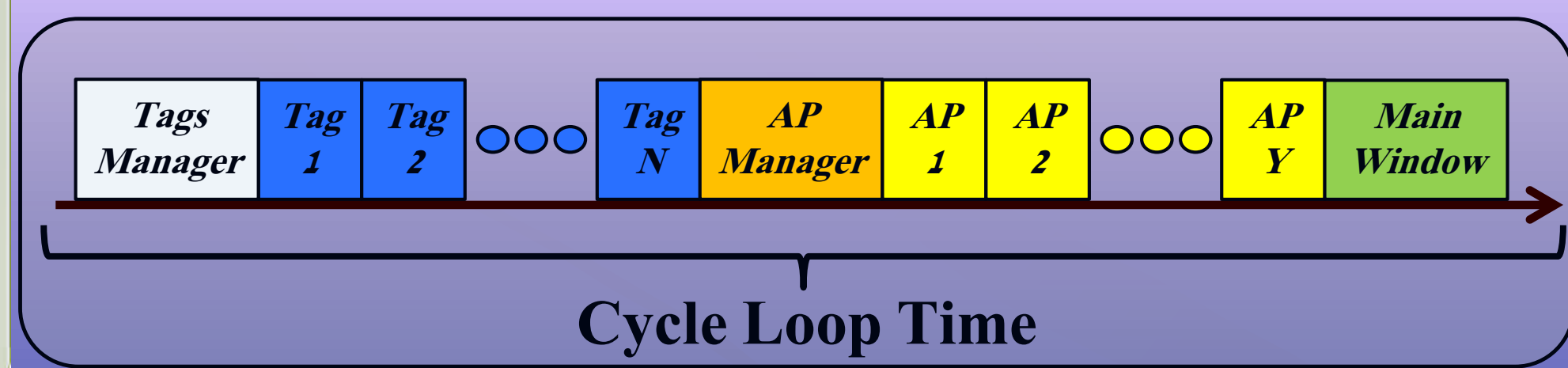
1. Simulates system with up to 20 AP's & 500 tags.
2. Simulates the communication protocol between AP and Engine (example below).
3. Simulates the communication protocol between the tags and the AP.
4. Enables statistical RSSI simulation (Gauss dist.)
5. Real Time constraints - Simulation loop cycle shall not be greater than 1 second.



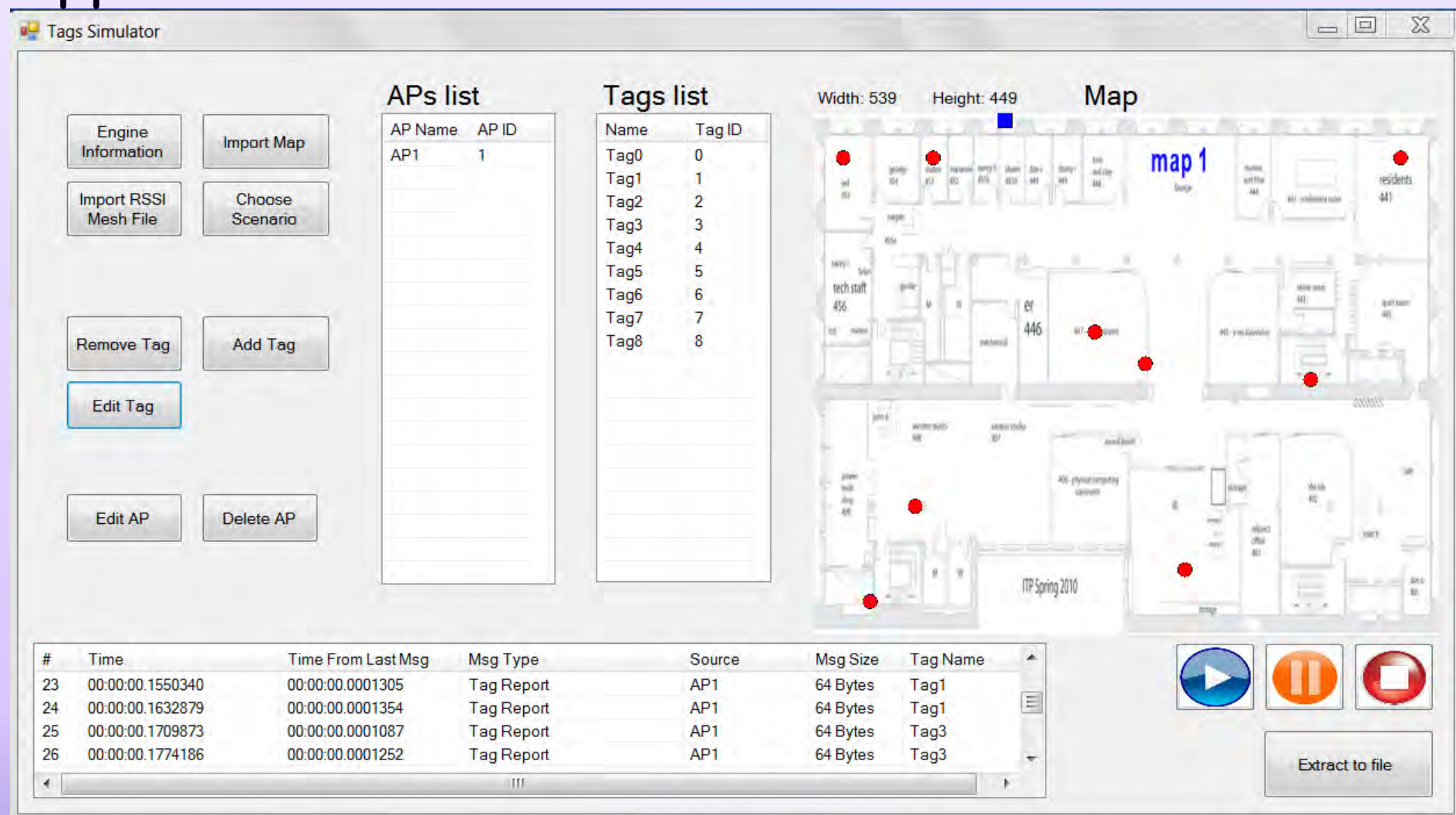
## Engineering Design



- **Main Window** - User Interfaces and controls the simulation components.
- **RSSI** - Reads the RSSI Mesh file, and provides information for the AP's and Tags managers.
- **Tags/AP's Manager** - Control Tags and AP's properties and operational status.
- **Tags** - Simulate the tags messages and behavior.
- **AP's** - Simulate the AP's messages and behavior.
- **Scheduler** - Manages the system work during simulation mode.

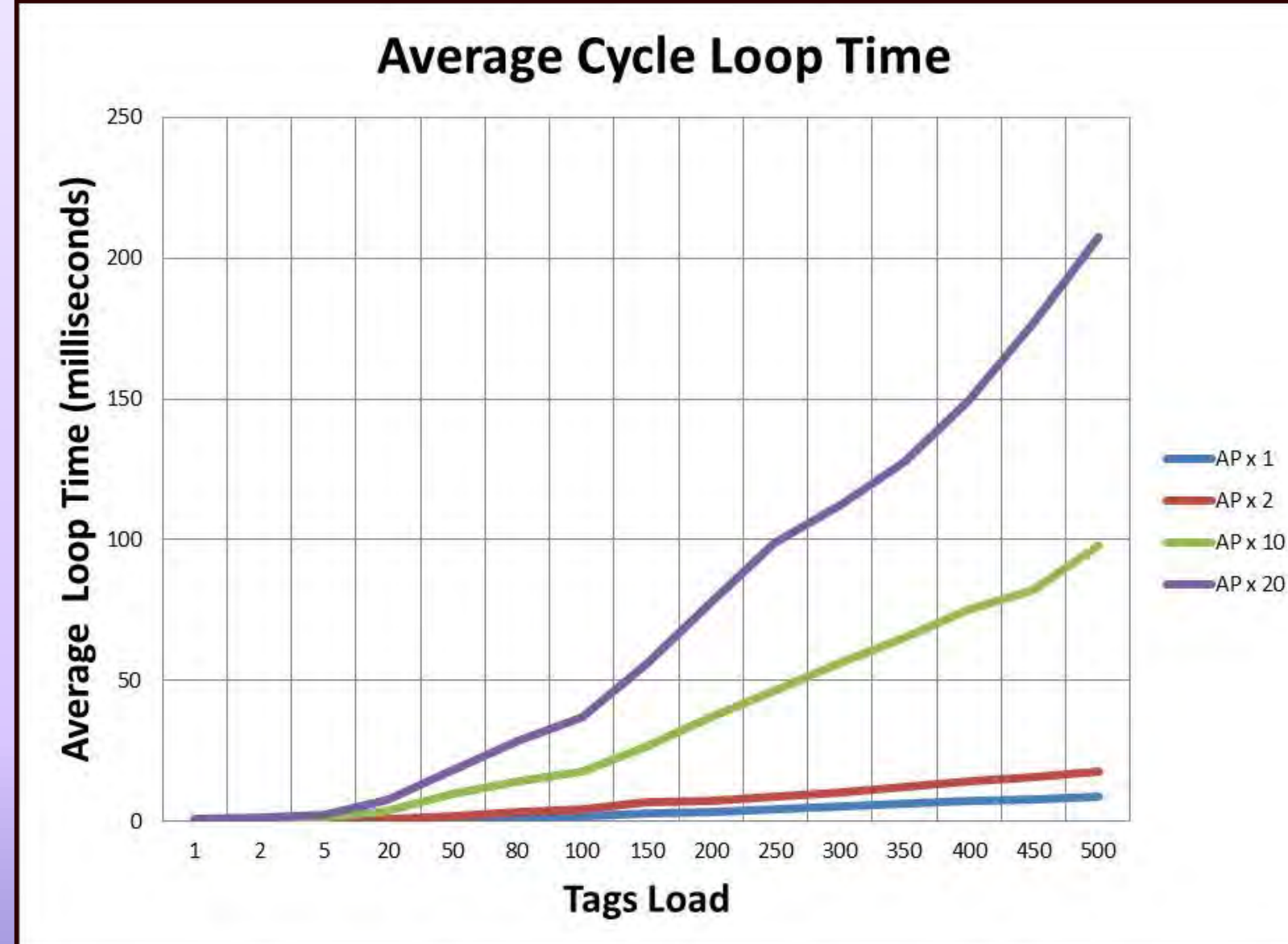


## Application User interface:



1. System satisfies the required maximal load.
2. Tags and AP's are displayed over map presentation.
3. Displays the Communication messages sent/received in the UI to enable comfortable debugging.

## Results:



1. Without tags movement, the system satisfies the "Real Time" requirements.
2. Still need to be tested with full capabilities.

## Achievements