**Aerial-Imagery (Crop-Health Surveillance)**

**Drones**

* Drone
  + Has weatherproofed Box
  + Self charges & Processes all data it collect
  + During flight
    - Fully Autonomous Drone lift off By AI to plot & conduct the run
  + Mission can be scheduled or launched on demand
  + Inspects crop health & gather crop stress data

Firm Real Time system

* Real-time system for Drone

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| Inputs | System | Outputs |
| Area(Start-end)  Hight  time  Sensors ( | Fly Drone |  |
| Camera | Capture Photo | Data |
| mission |  |  |
| Data | Analysis(Farmer) |  |
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| System | classes |
| Drone | -Navigation  -Recording  -mission  -Transmission  -Analysis  -Charging Sys |
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|  | Methods | |  |
| navigation | | -landing  -takeoff  -fly  -Geo location |  |
| Recording | | -Capture & Store |  |
| mission | | -scheduled  -on Demand |  |
| Transmission | | -Storage Data  -Send Data |  |
| Analysis | | - receive data  - Analysis  -Result |  |
| Charging Sys | | -battery condition  -Charge |  |

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| hardware |
| -motor |
| -camera |
| Sensors(Speed and Distance Sensors-Infrared and Thermal sensors-Image sensors-Lidar-weather Sensors) |
| Solar panels |
| Storage system |
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1. block diagram of the proposed system, consider any architectural concepts/patterns
2. Activity Diagram(s) for the main functions of the proposed system
3. a use case diagram (using the COMET UML profile and constraints).
4. Stimuli/response identification: this involves identifying the stimuli that the system must process and the associated response(s) for each stimulus.
5. an initial class diagram (consider object/class structuring).
6. w interaction diagrams, for the functions presented in the use-case diagram, using the classes determined in the initial class diagram
7. state-machine diagrams (for any state dependent objects)
8. fnalize the class diagram using the details/insights from both the interaction & the statemachine diagrams (and consider any design patterns).