**ME Advisor meeting 14Oct11 3pm-4pm**

**Dr. Kumar**

**FCAAP FSU Main Campus**

**-Status of Project**

\*Decided on fixed wing: More flight time

     \*Next Up: Design Process

          ~Conceptual Design

          ~Interim Design

          ~Final Design

     \*No prior experience with aircraft design

**-Design Methodologies**

\*#1 Design based on estimation

          ~power plat based: built around power plant

          ~payload weight based design

     \*Best design method based on propulsion system

          ~Design aircraft around required propulsion system

**-Building aircraft**

\*Design testing of aircraft

     \*Using literature to design aircraft

     \*No aircraft design experience/instruction

     \*Design involves variety of factors

     \*Time limit on aircraft design

**-Build aircraft based on existing design**

\*Foils

     \*Design literature

     \*Base on existing aircraft, make modifications to fit mission requirements

     \*DO NOT CHANGE FLIGHT CHARACTERISTICS

     \*Add necessary components

     \*Brief study of aerodynamics

     \* Top priority: Make aircraft mission ready

**-Avionics**

\*Arduo board vs. paparazzi

     \*Autopilot Software board: Leaning towards paparazzi

     \*Autopilot GUI

     \*GPS/servo comparability

**-Image Recognition**

\*Camera mounting: turret & Gimble system

     \*MATLAB for IR

     \*Target identification

     \*See target ==> Identify Target ==> Gather intel

     \*Area search altitude

     \*Target tracking for camera

**-Ground location communication**

\*In search area

     \*Wireless router communication

     \*Given location

**-Propulsion**

     \*Battery vs. Gas

     \*Gas better for time

     \*But battery is better/recommended

     \*Utilize hybrid tech

-**Electromagnetic Interference issues**

\*issue if communications above 40kHZ

     \*Make sure wire sheathing, no loose solders, good grounding

**-Focus on competition is secondary to mission readiness**

\*Main focus should be successful build of mission reday aircraft

     \*Add novel features afterwards

     \*1st mission: Get aircraft to fly

     \*2nd mission: Get aircraft to fly by its self

     \*3rd mission: Take a picture from the aircraft

**-Training aircraft**

\*Flying model

     \*Ideas drawn from  model for our design

     \*ECE stuff testing platform

**-Testing Ideas**

\*Camera testing with fake targets

     \*Component weights

     \*Model aircraft vs. real aircraft (scaling issues)

**-Parts**

\*Order stuff next week

\*Paparazzi

**-Aircraft Design Selection**

\*What is payload weight

\*Determine appropriate powerplant

     \*Determine lift needed

     \*Find appropriate wing

     \*Find existing similar configuration

     \*"Smaller planes are built in a different way"

     \*Thrust requirements for a smaller plane are large