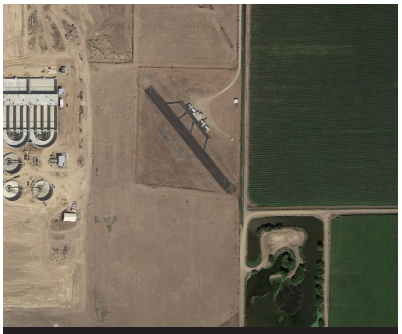
Drone Day Demo
Consumnes River Preserve

4225 N. Hospital Rd, Atwater, CA 95301
http://mechatronics.ucmerced.edu

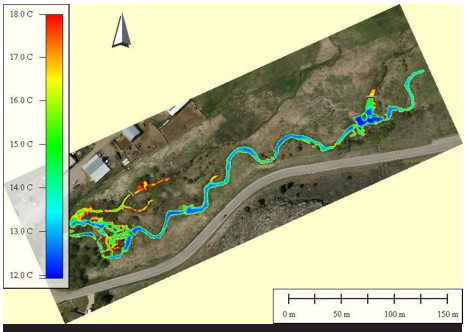
Mechatronics, Embedded Systems and Automation (MESA) Lab

Demonstration

- Bixler (fixed-wing) R/C flight with live telemetry link
- Y6 (multi-rotor) R/C flight with live telemetry link
- Flights will be conducted via manual R/C; however, for live demonstration of autonomous flights at UC Merced FAA COA site please contact: YangQuan Chen (ychen53@ucmerced.edu) or Brendan Smith (bsmith24@ucmerced.edu)



UC Merced FAA COA site 37-16-34.22N / 120-37-38.94W (courtesy of Google Maps)



Thermal Mapping of Curtis Creek, UT

UC Merced UAVs and FAA COA sites

- AggieAir Minion—fixed-wing
- AquaCopter—multi-rotor
- Y6—multi-rotor
- Chuck Winters Field, Merced RC Club—Atwater, CA
- Merced Vernal Pools & Grassland Reserve—Merced, CA (pending)
- Gallo Vineyards—Livingston, CA (pending)

Projects of Interest to the SJV

- **Energy:** Solar Energy Management, Building Efficiency (HVAC and Cognitive Hybrid Lighting), Smart Grid Integration, NG Pipeline Surveillance
- **Water:** Water/Soil Management, Water Sampling, Soil Sampling
- **Precision Ag/Environment:** Crop Dynamics, Optimal Harvest, Pest Monitoring/Control, Invasive Species Monitoring, eDNA

AggieAir Minion collecting multi-spectral imagery

MESA Lab AquaCopter on water

MESA Lab Unmanned Aerial Systems (UAS)

- **Fixed-Wing**—Low-Altitude, Short Endurance, Runway Free Remote Sensing Platform
- **Rotary-Wing**—Very Low Altitude VTOL for Targeted High Resolution Remote Sensing and Water Sampling
- **Water-resistant UAV**

MESA Lab Research

Unmanned Aerial Systems and Personal Remote Sensing

Utilizing Small UASs for civilian management, research and agricultural applications

Cyber-Physical Systems

The study of collaborating computational elements controlling real-world environments

Modeling and Control of Renewable Energy Systems

Cognitive lighting optimization, photovoltaic energy creation and plasma gasification of biomass

Applied Fractional Calculus

The application of fractional calculus towards dynamic modeling of complex mechanical systems, signal processing and motion control

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