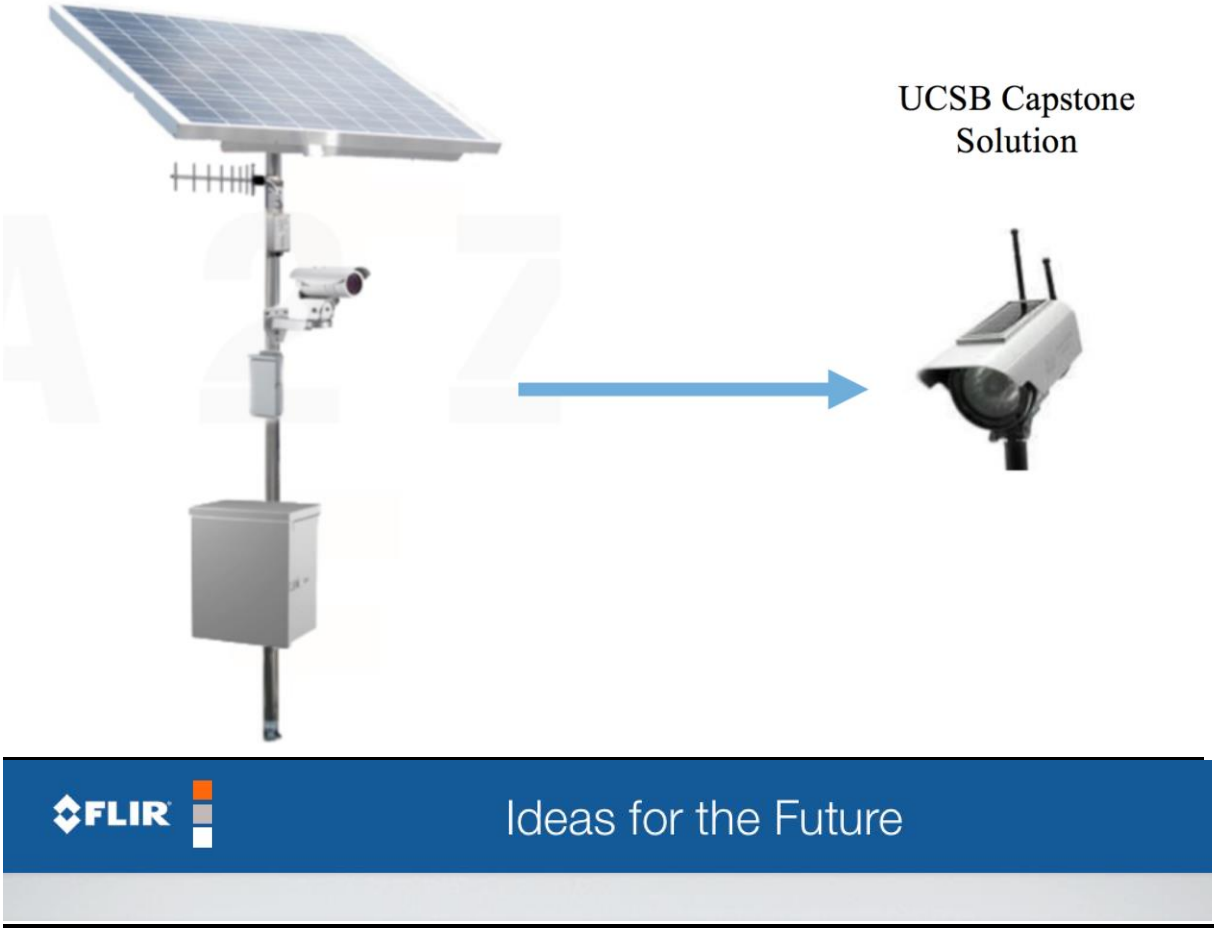
# *Wi-Fi Solar Powered Security camera – FLIR*




This project is in cooperation and partnership under a gift with FLIR Systems located in Goleta. FLIR Project Lead – Marcel Tremblay

This project is intended as a multi-disciplinary project that will include 1 ME team, 1 CE team, and 1 EE team of students. Students must also enroll in ENGR 195 for 1 additional unit of credit each quarter.

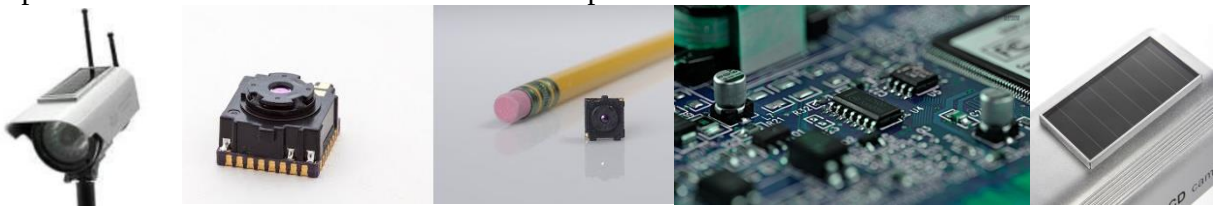
FLIR Systems, Inc. is the global leader in Infrared cameras, night vision and thermal imaging systems. Our products play pivotal roles in a wide range of industrial, commercial and government activities in more than 60 countries. Pioneers in the commercial infrared camera industry, the Company has been supplying thermography and night vision equipment to science, industry, law enforcement and the military for over 30 years. From predictive maintenance, condition monitoring, non-destructive testing, R&D, medical science, temperature measurement and thermal testing to law enforcement, surveillance, security and manufacturing process control, FLIR offers the widest selection of infrared cameras for beginners to pros.

Project Description

Statement of the Problem:
Today, solar powered security camera are big and expensive that defit the purpuse of simple installation. One of the main factor of why everything is big is due to the high power required by the camera.

Solution Concept:

The new Flir Lepton camera now use only 150 mW comparatively to the old TAU camera that use 1 watt. This represents almost a factor 10 less power, which enable new and innovative solar solutions. The project consists of designing a Wi-Fi solar powered IR security camera using a Flir Lepton camera with latest state of the art solar panel.



The mechanical project consists of incorporating a Flir Lepton camera, a circuit board, a rechargeable lithium battery and a solar panel into a water resistant enclosure that will look professional. The design will need to take high volume manufacturing under consideration. Industrial design look and feel is important. Thermal analysis will need to be performed in order to properly manage the thermal source inside the enclosure.

The electrical project consists in designing an energy efficient circuit that supports a microprocessor, a Wi-Fi transmitting module and a solar powered battery management system. A driver must be done for the ECU board to send the video from the camera to the Wi-Fi unit in the proper format. Create software code to interact with our camera SDK to select different color pallet output using the Wi-Fi communication. The system must be design with low cost and high volume production in mind.

Student Requirements: Team participants will be required to;

- Sign non-disclosure forms with FLIR to limit outside disclosure of certain proprietary information relating to supplied thermal cameras
- Sign agreements that provide FLIR with access to any intellectual property developed during the project

Ideal Student Qualifications:

- Mechanical engineering with emphasis on thermal analysis and consumer product design
- Electrical/Computer engineering with emphasis on embedded processing, sensor interface, Wi-Fi, power management, solar cells/inverters, and circuit board design.
- Algorithm development with emphasis on video systems.
- Embedded software.

Assets Provided by the Company:

- Flir thermal camera
- Access to mechanical, electrical, and systems engineering expertise as required
- Access, on as available basis, to environmental test facilities at FLIR

Company Web Site**:** www.FLIR.com