

# Design, Build, Attack

Expanding Competition-Based Learning to High School



Ben Janis, Eli Cochran

December 5, 2022

**MITRE**

SOLVING PROBLEMS  
FOR A SAFER WORLD™

# About Us



Ben Janis  
Sr. Embedded Security Engineer  
MITRE



Eli Cochran  
Cybersecurity Instructor  
Delaware Area Career Center

# Capture the Flag

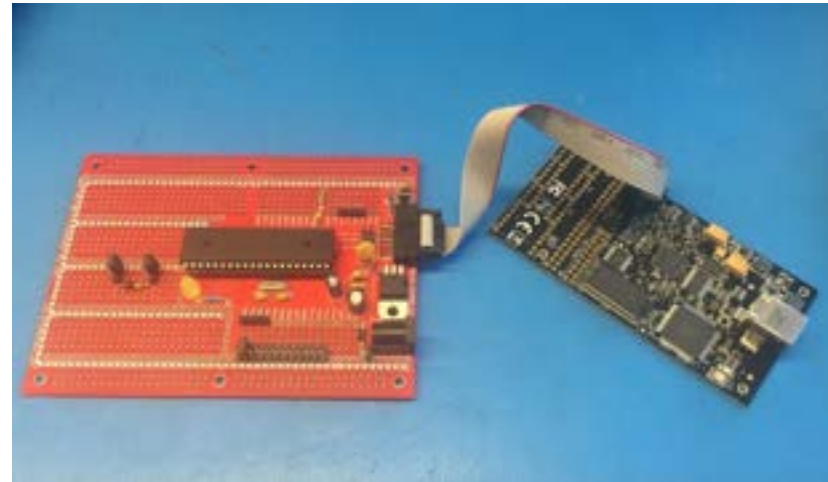
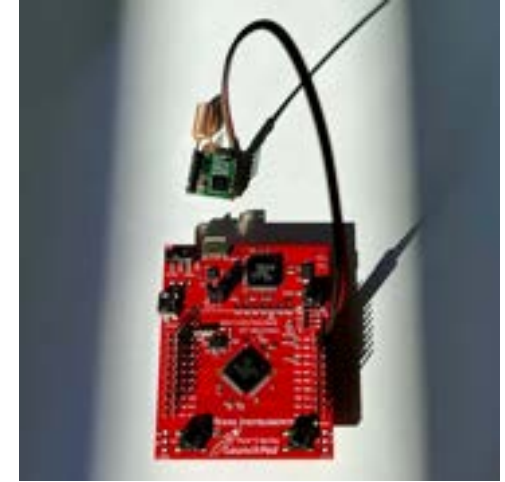


*Cybersecurity Club @ Florida State University*

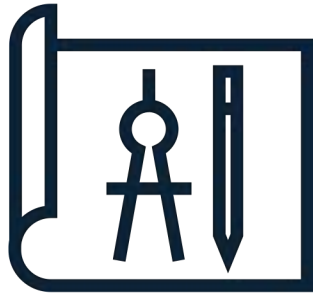
*Photo: <http://cybersecurity.cci.fsu.edu/>*

# What Makes the eCTF Different?

# Embedded Systems



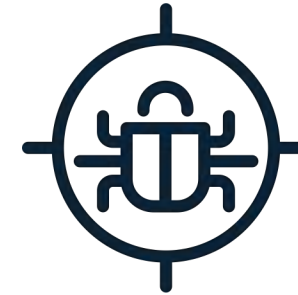
# Design, Build, Attack



**Design Phase**



**Handoff**



**Attack Phase**

# Extended Time



# Real-World Scenarios



Smart Door Lock



ATM Machine



Self-Driving Car



Drone Delivery



Video Game Player



Avionics



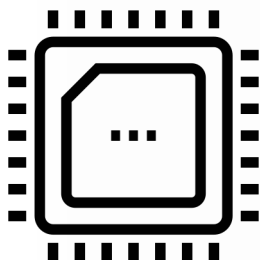
# What Students are Given



Functional Requirements



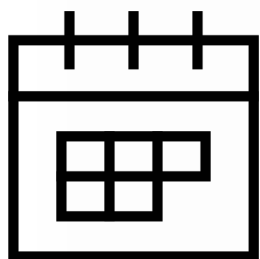
Security Requirements



Hardware

# FREE

Example Software



Deadlines



Organizer Support

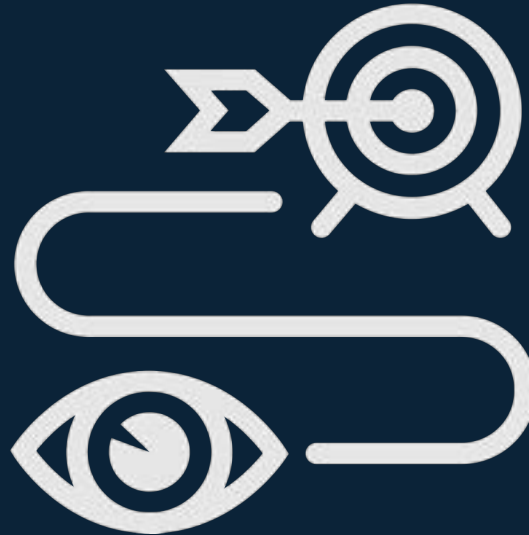
# My eCTF Story

# Why Does the eCTF Work?

# Open-Ended Challenge



**Promotes Creativity**



**No Right Answers**



**Deep Technical Depth**

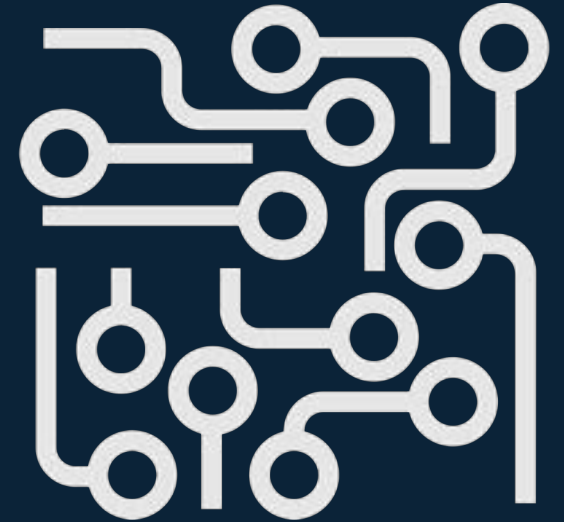
# Realistic Attacks



**Real Scenarios**



**Real Designs**

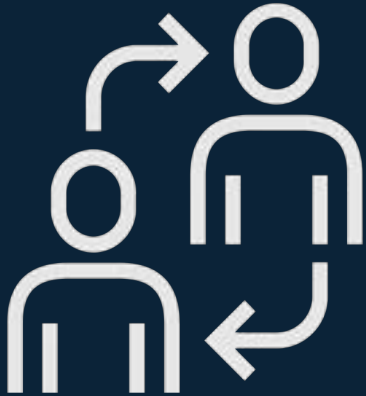


**Real Complexity**

# Social Connections



**Mentorship**



**Collaboration**



**Competition**

# DACC's eCTF Story

See [https://youtu.be/Zck-9\\_1LfHo](https://youtu.be/Zck-9_1LfHo) for Eli Cochran's video presentation

^ Note the underscore \_



# Getting Involved

As a participant



As a collaborator



As an industry Partner



# Thank You!

[ectf.mitre.org](https://ectf.mitre.org) • [ectf@mitre.org](mailto:ectf@mitre.org)