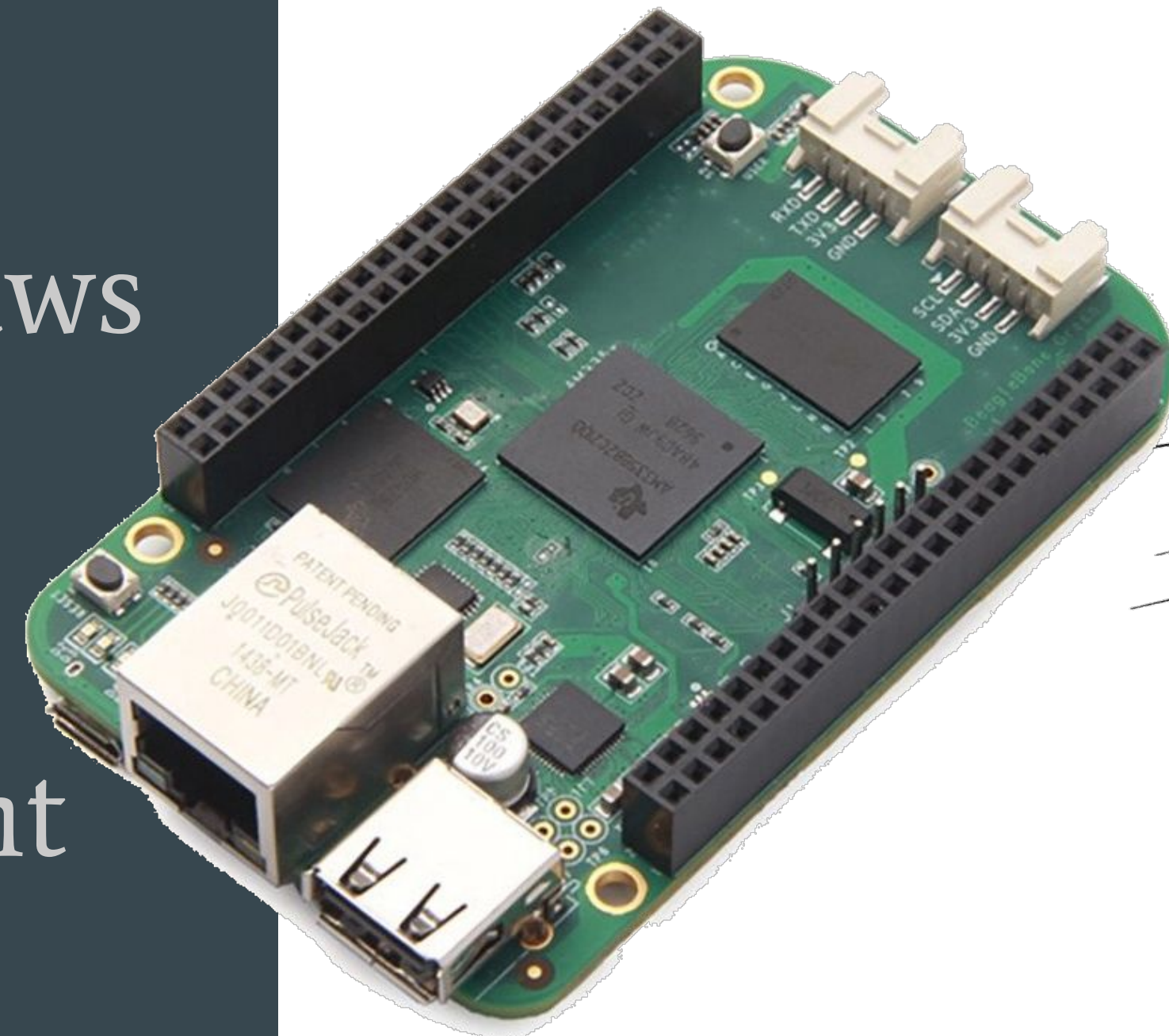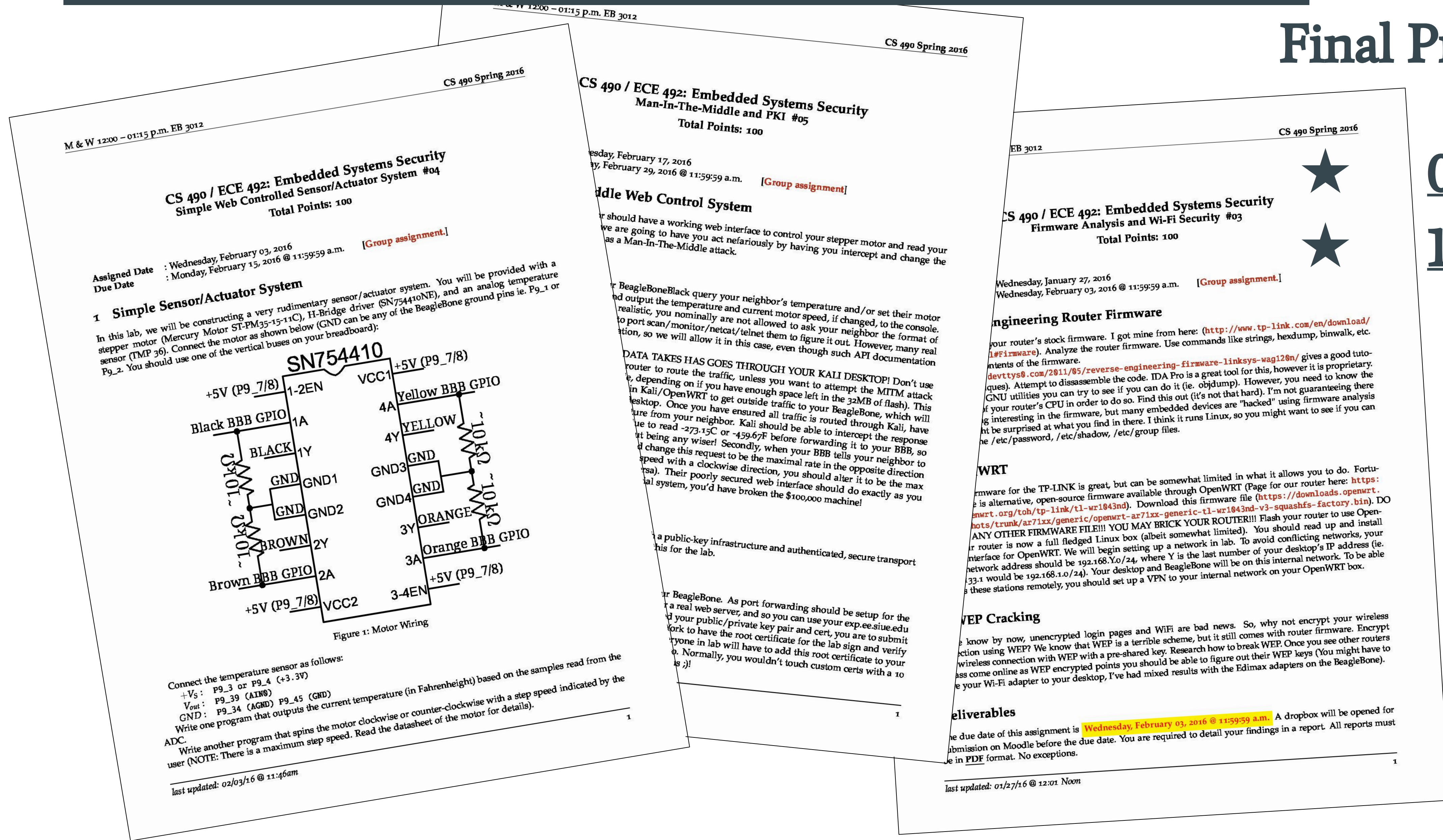# An Interdisciplinary Hands-on Approach to Cybersecurity

Thoshitha Gamage (CS) and Tim York (ECE)

Hacking IOT

- ★ Experiential Learning
  - ○ Learn to break ➡ Learn the fix
  - ○ **"Very hands-on"**
- ★ Direct exposure to fundamental design flaws
- ★ Student lead discoveries
  - ○ <u>Supplementary</u> lecturing
  - ○ A safe experimentation environment
- ★ Cyber-Physical Security (CS+ECE)

INTERNET OF THINGS

detection spyware internet infected international virus trojan phishing hacker infection cyber firewall spam malware intruder hackers networks service target hacking

Final Product

08 Instructor created hands-on experiments

11 Student proposed real-world hacks on off-the-shelf devices

- ○ Highlights:
  - ■ Home security camera hack (spying)
  - ■ Smart Lock Exploit (unlocking without user permission)
  - ■ Remote Chromecast hijack (interrupt normal broadcast)
  - ■ Smart Bulb Exploit (change unauthorized color changes)
  - ■ Proximity-based Authentication

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