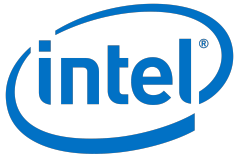
YELLOW CIRCLE

CYBER SECURITY BOOT CAMP

# Introduction to IoT / Student Projects

Session 7




# Introductions

## Instructors

- Name
- Job / Company
- Industry Experience
- Something interesting

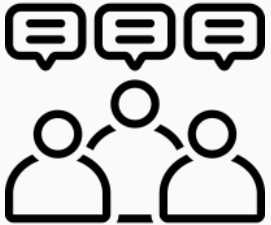
## Volunteers

- Name
- Job / School
- Something interesting

# Session Overview

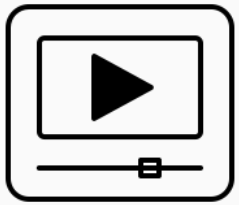
## Student Projects

- Almost 9 hours of training so far
- Identity, Authentication, Encryption
- Physical & Network Security
- Social Engineering - fun stuff
- Now we learn how to:
  - IoT and Security
  - Work as a team
  - Present your ideas / projects
  - Secure at home, school, work



## Progressive Insurance Future Son

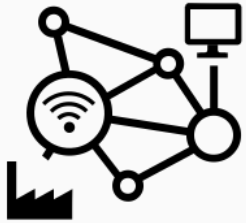
- Where is IoT?
- Lets watch it (review):
  - *https://www.youtube.com/watch?v=NLTKvGgTb10*
  - *Teacher materials: video-7.1*
- Video discussion



# IoT & Security

## What is IoT?

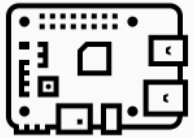
- Internet-of-things
- Everything is connected ...
- ... to everything else
- TV, Fridge, Garage Door, Lights, …, …,
- Security concerns

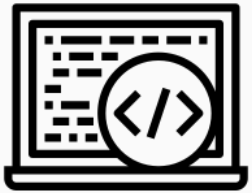


# IoT & Security

## Make your own IoT devices

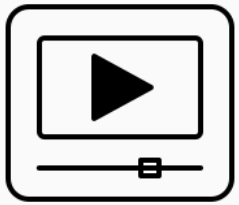
- $40 programmable IoT device - Raspberry Pi
- Discuss some examples of RasPi
- Sensors, inputs, video, outputs
- Programmable using simple JavaScript / Python
- Expandable
- Volunteers can pass around few RasPi devices





## Secret Lives of Hackers

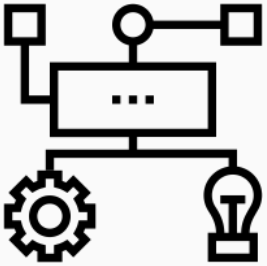
- Very Important - we are not hackers.
- Lets watch it:
  - *https://www.youtube.com/watch?v=DKzi5CYNFAg*
  - *Teacher materials: video-7.2*
- Quick video discussion



# Student Projects

## What is a *"Student Project"*

- The Idea is to learn to work in teams
- Be responsible for your own work
- Integrate your work with others
- Pick a project from list, and research
- Verbal or visual presentation to include:
  - Intro of topic and background
  - What is the problem and the solution?
  - Importance of solving the problem for future



# Student Projects

## Steps to *"Student Project"*

- Get in teams (2-5 students per team)
- Volunteers will pass "Sample Student Projects"
- Team to select their top 3 choices
- Teacher will select 1 from your top 3 choices
- Start working (you will have 15 minutes)
- Then each team will present their project (5 minutes)
- Followed by:
    - Teacher feedback
    - Questions from other students

# Student Activity

## Final Project

- Volunteers will pass worksheet
- Students select your top 3 choices
- Teacher will select 1 from your choices

1. Is Instagram secure?
2. What is Replay Attack?
3. What is a Keylogger?
4. Home Networking and Wi-Fi?
5. What is Blockchain and Bitcoin?
6. What is the difference between Application, service and platform from an architecture and security perspective?
7. What is application signing and digital signature?
8. What is Ethical Hacking?
9. What is a database and how do we secure databases?
10. What is reverse engineering?
11. What is DDoS and how can we stop it?
12. What is ransomware and in what way is it different from computer viruses?
13. What is Injection and cross-site scripting, SQL Injection XSS
14. What are web services and how different they are than websites (JSON and RESTFUL)
15. What is Cloud and how important is Virtualization?
16. What is Sandboxing and what is Honeypot?
17. What is an insider threat? Give examples and statistics?
18. How secure is iOS vs. Android?
19. What is a Firewall and what are the various types of Firewalls?
20. What is secure email? Are Webmail systems used today secure (Gmail, Hotmail, Yahoo mail) and why or why not?

# Student Activity

## Final Project

- 20 minutes total
- Volunteers are available to help
- Give students time warning
  - 10 minutes
  - 5 minutes
  - 2 minutes

# Student Activity

## Student Project Presentations

- 5 minutes for each team
- 2 minutes of teacher feedback
- 2 minutes of questions from students

# Optional - Lab

## PBS NOVA Labs / Cybersecurity

- Students can use laptops to finish lab
- https://www.pbs.org/wgbh/nova/labs/lab/cyber/research#/corp/chooser

# What's next...

## End of session 7

- We did it!
- 10 hours of cyber security training
- Save your raffle tickets
- Snacks, prizes, raffles in Cafeteria
- Music, games, guest speakers, awards