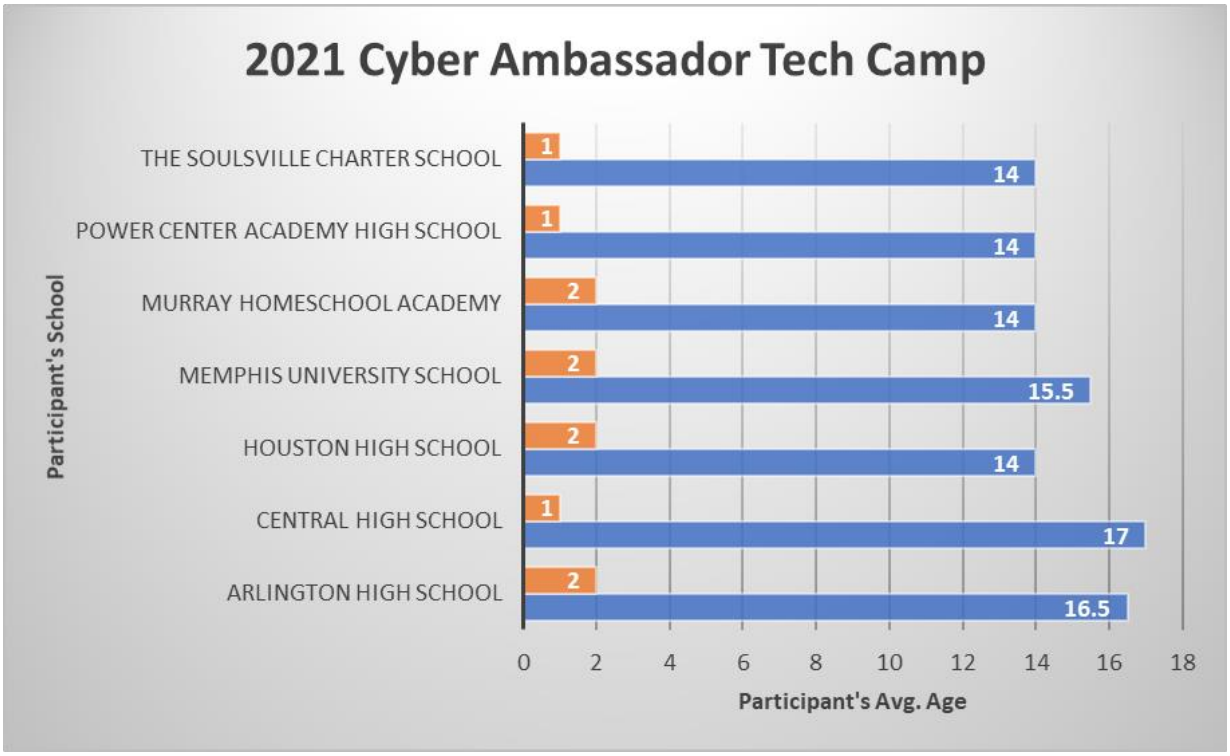
Cyber Ambassadors Tech Camp
Hack. Patch. Code.

2021 Summary Report

The Center for Information Assurance (CfIA) successfully hosted its annual Cyber Ambassadors Tech Camp from June 22-24, 2021. Eleven (11) high school students participated in the virtual workshops this year. They learned about computer science, cybersecurity, and the Internet of Things (IoT).



The 3-day camp was divided into multiple sessions that allowed students to engage in a variety of activities. The camp started with a welcome from the Chair of Computer Science, Dr. Lan Wang, and the Director of the Center for Information Assurance, Dr. Dipankar Dasgupta. Later, the students were also given an overview of the University of Memphis Information Technology Security (ITS) Policy by Dr. Bell.

On day one, camp instruction started with Dr. Won introducing the students to the basics of IoT programming. Using a combination of online lecture and virtual design,

he went over the fundamentals of the C++ programming language and how it would be used with the IoT virtual device. Afterwards, Kriangsiri (Top) Malasri conducted a C programming demonstration in which geometry shapes simulated the appearance of commercial building as an automobile drove by. Thereafter, Dr. Kan Yang used virtual tools from Nova Labs to demonstrate how a brute force attack could find weak passwords, help students identify phishing attacks, and program a robot to locate network security problems. The day ended with review of C++ programming and a quiz using Kahoot.

On day two of the camp, students were introduced to their first design project using the virtual design platform. They were requested to virtually wire-up a component assembly and enter the computer coding necessary to cause the LED Light in the assembly to blink. Afterwards, Dr. James McGinnis engaged the students in a discussion concerning his presentation entitled "Introduction to Cybersecurity and IoT Security Methodology." Day two concluded with Dr. Dipankar Dasgupta giving a presentation on "Cyber Risks in Emerging Technologies and Solutions."

On the last day of the camp, Top Malasri conducted another password cracking presentation. However, this time the students were shown how the brute force attack is conducted on an ASCII-binary code level. A Java code algorithm was used to demonstrate the procedure. Thereafter, Dr. Won introduced the students to a "Temperature Sensor" IoT virtual component assembly and walked them through the coding for the project. He also demonstrated coding for "Random Number Generation." The final project for the camp was an "Interrupt" component assembly and coding. Dr. Aaron Robinson conducted the final cybersecurity presentation for the camp. He gave an engaging presentation entitled, "University of Memphis Impossible Mission Force Cybersecurity Training." Students were introduced to the various types of cybersecurity threats and then encouraged to think like cyber criminals. As such, the participants were encouraged to come up with strategies to complete their cyber impossible mission force engagements. To wrap up the presentation, the participants were requested to brainstorm ideas on how to prevent cyber security threats. Instruction for the camp was concluded with a C++ programming review and Kahoot quiz.

In closing, Dr. Won requested the students to fill out a survey and encouraged students to consider studying computer science at the University of Memphis.