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# ENGAGING HIGH SCHOOL STUDENTS IN STEM IDEATION AND INNOVATION THROUGH SUMMER PROGRAM APP DEVELOPMENT CHALLENGE



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### **Engaging High School Students in STEM Ideation and Innovation through Summer Program App Development Challenge**

#### **Synopsis:**

The Program of Excellence in STEM (PE-STEM) is a 9th-12th grade Summer Program and Academic Year Enrichment Program focused on increasing excitement and enthusiasm for pursuing careers in STEM among underrepresented students. As part of the Summer Program, computer science-focused students participated in a mini-app challenge, designing apps for social good. Students participated in Design Thinking and Ideation, and presented working apps to university community in poster session.

## **Engaging High School Students in STEM Ideation and Innovation through Summer Program App Development Challenge**

### **Abstract**

The Program of Excellence in STEM (PE-STEM) is designed to provide a model for increasing the recruitment, retention and graduation of FAMU's STEM majors, through mentoring, advisement, and professional and research development of participants. The focus of the intervention is on area high school students and entering college freshmen, and seeks to increase participation of students from underrepresented groups to STEM disciplines. PE-STEM uses a 3-tiered approach centered around recruitment, retention and graduation, including a three-week Summer Academy for 9<sup>th</sup> – 12<sup>th</sup> graders, as well as monthly academic workshops. In its 4<sup>th</sup> year of operation, PE-STEM has grown to serve as a national collaborative model between STEM departments by 1) providing a student cohort across STEM disciplines in an effort to maintain a strong learning community, and establishing collaboration between k-12 instructors and faculty from FAMU, to provide the students with extensive resources and advisement their progression toward a STEM degree.

As part of the 2017 Summer Academy, students with an interest in Computer Science as a career were selected to participate in a mobile application (app) development challenge. In this challenge, students were separated into teams of three or four, based on areas of social change that they were interested in. Once formed, teams were introduced to the concept of Design Thinking and Ideation, and were asked to create, design, and implement a solution for a societal problem of their choosing. Students were exposed to all aspects of the Design Thinking Life Cycle – Empathize, Design, Ideate, Prototype, Test and Implement, and used the App Development Studio software AppyPie for development. To demonstrate results of their work, students presented their apps as well as demoed their prototype during a University-wide Research Poster Presentation. The outcome of this work lead to an increased excitement and interest in computer science/information technology as a potential college major and career among all student participants.