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Abstract

This project stems to replicate the actions of the English who in 2013 made a national

change in the curriculum for its student to focus on programming skills to solve the skills gap in

the technology industry. The state of Alabama has had its own standards for computer science

for K-12 grade completed by the state of Alabama in 2009. It served to evaluate the Alabama

Course of Study: Technology Education. With the aid of the International Society for

Technology in Education (ISTE) the groups created the standards for students in 2016. Coincide

a revised version of the Computer Science Teachers Association (CSTA) with the K-12

Computer Science Standards completed in 2017-18. Since the state currently only have standards

defined but no course curriculum. AUCHIL is currently working alongside the Alabama Alliance

for an Inclusive Middle Grades Computer Science Preparation through Makerspaces in the

Alabama Black Belt Region. This alliance is composed of 18 other organization and academic

institutions located across the state of Alabama.

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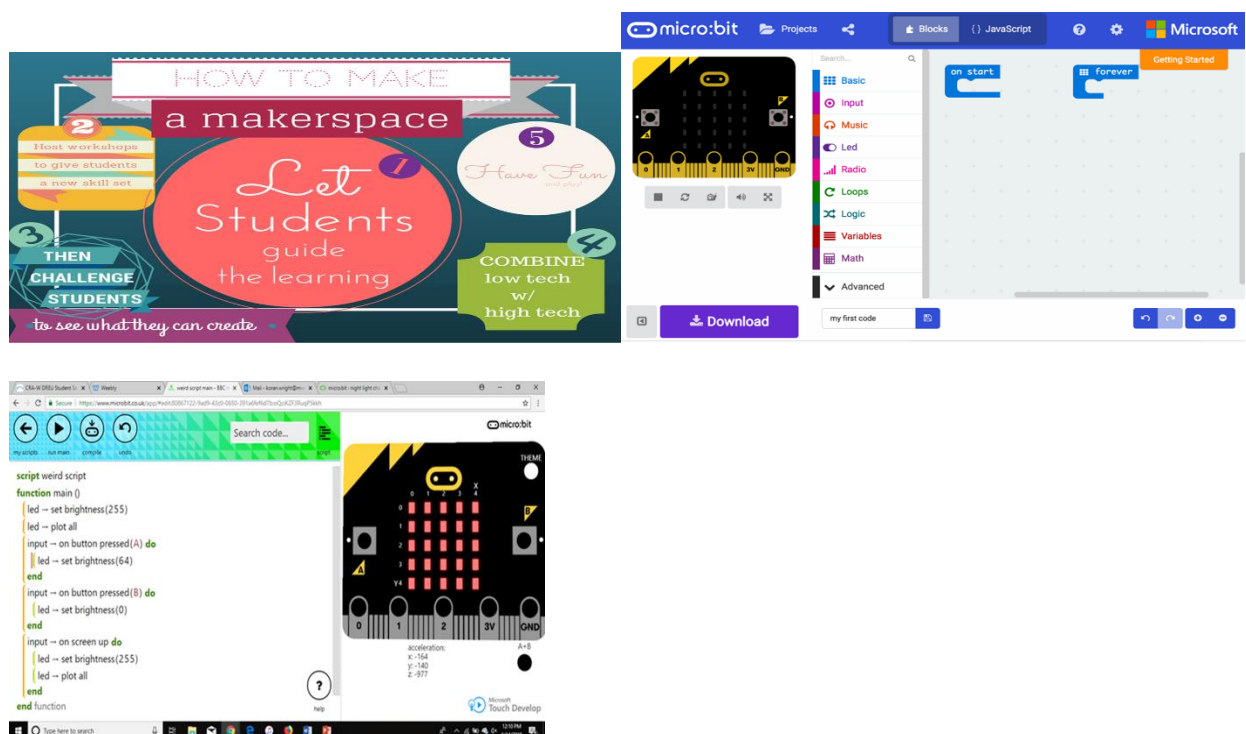
Introduction

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Stem is changing the world. There are over one hundred thousand jobs available in the

computer science field. Less than fifty thousand students graduate in computer science a year. At

this rate more and more computer jobs will be available with not many computer science graduates. Jobs that pay at least eighty thousand dollars a year or more.

Computer Science can also be a major asset to everyday life. Theoretical Computer Science concepts need to be added as requirement for more students.

There was very little AP CS taught in Alabama. To solve this problem, our objective was to create a comprehensive curriculum for the state of Alabama. To achieve this objective, we are creating lessons to support this curriculum, practical teaching examples to educate students on basic programming methodology with the use of Micro bits. The objective is to create a curriculum for the state of Alabama. This will be completed by using practical teaching styles to educate students on basic programming methodology with the use of Micro bits.

Methods

We created based off the Auburn 8th grade curriculum. Lessons include.

- Introduction to Design Thinking

- Introduction to Micro:Bit System

- Introduce algorithms and computation thinking

Strengthen their computer science and technology background for jobs in computer science field.

Students can become:

Computational Thinker

- Algorithms

- Programming and Development

Citizen of a Digital Culture

- Safety, Privacy, and Security

- Impact of Computing

Global Collaborator

- Creative Communications

- Social Interactions

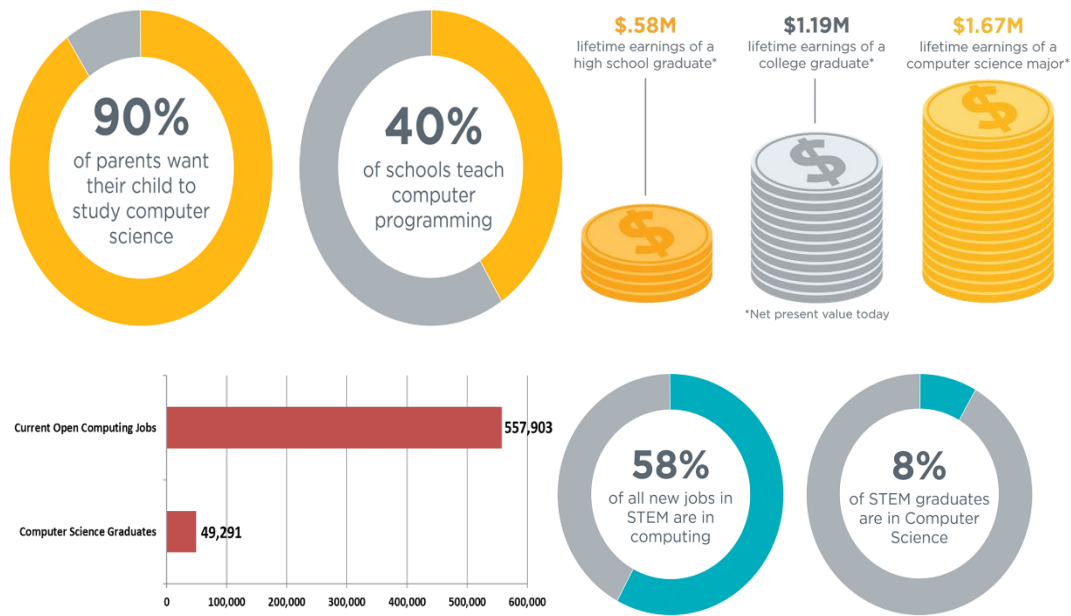**Computing Analyst**

- Modeling and Simulation

Innovative Designer

- Human/Computer Partnerships

- Design Thinking

Implement computer science into the 8th grade curriculum to enhance the knowledge of students.

Also, to fulfill the promising jobs of computer science.

Design & Development (Requirements)

Future Work

Future work is to take a study on if the students are learning computer science, and if the teachers are doing a good job teaching it to the students. Hopefully it improves the number of students enrolling in computer science. Then we could implement this curriculum across the U.S. to help strengthen the numbers in computer science. And help evolve the technology workforce for this growing future in technology.

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