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## Opportunity and Significance

The earth is dying and the future generations are not prepared to repair the damage we have done. In underrepresented neighborhoods, they do not have adequate educational skills to keep up with technological trends. “Detroit is experiencing a resurgence, but these new opportunities are not always accessible to everyone. Ensuring the inclusion of all residents, especially young men and women of color, is essential in our city’s recovery.” -MBKdetroit.org

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## Technical Objectives

AKACHI Org. was created to train youth to build a more sustainable and livable future. Our major three major objectives are to:

1. Improve literacy and mathematical proficiency rates amongst underrepresented youth
2. Encourage students to explore and work towards STEM based careers
3. Create opportunities for students to gain skills and knowledge needed to prepare them for the technological advances of the future

## Related Work and State of Practice

Current learning programs consist of summer camps that end in a few weeks with group or individual projects that students may quickly forget. They usually don’t continue the school year or keep track of academic progress. We are filling in the gap by creating innovation workshops that improve literacy and teach long lasting skills. We will track progress and create tailored modules to help students further progress.

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## Technical Approach, Accomplishments and Results

AKACHI ORG. will conduct training workshops for 12 weeks teaching introductory simulation, design and deterministic optimization software such as Arena, CAD and Minitab related to environmental and real world applications.

The 12 weeks will be broken down into 4 sessions.

### Session 1: The Introduction

This first session will be to introduce the program and gain the trust of the students. We will conduct surveys, academic level testing and hold an open discussion where they will be welcome to voice their pains and opinions.

### Session 2: The Tutoring

We will create tailored tutoring sessions and learning modules through our platform, to help students catch up. These modules will continue even after the program so that students continuously improve and can be accessed on the platform.

### Session 3: The Practice Round

In this workshop we will use the skills and knowledge gained in tutoring as well as teaching them how to use software that will aid in the challenge. We will work completely through a simulation problem and guide them step by step through the problem solving process.

### Session 4: The Challenge

At the end of the training students will be given a problem to solve and present in the form of an innovation challenge, through which students will also learn technical presentation and public speaking skills. They will be expected to use everything they have learned as well as adding their personal innovation to solve the given problem, and winners will be awarded a scholarship.

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## Next Steps for Development and Test

We are furthering our research in environmental changes and trends to provide real-world challenges and content for students. We are creating content that is engaging and learning modules using software such as CAD, Arena, Excel and Minitab. The students will be tested to track progress and retention of material, so we are working on an interactive platform

We plan on running a pilot program for the next few months.

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## Commercialization Plan & Partners

We are currently working with subject matter experts on program content, learning material and progress tracking methods. Upon completion, we will reconnect with representatives from the City of Detroit and launch our pilot program.

We are also working through agreements with the Northwest Activities center, which would serve as the location for our after school program.

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## References

- [http://mbkdetroit.org/](http://mbkdetroit.org/)
- [https://www.resa.net/curriculum/curriculum/science/technology/](https://www.resa.net/curriculum/curriculum/science/technology/)

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