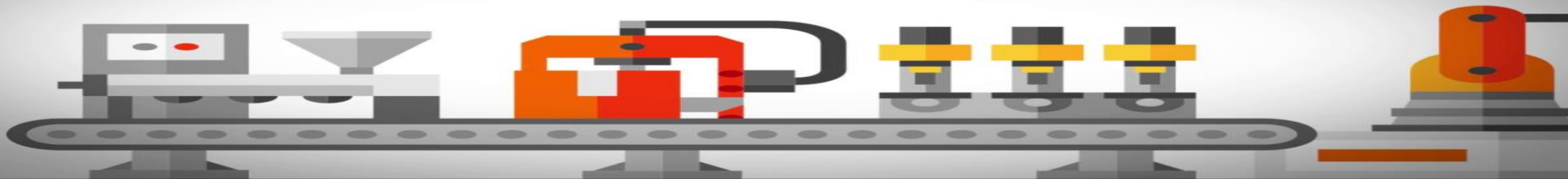


# INTERNATIONAL INNOVATION ARSVOT MALAYSIA (IAM2021)

## INNOVATION COMPETITION “PORTABLE PLC TEACHING KIT”





### Innovation Competition: “Portable PLC Teaching Kit”

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#### *Introduction*

PLCs are microprocessor-based controllers that focus on discrete control of automated processes, which provide the manufacturing industry with the ability to automate production along with many other applications. However, as electrical technology continues to advance, the tools for educating students in PLC design and implementation remain the same.

#### *Problem Statement*

There are many challenges with the tools currently used in PLC instruction, such as: high cost, difficulty in adapting to advancing technology, and deficiency of PLCs designed for teaching and learning.

#### *Objectives*

The purpose of this project is to design, develop, and implement a Programmable Logic Controller (PLC) towards education for electrical engineering students. The main motive for this development is to bridge the gap between education and industry, and address the current inadequacies of the PLC teaching kit. The detailed objectives being that it must be cost effective, be reconfigurable, be easy to use, incorporate industrial standards.

#### *Methods & Framework*

The ADDIE model was selected to develop the portable PLC systematically according to the fixed processes. ADDIE which are analysis, design, development, implementation, and evaluation.

#### *Implications*

- To help develop student interest in learning in PLC programming;
- Helping students practice critical and creative thinking skills;
- Motivate teachers to design and develop PLC learning kits.

#### *Significant*

- PLC portable teaching kit increase student interest and learning outcomes;
- Improve critical and creative thinking skills;
- The PLC portable teaching kit has been approved by the education office.





# OUR TEAM



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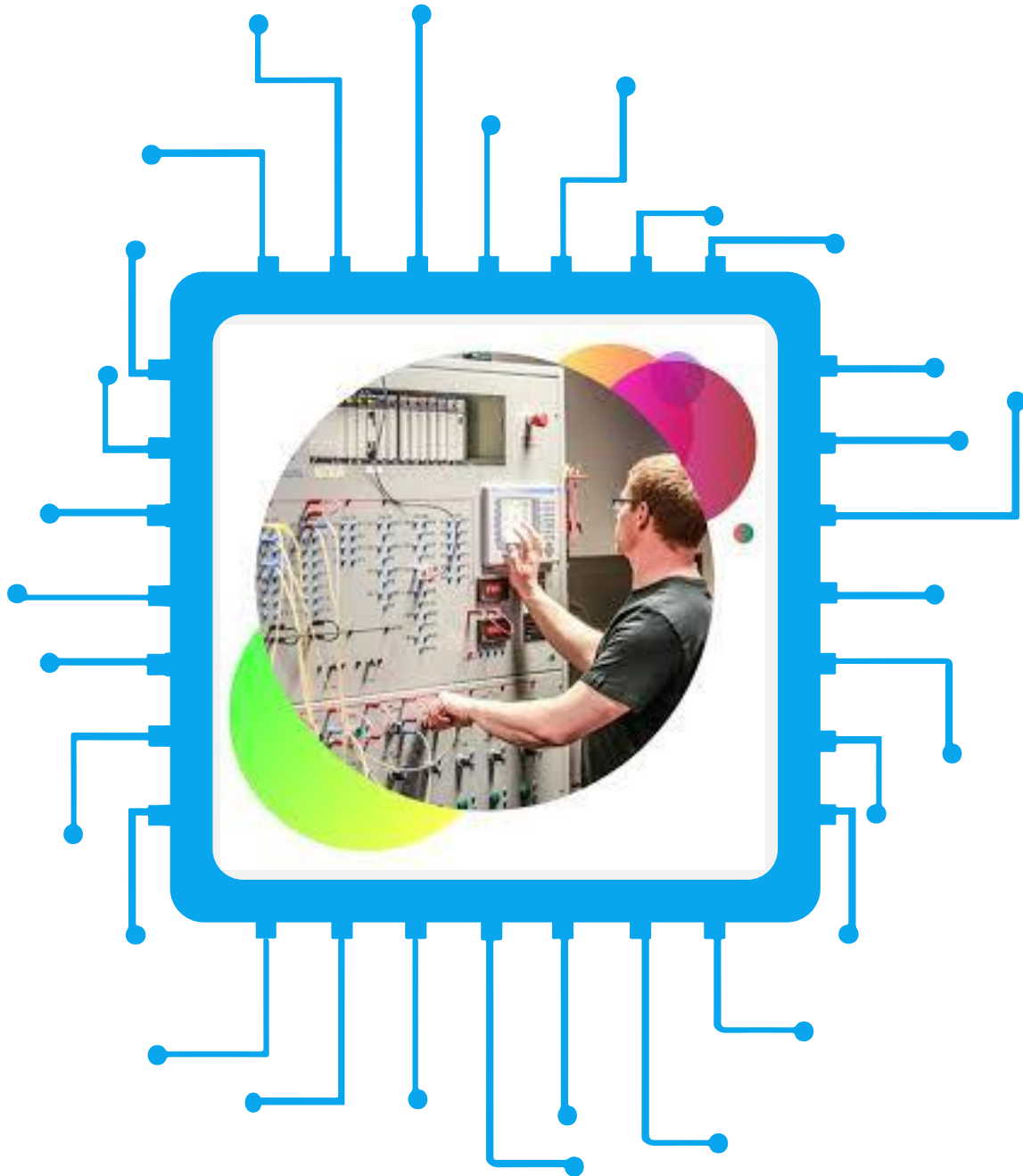


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# Introduction

PLCs are microprocessor-based controllers that focus on discrete control of automated processes, which provide the manufacturing industry with the ability to automate production along with many other applications. However, as electrical technology continues to advance, the tools for educating students in PLC design and implementation remain the same.

# Problem Statement

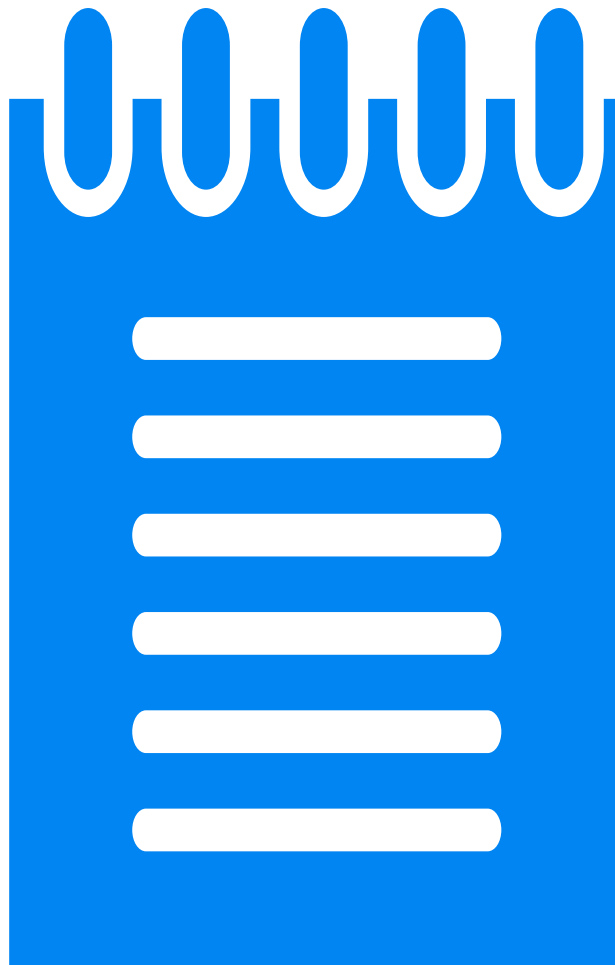
**High Cost**



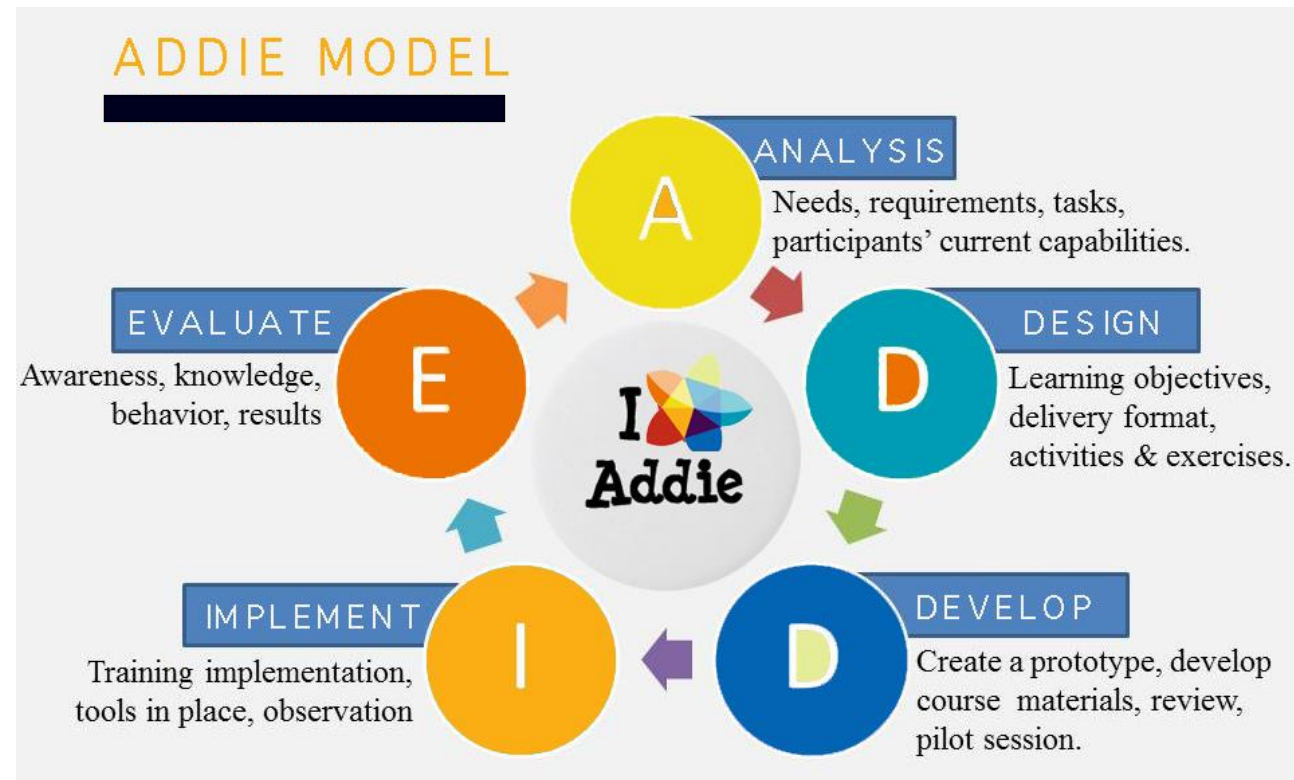
**Deficiency of PLCs designed for teaching and learning**

**Difficulty in adapting to advancing technology**

# Methods & Framework

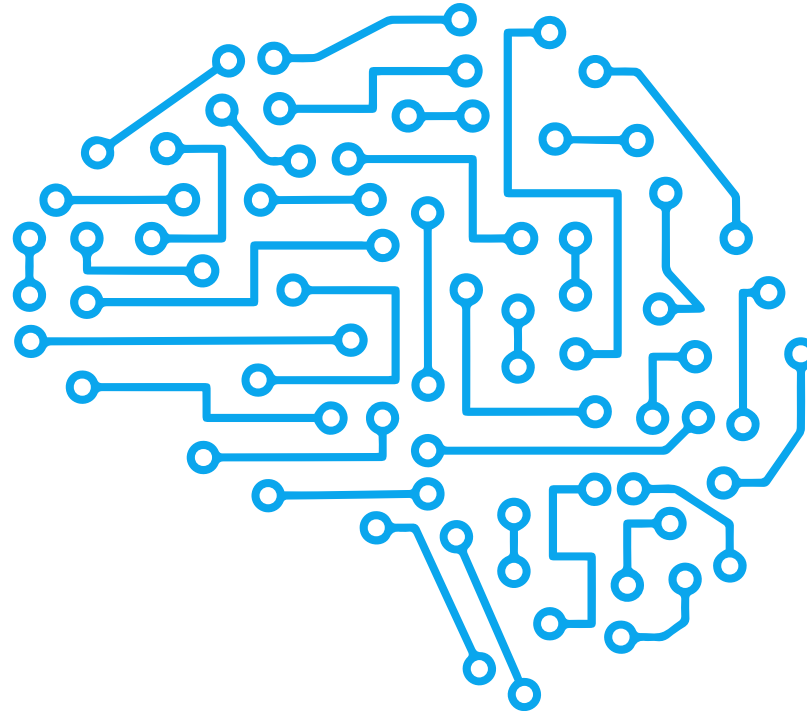


The ADDIE model was selected to develop the portable PLC systematically according to the fixed processes. ADDIE which are analysis, design, development, implementation, and evaluation.



# Results

Student interest and learning outcomes have increased



To provide input to the education office in an effort to improve teaching and learning, especially in the engineering and vocational fields

Teachers are motivated to improve their learning by developing inexpensive and easy-to-use PLC tools

1

2

3

# Implication

To help develop student interest and learning outcomes in PLC programming



Helping practice creative skills  
students critical and thinking skills

Motivate teachers to design and develop PLC learning kit



# Significant

The PLC portable teaching kit has been approved by the education office

Improve critical and creative thinking skills

PLC portable teaching kit increase student interest and learning outcomes

Video

[https://www.youtube.com/watch?v=22dcbR\\_Eyl\\_U&t=2s](https://www.youtube.com/watch?v=22dcbR_Eyl_U&t=2s)





Thank You