Computing With the Laws of Cosmic Energy

Kuilmer S. Hernández Cruz
Universidad Sergio Arboleda
Bogotá, Colombia
kuilmer.hernandez01@usa.edu.co

Juan J. Berrio Español
Universidad Sergio Arboleda
Bogotá, Colombia
juan.berrio01@usa.edu.co

David Hernández Leyton
Universidad Sergio Arboleda
Bogotá, Colombia
david.hernandez01@usa.edu.co

***Abstract*—This paper presents a project based in The Great Discovery of Zyx-9: The Laws of Cosmic Energy, aimed at calculating the missing parameter among Crystal Potential, Energy Flux or Cosmic Resistance based on their fundamental formula. Implemented in both Python and C++, the proposed approach employs modular functions and conditional structures to ensure flexibility and ease of deployment on local machines. This solution represents the potential of programming techniques to solve problems.**

Index Terms—electricity, laws, Python, C++, problem, solve.

I. INTRODUCTION

The fundamental principles of cosmic energy were discovered on the planet Nexus Prime by the scientist Zyx-9 of the Voltarians. This revolutionary finding not only transformed Voltarians technology but also laid the foundations for their advanced space civilization. Inspired by this discovery, this project focuses on the three key quantities defined by the cosmic energy laws-Crystal Potential (measured in Luminita Units), Energy Flux (measured in Nexus Currents), and Cosmic Resistance (measured in Zyx Barriers). The objective of this work is to compute the missing parameter (indicated by a value of -1) using the fundamental equations that relate these quantities. The solution is implemented in Python and C++.

II. PROBLEM ANALYSIS

A. Problem Description

The problem gives us 3 magnitudes: Crystal potential (V), energetic flux (I) and cosmic resistance (R) and then define the relation between them. Secondly the inputs are declared, in this case, the input is: “3 numbers that represent V, I and R the value -1 indicate the magnitude that will be calculated.” This could be represented as 3 variables (the magnitudes) and one condition. Furthermore, the output was declared as: “The unknown magnitude, the calculated value of the unknown magnitude with two decimal places of precision”. Nevertheless, in the example it show us the symbols of each magnitude potential(V), flux (A), resistance(*Ω).*

B. Functional and Non-Functional Requirements

Functional requirements:

- There are three numeric values (*V, I, R*) in which one of them will be -1.
- Process: Identify the unknown magnitude (the one with -1) Apply the correct equation (if).
- Outputs: Show the calculated value with two decimal places Show the value with the conventions (*V, A, Ω*)

Non-Functional requirements:

- Precision: The results will be shown with two decimals exactly.
- Inputs validation: The only unknown magnitude is -1

C. Principal Use Cases

1. Cristal potential calculation:

Input: -1 2 5 (*I*=2, *R*=5)

Process: Calculate *V*

Output: Potential 10.00V.

2. Energetic flux calculation:

Input: 24, -1, 8 (V=24, R=8)

Process: Calculate *I.*

Output: flux 3.00 A

3. Cosmic resistance:

Input:12, 3, -1 (V=12, I=3)

Process: R = V/I

Output: 4.00 Ω

D. Input, Processes and Outputs

Inputs: Three numeric values (V, I, R) in which one of them will be -1.

Process: Identify the unknown magnitude (the one with -1) Then, apply the correct equation.

Outputs: Show the calculated value with two decimal places • Show the value with the conventions (V, A, Ω).

III. JUSTIFICATION OF THE SOLUTION

A. Strategy

To solve the problem of the unknown cosmic energy parameter, the strategy is to divide the problem into three sub-problems, each one corresponding to the calculation of one variable when its value is missing. The relationships between the three quantities are governed by the following fundamental equations:

1. Crystal Potential(V):

When the Crystal Potential is unknown, it is computed as:

$$V = I * R\ , \tag{1}$$

2. Energy Flux (I):

If the Energy Flux is missing, the following equation is used:

$$I = \frac{V}{R}\ , \tag{2}$$

3. Cosmic Resistance(R):

In the case that the Cosmic Resistance is unknown, it is calculated by:

$$R = \frac{V}{I}\ , \tag{3}$$

B. Data and Algorithmic

Input: Three numerical values (of type float), where a value of -1 indicates the unknown parameter.

Process:

- Validate the data types and ensure that only one value is set to -1.
- Use a conditional structure to determine which variable is missing.
- Apply the corresponding formula based on the missing value.

Output: The computed unknown parameter is displayed with a precision of two decimal places.

C. Alternative Solutions

Alternative solutions can be possible by approaching the problem through different methods. However, the formulas remain unchanged, so the result will be the same one.

D. Diagram

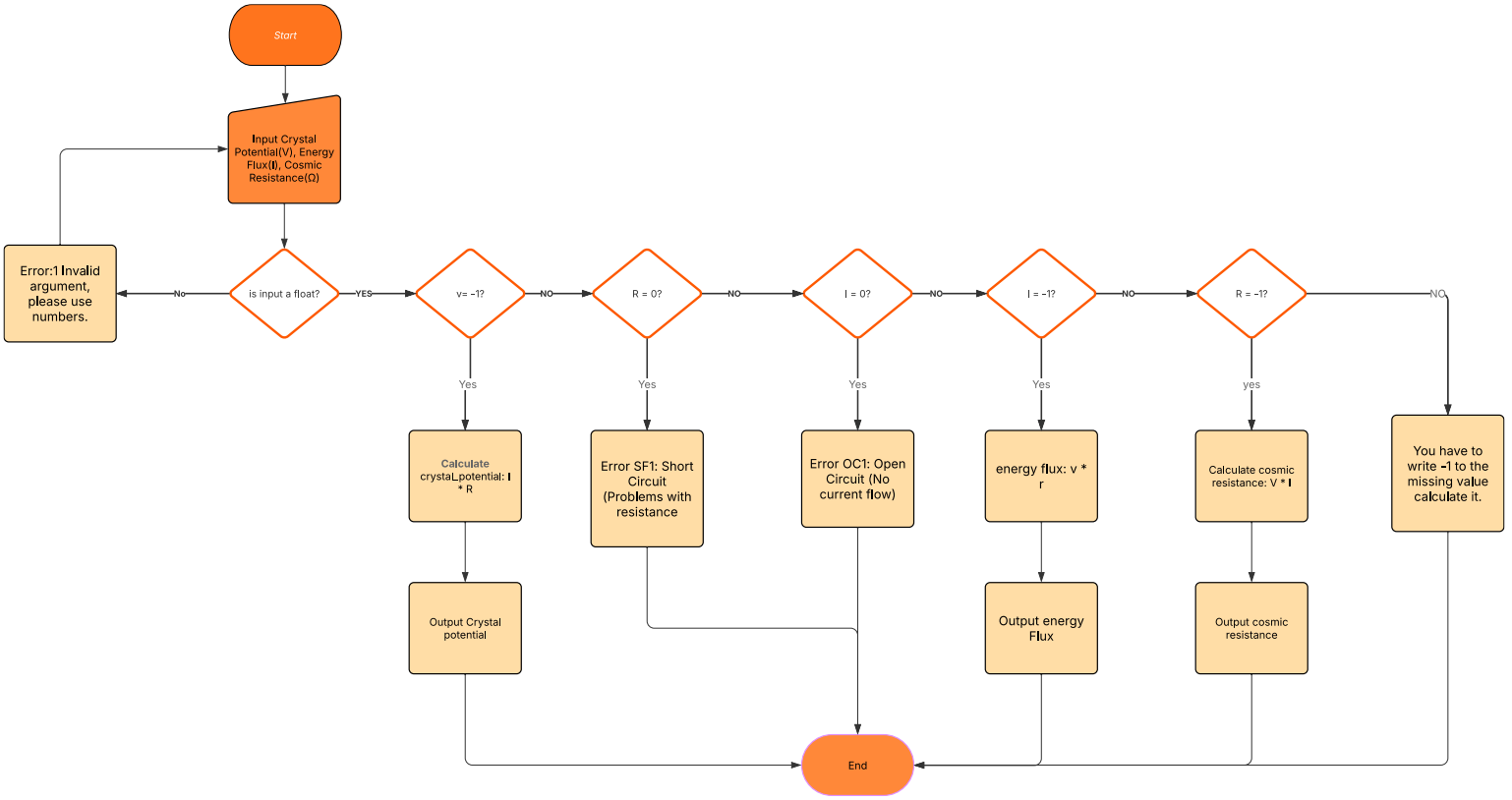

Fig 1. Code Diagram.