

(16) Image / Graphics Shapes to (x, y) converter

Preface

Task title:

Program pentru comanda
unui utilaj cu comanda
numerica

Task description:

- se va scrie un program pentru o masina de taiat cu flama
- programul citeste un fisier care contine traiectoria de taiere (secventa de segmente si arce de cerc) si genereaza comezni pentru deplasarea pe doua directii (x si y) a capului de taiere; deplasarea capului de taiere se va simula pe ecranul calculatorului (Java, C, C++, C# etc.)

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Year of study	3
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Introduction

Context

The goal of this project is to **design and implement an algorithm** that **converts** *an image* or *a set of graphical shapes* **into a set of commands** that can be used by machines which work on 2D planar workspaces such as:

- Milling and Engraving machines
 - PCB prototype makers
- Plasma cutting machines
- 3D printers
- Drawing machines 😊

This algorithm should be written and packed such that **it runs on relevant platforms** without the need of *translating* the algorithm to other languages.

The **output** of the algorithm should be **encoded simple** enough such that it can be *repurposed / transpiled / decoded* easily in order to match the language the user's machine is using. (**ie:** via regex transformations or content interpretation)

Specification

The algorithm will be **simulated** in a *configurable simulation* that accepts similar commands to the output of the algorithm.

Objectives

The objective of this project is to **design and implement an algorithm** that **converts** *high level graphical content* into *simple commands* that draw outlines of the given graphical abstractions.

Because of the given specification, an implementation of a configurable simulator is required.

Bonus objective

Given enough time, implement **a configurable slicing algorithm** for *3D objects* and sequentially pipe them into the main algorithm described above to further demonstrate its usability.

Bibliographic Study

[...]

Analisis

Design

Implementation

Testing and Validation

Conclusions

[...]

Bibliography

[...]