

# FORMATIVE ASSESSMENT 2

Robotic Development

RD412

2024

Ethan van der Walt

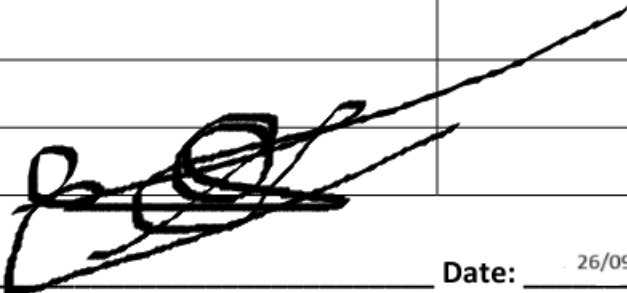
# Authenticity

## DECLARATION OF AUTHENTICITY

I Ethan van der Walt hereby

**(FULL NAME)**  
*declare that the contents of this assignment are entirely my own work with the exception of the following elements: (List the elements of work in this project that were not self-generated as well as who the originator of the element is)*

Element	Originator

Signature:  Date: 26/09/2024

# Table of Contents

## Contents

Authenticity.....	2
Table of Contents.....	3
Question 1.....	4
Question 2.....	5
Question 3.....	7

## Question 1

- 1.1) B
- 1.2) A
- 1.3) C
- 1.4) A
- 1.5) B
- 1.6) C
- 1.7) C
- 1.8) D
- 1.9) A
- 1.10) A
- 1.11) A
- 1.12) B
- 1.13) A
- 1.14) D
- 1.15) D
- 1.16) A
- 1.17) B
- 1.18) D
- 1.19) C
- 1.20) B

## Question 2

### 2.1) LCD – Liquid Crystal Display

The main function of an LCD is to display information or images by altering light through liquid crystals.

### 2.2) PWM – Pulse-width Modulation

Pulse-width Modulation is regularly used to generate control signals for servos. It allows precise control over their position by means of varying the width of the pulses and controls the average power delivered to an electrical load.

### 2.3) MHz – Megahertz

The main function of Megahertz is to measure the number of cycles per second of an electrical signal – frequency. For context, one million cycles per second equals to one megahertz.

### 2.4) RFU – Relative Fluorescence Units

RFU's main function is to measure the power of fluorescence in various analytical methods, like DNA analysis and electrophoresis. It is a value that indicates the amount of fluorescent signal detected.

### 2.5) LED – Light-Emitting Diode

An LED's main function is to emit light when electrical currents pass through it. They are semi-conductor devices that produce light when electrons recombine with holes within the device, releasing the energy in the form of photons.

### 2.6) VIN – Voltage Input

The main function here is to provide power to a circuit or device. It is used to supply the input voltage in many electronic systems.

### 2.7) ICS – Integrated Circuit Systems

The main function of ICS is to design and manufacture integrated circuits which are crucial components in modern electronic devices.

### 2.8) GND – Ground

Ground's main function is to serve as a common reference point for voltage levels in electrical circuits. It helps stabilize the circuit by maintaining a consistent voltage level and provides a return path for electrical current.

### 2.9) STBY – Standby

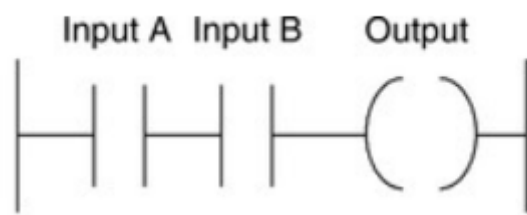
The main function of this pin is to enable or disable the operation of certain components in a circuit, for example H-bridges used in motor drivers.

### 2.10) VM – Virtual Machine

The main function of a VM is to create a virtualized computer environment that emulates that of a physical computer.

### Question 3

3.a)



3.b)

