**Group 4 - 20**

**Waterloo Engineering Expeller of Dominoes**

**Shape

Description automatically generated with medium confidence**

**Department of Mechanical and Mechatronics Engineering**

**MTE 100 / MTE 121**

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**Date: Friday, November 25th, 2022**

# 1: Tasks

## How the robot starts up:

* Waits for the mode to be chosen.
* Waits for a moment and then starts.

## How it operates:

* It follows a line or a path from an external software based on the mode chosen.
* It drops the dominoes reliably and evenly spaced.
* The dominoes fall together in a pattern when one is knocked.
* If an object is detected by the ultrasonic sensor, the robot stops and plays a sound to let the group know there is something in the way.

## Shutdown procedure:

* If the touch sensor is pressed, the robot waits, reverses onto the dominoes, knocks them down, and then shuts the program off.
* If the robot runs out of dominoes, it stops and waits 10 seconds, then shuts the program off.

# Criteria and constraints

## 2.2 Criteria

* The dominoes are placed correctly.
* The robot follows the line and/or the path.
* It responds accordingly to the button press or to the ultrasonic signal.

## 2.3 Constraints

* The number of dominoes (29 maximum).
* The time (5 minutes maximum to complete the path or the line).