Leveled Logic

Software Engineering COMP 4110
University of Massachusetts Lowell
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Team members:

Project Lead: Nate Wright

Art / Game Designer: Jonathan Kang

Game Developer: Connor Klein

Game Designer: Eric Ta, Gabe Shahrouzi

Instructor: Dr. James Daly

Project Overview

Leveled Logic is an educational logic design simulation game

Motivation for project

- Teach kids about logic gates
- Facilitate logic design in convenient and easy to access manner for middle school students
- Motivate middle schoolers to be interested in Computers and Logic Design

Overview of Features

- Logic gates and wires to build simple circuits and experiment.
- Tutorials to walk through building more complex gates
- Levels to challenge knowledge and build complex circuits

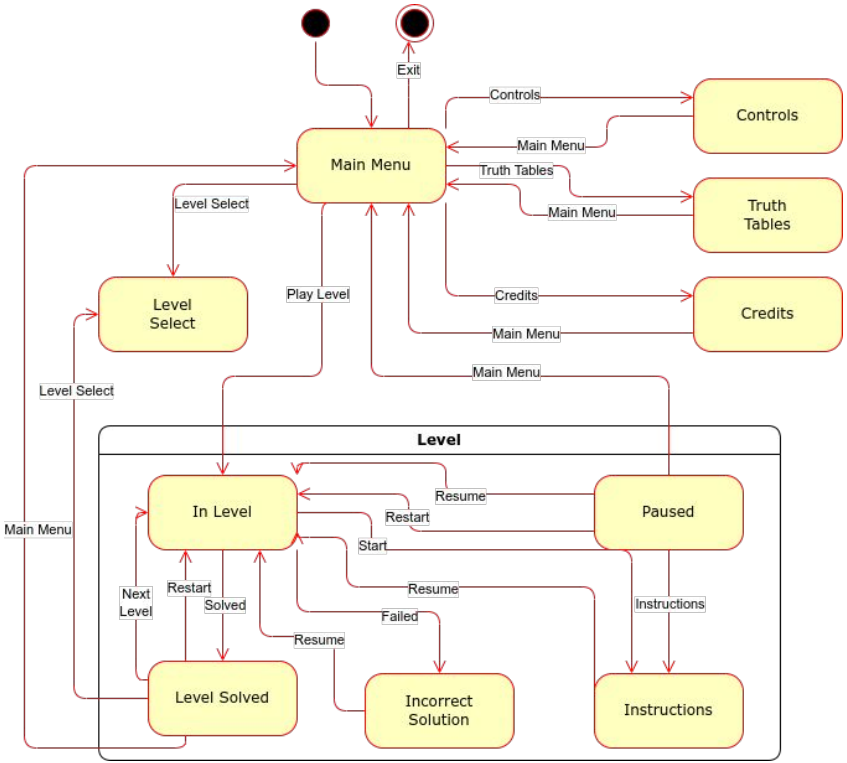
Domain Research

- Investigated gate functions and circuit design
- Applied domain knowledge to level design and tutorials
  - This helps create a logical flow of the game with natural progression of levels

Project Constraints

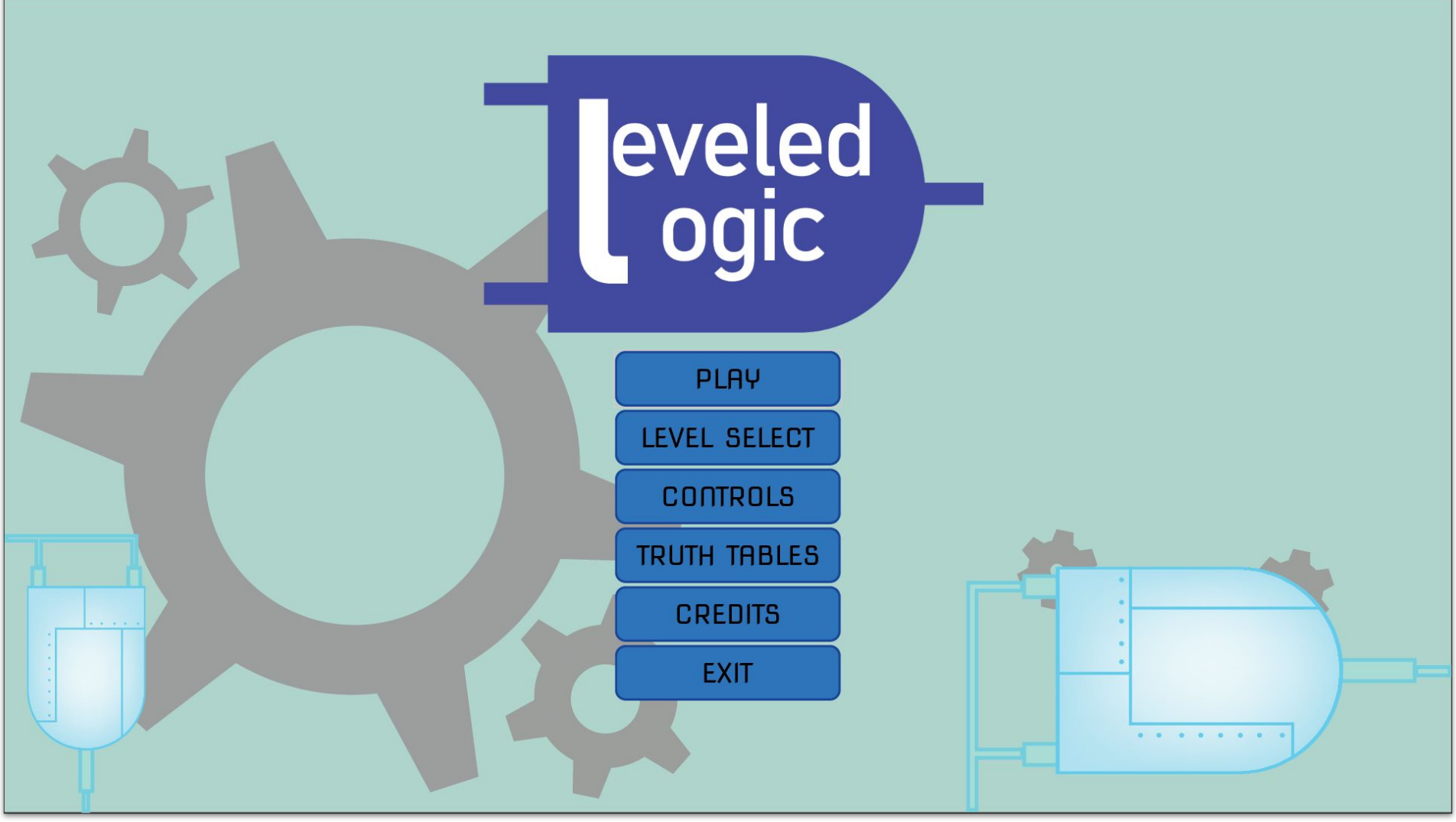
- A kid-friendly, age appropriate game
- An educational constraint
  - Leveled Logic must follow the Massachusetts DESE Curriculum DLCS Framework

Part II: Model-based View of System



Part III: Demonstration

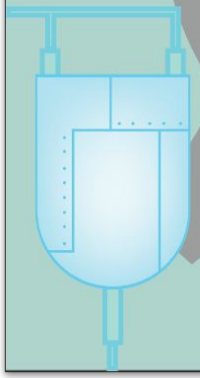
- Navigation between Levels
- Game functionality
- Solving Levels
- Level Progression

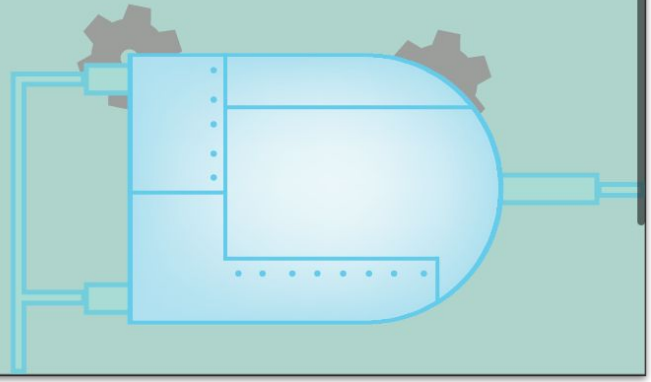

Leveled Logic
PLAY
LEVEL SELECT
CONTROLS
TRUTH TABLES
CREDITS
EXIT

LEVEL SELECT

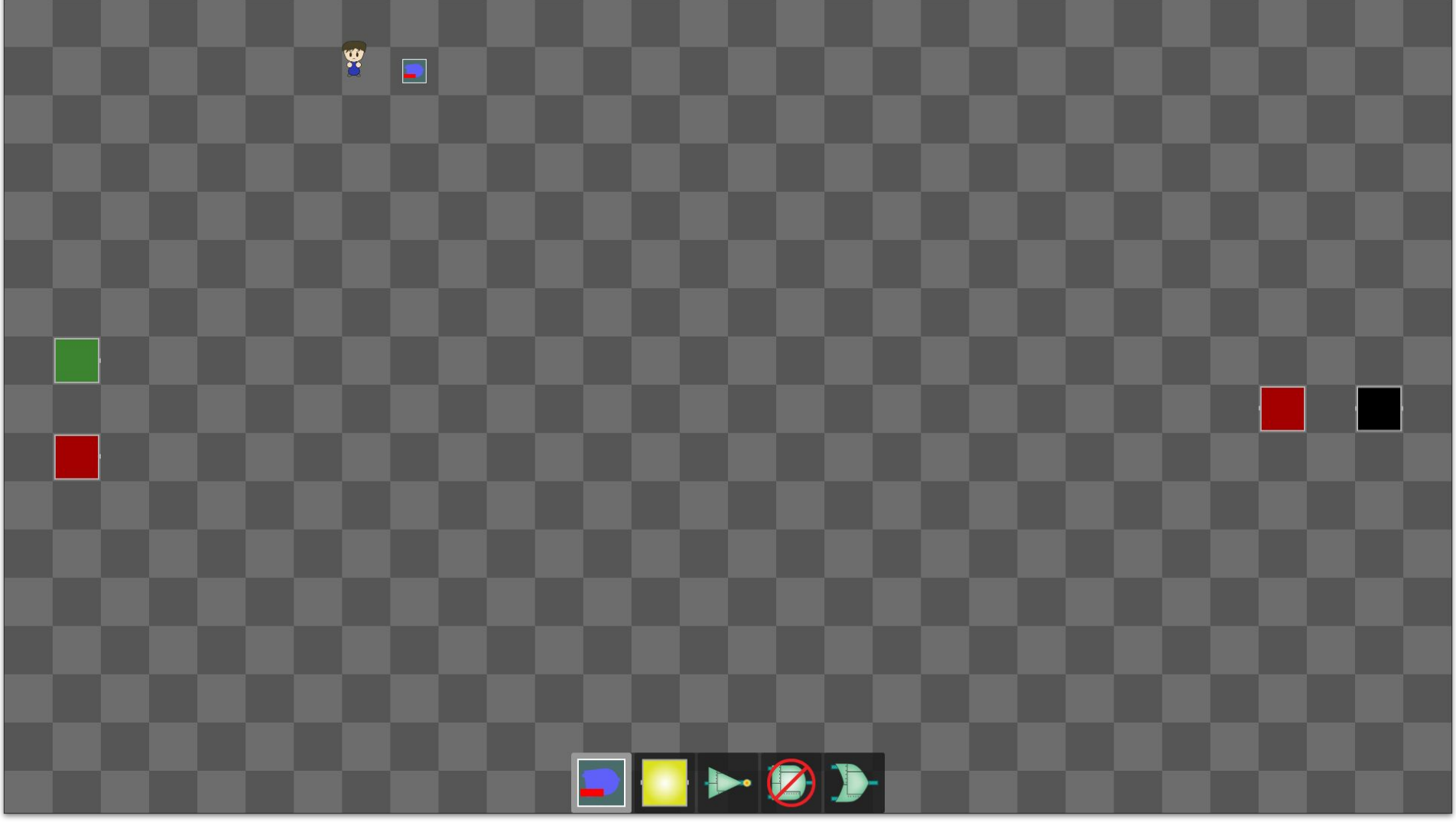
- Tutorial 0: Wires
- Tutorial 1: NOT
- Tutorial 2: AND
- Tutorial 3: OR
- Comparator
- De Morgan's Law: AND
- De Morgan's Law: OR
- Tutorial 4: XOR
- Binary Encoder
- Binary Decoder
- Half Adder

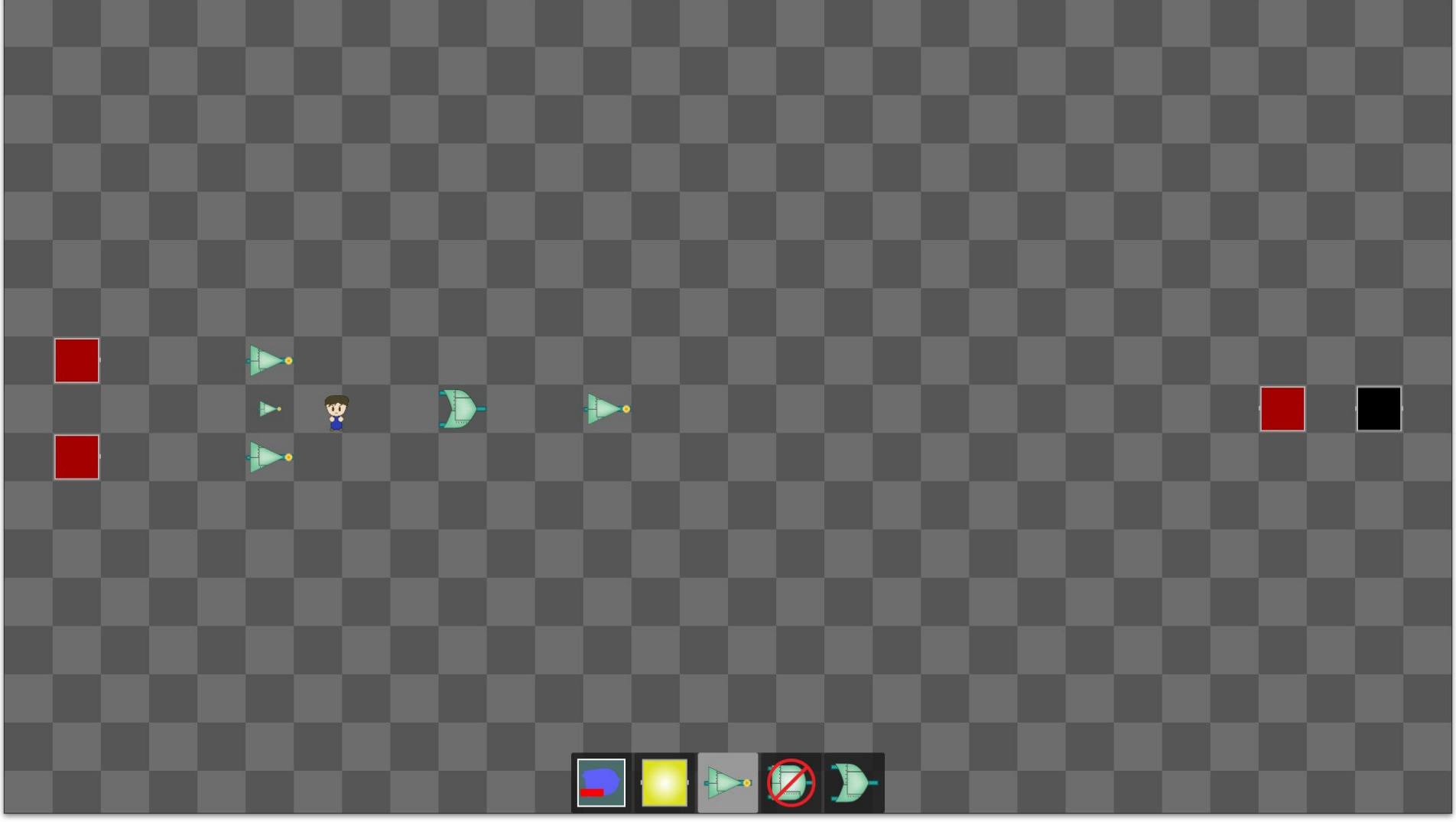
Back to Main Menu

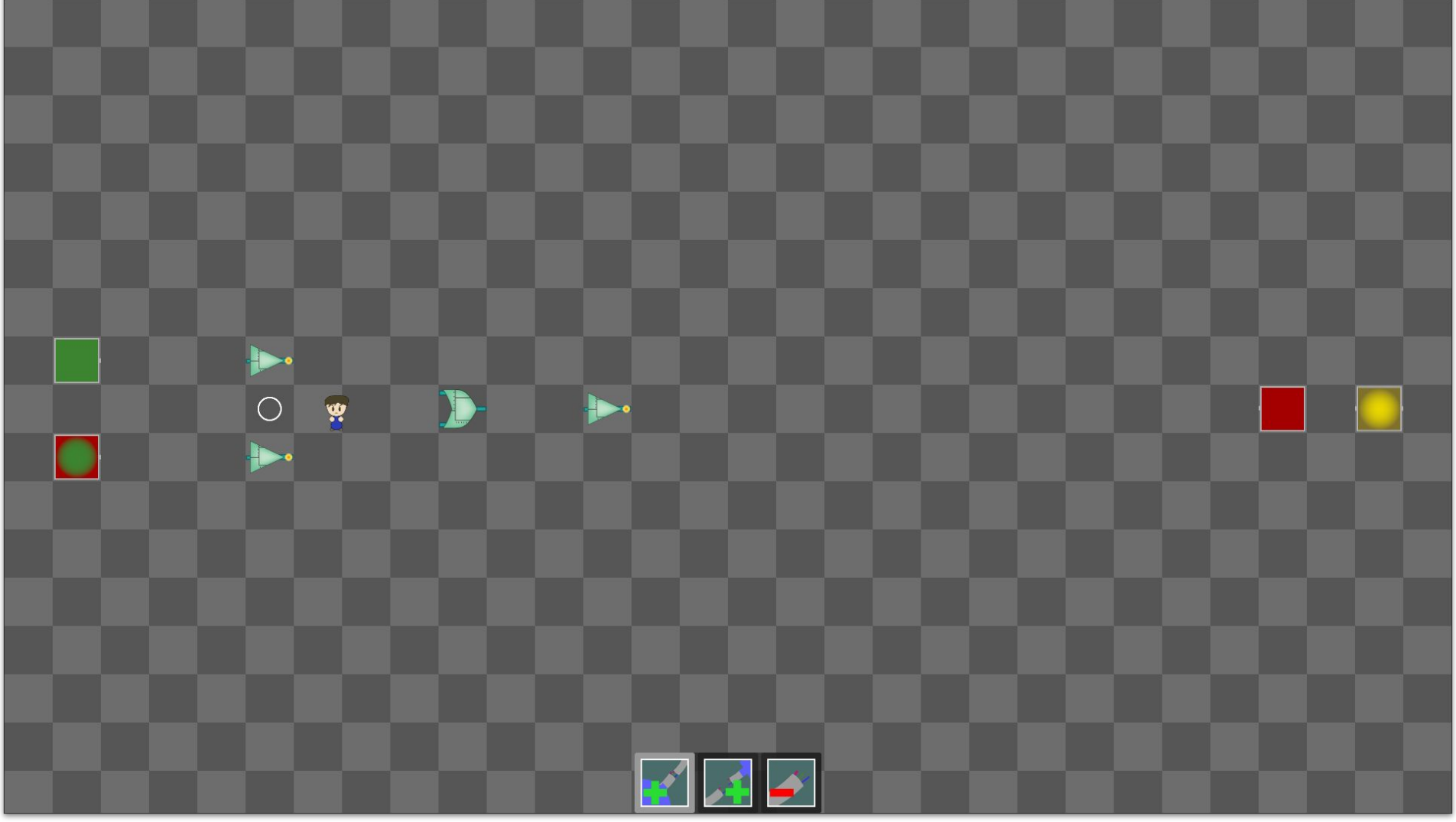


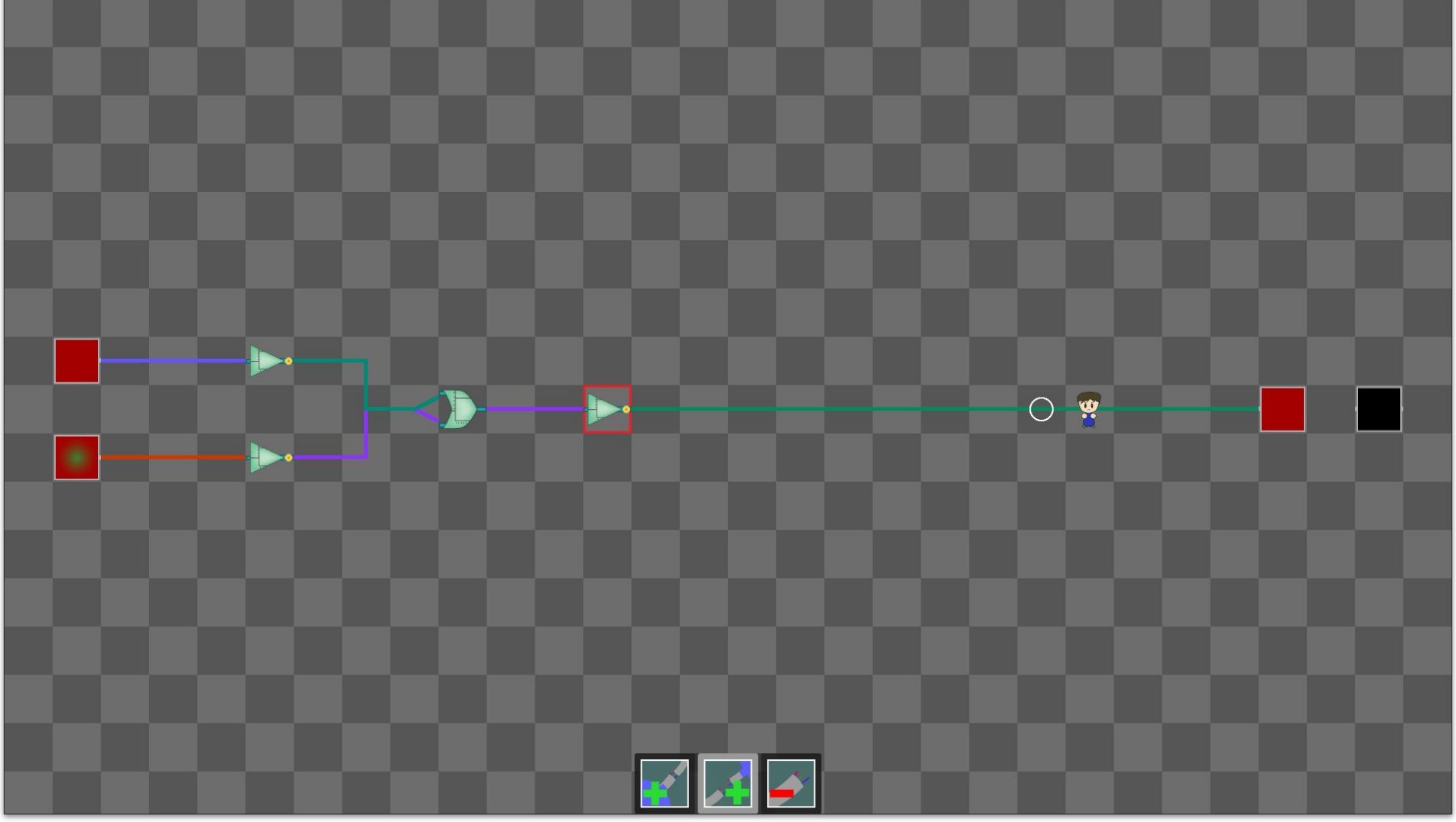


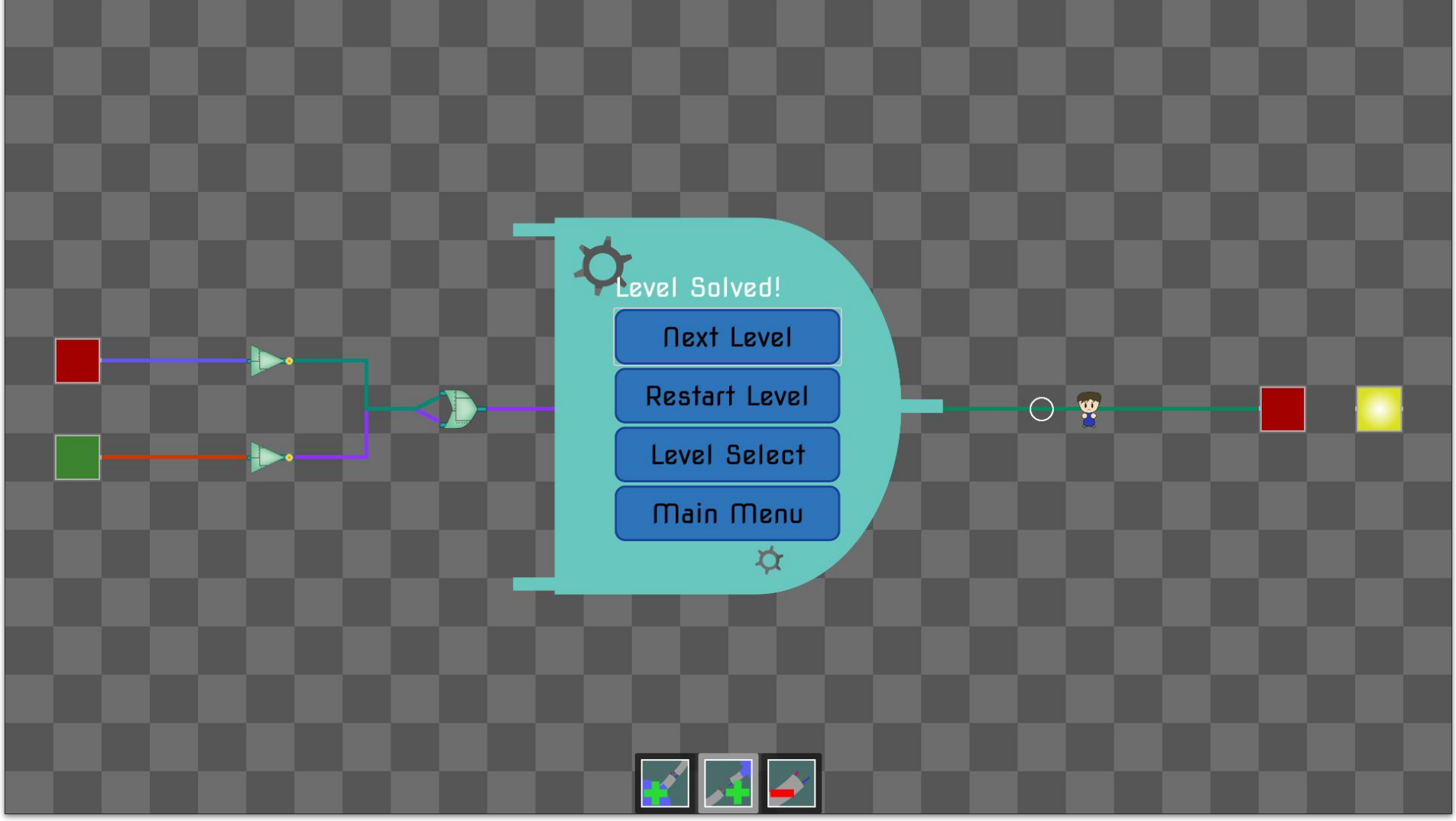
DE MORGAN'S LAW: AND
This level demonstrates an important relationship between the AND gate and the OR gate.
The AND gate can be created with a combination of NOT gates and OR gates.
This relationship is known as De Morgan's Law.
EXIT










Level Solved!
Next Level
Restart Level
Level Select
Main Menu

Acknowledgements

- We gratefully acknowledge and appreciate the participation of our customer, Dr. Daly from The University of Massachusetts, Lowell.