

Verification and Validation

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Verification

- The executable launches a native GUI with the start menu of the game.
- Text instructions for the game render correctly
- Proper rendering of the game screen
- Random initialization of conveyor belt direction
- Random spawning and safety type of items
- Working item drag and drop functionality
- Items stop when dropped on the ground, move then on belts, and explode when dropped in the hole
- Time stop ability working as intended
- Quota and Mistakes counter work correctly
- Proper handling of main objective completion or game loss

| Conclusion: The code works and produces correct results as the intended design logic.

Validation

Requirements Check:

1. Change difficulty on objective completion
 - The game properly switches belt count, movement speed, and spawn rate based on level.
2. Ability to move items and stop time
 - Full capability to move, store and discard of any item.
3. Objective score tracking and error count
 - Objective quota is tracked as intended.
 - Mistake counter persists between levels, working as designed.
4. Proper win/lose condition

- Correct game completion when all levels are passed.
- Game ends if player makes more mistakes than the acceptable amount, before passing all levels.

5. Cross Platform Support

- The Game has a compiled executable for every mainstream operating system (Linux, Windows, MacOS, RaspberryOS).
- In addition, game can be played in the browser, eliminating the need for a specific operating system.

Conclusion: The game meets all requirements and behaves as intended.

Improvement

- Better user experience
- Better user interface
 - A more responsive and user-friendly interface will elevate the user experience.
- Controller Support:
 - Controller support will double the reach of the game ensuring it can be played from all modern factors (mobile, console, PC).
- More Replayability:
 - Addition of more levels and an endless mode will make the game more replayable.
- More Assets:
 - More sprite assets will make the repetitive gameplay more visually appealing.
- More Music Variety
- Persisting Highscore:
 - Creating a save file with all of the player progress and highscore will encourage players to continue playing instead of starting all over when rebooting the game.

Conclusion

Using verification and validation, the Conveyor Belt Game was shown to:

- Implement the intended logic well (verification).
- Meet requirements and intended purpose of simulating a stressing work environment in a unstable work market.