MSPainter+
Post Mortem

A Puzzle Platform Painter Game

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HISTORY OF THE PROJECT

This game was created as the course project for Game Design and Production I taught by Andrew Hogue at the University Of Ontario Institute Of Technology. Our team gathered one day after class and began to discuss what game we would create. After throwing a few ideas around, we decided on a platformer game in which the player could draw their own obstacles.

From this simple concept, we added many different concepts that would become features in the game. We were aware of games that were similar to this, and took inspiration from them. Most importantly we wanted to create an original experience and a game that people would have a lot of fun playing.

Some of the ideas our team had that took the game further were multiple materials that were available for the player to use. The concepts for what would become MSPainter+ were refined more and more. Eventually we thought of the story and school theme, based on what game mechanics our game included. A character that uses multiple materials: it made the most sense to us that it would be a student in school using various supplies common to any public school student's pencil case or classroom.

The school theme also arose from the idea of having a "janitor" who cleans up the markings that the player places in the level. We connected the dots and came up with a story involving a student who likes to write graffiti all over school with the janitor constantly cleaning it up. This is not only a fun story, but it adds fun to the aesthetic aspect of the game. The audience who plays MSPainter+ can relate to being a student bored with school, since everyone is almost certain to have been in that situation at some point in their lives. The janitor is also a sort of humorous addition to the game, since he is portrayed to have a grudge of sorts against the student character, yet the player just keeps drawing all over the place.

Eventually a prototype was created. It was a simple stick character unanimated image on a ground and a spinning object that could be climbed on. The only working material was pen and glue, but glue was just pen in a different colour and didn't have the proper properties of glue at that point. The physics weren't quite working and the player could actually "fly" by tapping the jump key many times. Also drawing a line through the rotating platform would cause it to move, and if the player stood on top of it, it would fall down. There was still a long way to go.
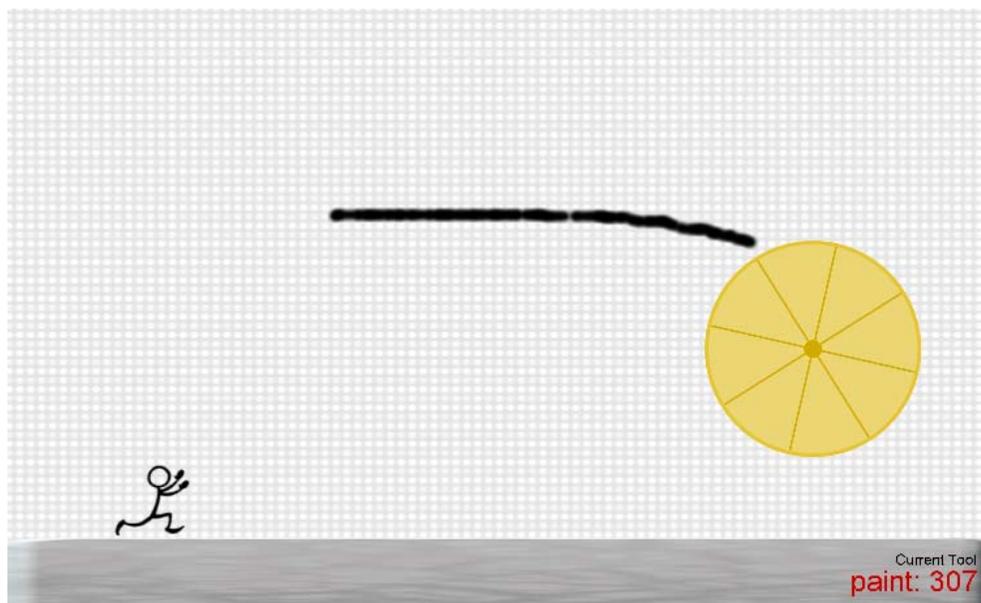
As the four months of the course passed, we kept working on the game. The physics were finalized, behaviours were made and applied to objects, more materials were added, character animations were drawn up and a GUI was developed. The GUI was designed around the theme, and also as if the game were being played within Microsoft Paint. Our team thought this made the most sense since it is familiar to almost everyone and selecting different materials (paint, pencil, etc.) is very simple and straightforward.

The week before our presentation to the professor and class was packed with lots and lots of work. In the end, our team came through and MSPainter+ ended up being a decent game that we personally had fun making and playing.

DESIGN THEME

The theme of MSPainter+ is a puzzle platformer inside of a paint program. The story's theme within this is that of the player in public school. The main character controlled by the player is a student that likes to draw. When the player draws their platforms and uses other materials in the level, it represents the student doing graffiti on school property. The Janitor is a character who keeps the school (levels) immaculate and cleans the student's graffiti.
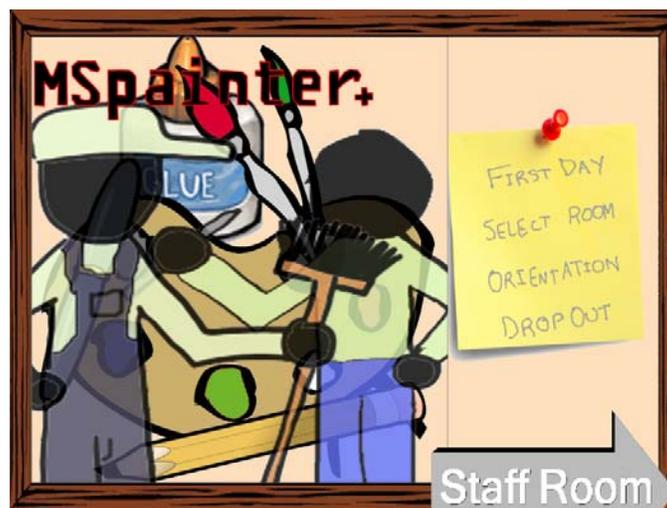
MSPainter+ follows the theme of school throughout the game. The graphical user interface is a major contribution to this. The main menu, help screens, level selection, game over screen and victory screens follow school themes. When the player finishes the game, they get the victory screen that shows they got an A+ grade. If the player dies, a game over screen appears notifying them they have been suspended. They have the options of re-enrolling (retry), dropping out (exiting the game), or simply returning to the main menu. The Janitor also follows the theme, as janitors are always around schools cleaning up after students.

The school theme was chosen for MSPainter+ while we were thinking of what story to apply to our game. Our team had decided on the idea of a puzzle platformer where the player can draw with a variety of materials to make their way through levels. Then, we had thought of an "enemy" character that would erase what you had done. Combining the core mechanics of multiple materials available to the player to use (pen, glue, etc.) and the enemy character, we thought that a school theme would fit well with it. As a public school student, you usually carry a

variety of school supplies with you. At school you encounter people and staff, including the janitor. Another reason that the school theme was chosen was because anyone who is playing MSPainter+ can relate to it, since everyone was a student at some point. Players who are currently students in public school may appreciate the game most, but our target audience encapsulates age groups from quite young to middle age.

The two characters are purposely generic looking blank characters, which also keeps to the theme. Additionally, the cursors and game objects are cartoon style. They are intended to look like doodles or sketches a student might draw in the margins of their notebook during a boring day in class. The Student is a blank canvas, and has no indication of gender, appearance, or even a name. Janitor Jim is almost identical, but has a cap and broom. This was done on purpose to allow and enable the player audience to apply their own conventions and personalities to them. Perhaps the player will make themselves as the student and the janitor as the custodian at their public school? There are many possibilities that add depth and an implicit personalization of the game.

ELEMENTS AND FEATURES THAT NEVER MADE IT

The artificial intelligence of the Janitor "enemy" was changed quite a bit from the original concept. Originally, it was planned that he would track the individual markings of the character and remove them in a "first in first out" order. Each item had a "cost" which represented the time it would take for the Janitor to clean them. For example, pen would take longer to clean than pencil. This was replaced with a randomized AI for the Janitor in the final version of the game. The change was due mostly to time constraints, but it was possibly for the best. The randomized Janitor appearance and random picking of heights to clean add a different feel to the game, and create anticipation for the player and also add "luck" as a game play element.

The difficulty settings were also changed with the change of the Janitor's AI. Originally there were going to be three difficulties (easy, normal, and hard). Easy would be without the Janitor, and large quantities of each material. Normal difficulty would have the janitor who would move at a slower rate than hard, less materials than easy mode. Hard difficulty would have minimal materials available and the janitor would move quite quickly.

Mainly because of the change in the Janitor's AI as well as time constraints, the "weapons" that were in the original idea were left out of the final game. The original concept for "weapons" were chalkboard erasers that create dust and paper airplanes or crumpled up paper balls that could be thrown distances in the level. The idea behind this was that they could be used by the character as additional delays for the janitor. The chalkboard erasers were to be used as a melee weapon and make the janitor cough or something of that sort and delay him while the player used their platforms or made more markings. The paper objects would be used as range weapons, in which the janitor would have to walk over to where the object was thrown and take time to clean it up before returning to cleaning up the player's markings. Both items would have a "cost" just like the other materials the player can use, but it would be a little more and would keep the janitor busy and not remove their markings within the level.

The conveyor platform was also left out of the final game. It would have been too complicated to get working in the game, and it also doesn't follow the game's theme. It would add an industrial theme to MSPainter+, which is far from our intentions. Although it could perhaps be an interesting game object, a conveyor belt just doesn't make much sense in a school setting.

The last things that didn't make it from the original concept into the game were the rubber band platforms and the number key material selection. Rubber band platforms were originally a material that the player could use in the game to create their own bouncy platforms. They were left out since it was thought that they may make the game too easy. For example, getting to a higher ledge would be really easy compared to having to use the other materials to accomplish the same thing, thus removing a substantial amount of challenge from the game. For the number key selections, MSPainter+ was originally going to allow the players to select what material they want to use by pressing a corresponding number on the keyboard. The player already can select materials by clicking on the panel to the left of the screen can scroll through them by clicking the right mouse button. Having the keyboard involved with material selection was just unnecessary.

WHAT WENT WRONG AND WHAT WENT RIGHT

The overall development of MSPainter+ went relatively smoothly. The making of things in the game were more time consuming than anything, and the majority of the features we wanted to include successfully made it into the final game.

The things that did go wrong were mostly due to running out of time. The features that were left out were because there simply wasn't enough time to implement them. If we had started working more on this game earlier on in the course, it is possible that more features from the original plans could have been included, but as it turned out, that just didn't happen. In the end everything worked out well enough.

Another major contribution to the things that went wrong in the process of making this game was a lack of communication. It was difficult to get the group together and really work on the project. Sometimes emails went unanswered and meetings were held but not everyone could make it because life got in the way. Things such as that can't really be avoided, and probably hurt our game in the long run. Regardless, we were able to collaborate well enough to make the final result.

As expected, multiple technical problems were encountered. Diagonal collisions were a problem. When the player would walk up a platform placed on an angle, there would a staircase effect and the character would run very slowly up. This issue was solved only for generic platforms in the game, and not for user drawn platforms. The GUI also presented its own problems. The glue material also proved to be tricky, but eventually it was successfully implemented. One of the main issues with it was merging it with the game itself. The mouse bounding box also presented a problem. Originally the player's range for using materials was enforced by keeping the mouse "physically" inside of the range. This would make the whole game difficult and rather annoying to play. The GUI couldn't be accessed and it was impossible to even close the game window without using the keyboard. This was solved by allowing the mouse to move everywhere, but only allowing the use of materials within the range. Additionally, the mouse turns from the material selected cursor to a regular arrow cursor when moved outside the range. For more details about the technical problems and solutions, see the Technical Design Document.

One important thing to take note of in MSPainter+ is that the path names of many game interfaces do not stay correct. In the GUI, images will be set to the relative path of wherever the game folder is (i.e. "common/gui/images/image.png"). However, when transferring the game folder between our team member's machines, we noticed that Torque would change the path names to the full file directory of our specific computers (i.e. "C:/MyDocuments/user/…etc."). Please take note of this when running MSPainter+, the GUI may not appear correctly.

THE FUTURE OF MSPAINTER+

If MSPainter+ was further developed, many more features could be added.

The game could incorporate downloadable content on a regular basis. Packages would be inexpensive to make and thus cheap for audiences to purchase. The DLC could include additional game objects and materials. Levels especially would be easy to create and distribute using existing elements already present in the game and any future added concepts.

A level creation tool could also be made quite easily and distributed to the players of MSPainter+. From this, a community could be created online of users uploading their levels to share with friends and the rest of the community.

Multiplayer is also an option to add in the game. One player could play as the student, like normally played in the game, and the second player could play as the Janitor, erasing their opponent's markings. Different multiplayer game modes could be created as well, such as a student vs. student mode, where both (or all) players play as the student and race each other to the exit. They could draw walls to block their opponent or erase their opponent's markings with the eraser.

If this game were further developed, it has the potential for the ability to be released on different platforms. It would be ideal to release it on platforms popular with the casual market, such as the iPhone or Nintendo DS. The touch screen capabilities of these platforms would make drawing platforms even more fun. The Nintendo Wii would also be ideal for this game, since the player could be controlled with the directional buttons and the cursor for markings in the level could be controlled by motion controls.

THE RESULT

MSPainter+ kept to the original concept quite well. The original idea was just further developed as we progressed at making the game. It was refined and tweaked to become the game as it currently stands.
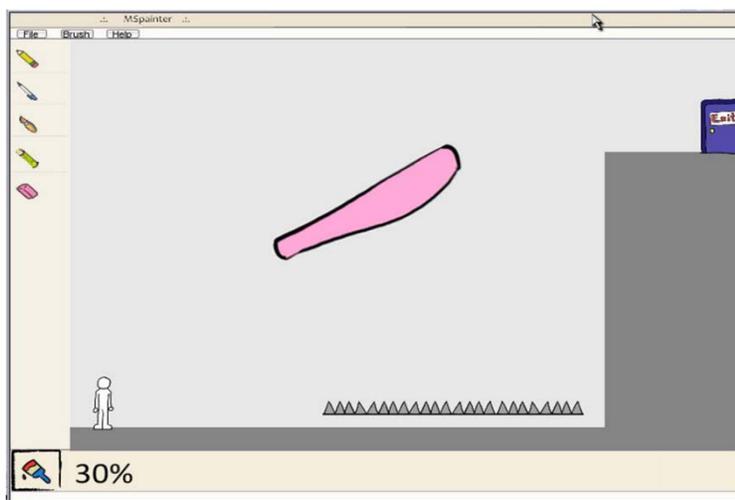
The theme was kept to, and the GUI turned out great. All the physics attributes to the items as we intended, or even better than what were expected.

Overall our team is satisfied with how MSPainter+ turned out. Of course it is not fully completed in the sense that it is not perfect, and we would have liked to spend more time on it but the time was just not available with all our other course workloads and to be completely honest many things were left to later on in the course (especially the last three weeks).

MSPainter+ turned out to be a polished, fully interactive puzzle platform "create-your-own" painter game. It is innovative, easy to pick up, interesting, and most importantly, fun.

KEVIN LEEGSMA
100340161
"GUIDANCE COUNCELOR"

Roles

- Lead Menu Designer
- GUI Designer
- GUI Programmer

I'm Kevin Leegsma. I have always been interested in videogames, ever since I was a young boy and I would play through videogames constantly, always remembering the joy I felt of beating that first game. This game has given me a very similar feeling because this is the first real game I have worked on from start to finish that came out as a polished and complete product. MSPainter+ is a game concept developed by our entire group and modified to a final product we are proud of. During the presentation the look of excitement on the students face's in the class was a great feeling knowing I helped make this game possible.

MSPainter+ as mentioned is heavily influenced by the MSpaint interface, in order to create an interface rivaling that a lot of planning was needed. The flowchart for the game, provided in the documentation as "flowchart.png" shows a vast stream of GUI->GUI, GUI->Function and GUI->Level Links, creating the whole GUI system from scratch was a challenge that came with problems. Throughout designing the menu system for the game I ran into alot of little issues, some with Torque and some likely caused by my computer itself. Torque itself as stated is quite intuitive however it does come with drawbacks. The GUI builder for Torque, or perhaps my copy of TGB was corrupted and so upon entering text into commands, the text would output random ASCII characters. In order to compensate for this I had to use notepad to type in my command and paste it into the correct spot, this however proved to be an asset as it helped me keep track of many of my functions. On top of this, having this been the first game I had worked on in Torque, the whole interface was completely foreign to me. Torque's lack of documentation also didn't help and the tutorials mentioned online would all miss a crucial step in order to make the GUI's work. After much trial and error the GUI system was finally completed. The biggest variable to overcome in this entire project was definetly exhaustion. Battling exhaustion in order to reach the final stages of completion for the prototype, the game came together well and will definetly be built upon in the future.

My biggest roles in the game was the design and implementation of the GUI system to work within the game. Alongside working on the GUI additional work on the game included documentation, art, concepts.

RUTHANNE WILSON
100366471
"ART & ENGLISH TEACHER"

Roles:

- Artwork and animations
- Level design
- Documentation

My name is Ruthy. Video games and computers have always been a part of my life. I started playing around the age of three and haven't stopped since. I used to play games my father had such as The Return to Zork (which is the reason I'm afraid of the dark to this day) and games on the Atari. MSPainter+ was a great experience, since it was the first real game I worked on. I wish there was more time to get it working just perfectly, but overall I'm satisfied with the result.

The artwork for MSPainter+ follows that of a cartoon like style. This is for a few main reasons. The first is because I am not a fantastic artist. Drawing more detailed characters and game objects would have been a challenge. Another reason is because of the time available for drawing detailed artwork was just not enough. If I spent more time drawing each thing for the game, it is possible that the artwork would have been more detailed and would be less cartoon-like. However, the time it takes to draw the character animations would have been a long time, since each frame of the animations was drawn by hand. To line up each frame correctly with a character or game object with a lot of detail would simply take too long, especially with the time constraints imposed by the project deadline. Another reason the artwork was done in a cartoon-like way is because it fits in with the school theme of MSPainter+. The characters, cursors, and game objects have the look of what could be doodles drawn by any student in public school. This helps to keep with the theme in a fun sort of way. Another reason the player character and the janitor are very simple and a "blank canvas" of sorts is because it allows the player to project their own ideas of what these characters are like. It allows them to relate to the student more easily than if it had a face, gender, or name already applied to it. Overall, the artwork was a lot of fun to make for MSPainter+, and it was really interesting to see it "come to life" in the game.

I was responsible for designing the levels as well. The rest of the team was busy with making the game work properly and working really hard at getting everything just right, so I made the levels that are included in the final game. Making each level was a process of coming up with an idea that might be fun for the player, testing it out, tweaking it, making sure the exit could be reached, tweaking variables, testing it again, tweaking more, and testing it a few times to make sure everything was right. There were many things kept in mind while making the levels (see the design document), and overall I think they turned out alright.

My final contribution for this project was writing up most of the documentation. My task included formatting the documents and editing structure and grammar throughout.

HABIB AHSAN
100289927
"COMPUTER SCIENCE TEACHER"

Roles:

- Lead Programmer
- Behaviours editor
- AI Developer