Sleepy Scientist

A Game by:

Noble Gases:

Andrew Mandula, Jennifer Dzuiba, Nicholas Hackford, Keensley Venittelli,

and Robert Bastian

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1.1 Summary

Described simply, Sleepy Scientist is designed to be a two-dimensional puzzle game, ideally for mobile platforms. The player interacts with the game by moving certain pieces around in order to get the sleepwalking scientist safely into his bed for the night. The player has to navigate the scientist, who moves automatically in whichever direction he is facing, around obstacles and across the multiple floors of his lab in order to do this. There are also various obstacles to avoid, such as pits in the floor and doors that lock themselves.

1.2 Story

The story for Sleepy Scientist isn't very complicated. It follows Dr. Nikola Somnum, an egotistical yet creative genius who has bought a used laboratory in New Jersey to conduct his experiments. Unfortunately, he also has a bad case of narcolepsy which means he constantly falls asleep while working on experiments. This has led him to be nearly shunned from the mad scientist community that he had previously been a part of. As a result, he wasn't able to get a loan for a better new laboratory. He also no longer has access to the resources that the Mad Scientist Alliance provides to its members, forcing him to use household items to work off of. To make matters worse, he sleep walks! And to also make matters worse, because he bought the lab used there are a lot of dangers including

dangerous pitfalls! Luckily his inventions have enough A.I. to help him get to his bed safely. Of course, his bed has some A.I. too and sometimes will move around. There are also some rogue inventions that like to cause mischief and despair. The Doctor may have a lot of problems facing him, but he won't let it stop him from inventing crazy things and he uses his restricting predicament to force himself to be more creative and experimenting with his work. While he works on a way to somehow cure himself of narcolepsy, it's up to his loyal inventions to make sure he doesn't get hurt or killed while sleep walking and make sure that he gets safely to bed.

2.1 Goal

The goal of the game is simple: Get the sleep-walking scientist to his bed using his various inventions.

2.2 Rules

Dr. Somnum will slowly walk in a straight line every level until he either hits a wall you walk down stairs and climb up ladders (which he will do automatically if he runs into them, if he is on the skateboard at that time then he will step off of it). While Dr. Somnum is walking though you can select an invention and move it into a position that will help you. The inventions are much

faster than he is which is why they will usually start on separate parts of the level to make it more difficult to reach the Doctor. The inventions are able to go up and down stairs and ladders, but they also cannot cross pits unless there is a bridge (inventions cannot be flung across by the Jack-in-the-box).

2.3 Inventions

2.3.1 Jack-in-the-Box

Dr. Somnum: "Ah…my oldest childhood toy. By throwing in some hydraulics and a reinforced spring I can use this to propel myself across pits or up some stairs. Good thing Ialways land on my feet!"

Like the Doctor said, the Jack-in-the-Box is used to get across pits or up some stairs. This invention is activated on its own whenever Dr. Somnum steps on it. Simple place the invention on his path and he will be sprung up and forward. While it will work anywhere, the Jack-in-the-Box will only be able to get the Doctor across pits if the invention is placed at the edge and will only get him up stairs if he is right at the base.

2.3.2 Egg Beater

Dr. Somnum: "To be honest, cooking is not my thing, so when I saw this I knew could make a good small-scale cyclone creator. Spins me right round, like a record baby!"

The Egg Beater is one of the more useful inventions since you will need it to turn the scientist around. Another invention that is automatically activated this once works right when he gets directly in front of the Egg Beater where it then creates a small cyclone that turns the Doctor in the other direction. This invention will be particularly helpful in keeping him from running into walls or pits.

2.3.3 Rocket Skateboard

Dr. Somnum: "Radical! Some jerks thought I was just some nerd! I sure showed them! I'm cool using this invention to skate by at high speeds. Gnarly!"

The Rocket Skateboard is used to speed up the scientist. By moving it in front of the scientist he will step onto the skateboard and then move approximately three times faster than normal. The scientist needs to step onto the skateboard for it to work; you cannot move the skateboard under the Doctor. Once on it, Dr. Somnum moves in the direction of the skateboard and not in the direction he faces. If the scientist runs into stairs he will step off the board and go down them (if he is at the

top of the stairs, if he is at the bottom he will simply go past them). If the scientist runs into a ladder he will step off and climb the ladder (only if he is at the bottom of the ladder). The Rocket Skateboard cannot go across pits and it cannot be used in conjunction with another invention. The other inventions take priority so if the scientist runs into the Jack-in-the-Box or Egg Beater he will step off the skateboard when they're powers are activated. The skateboard will be particularly handy in getting past doors before they close (doors discussed below).

2.3.4 Lincoln Logs

Dr. Somnum: "What a versatile box of things. I barely even changed these to make them useful. Except infuse each piece with a titanium skeleton and a microchip that lets them assemble themselves."

The Lincoln Logs do not activate on their own so the player needs to do it manually. The Lincoln Logs can turn into a bridge or a ladder depending on the player's choice and once this happens the Logs behave as a part of the level (I.E. the scientist and the inventions will all cross the bridge like it was a normal part of the floor and the scientist will climb the ladder like he normally would). This also means that the Lincoln Logs are a one-time use per level and can't be changed back unless you beat or restart the level.

2.4 Interactive objects

2.4.1 Bed

Dr. Somnum: “Of course my bed is a robot too, so it tends to move around, but…maybe I should have left that one alone.”

This is just an explanation for why the levels change and why the bed would be in different areas and spots in the lab. When the scientist reaches the bed, he falls into it and has a good sleep and that’s how you beat the level.

2.4.2 Stairs

As mentioned the scientist can go down these automatically but cannot go up them without assistance. He will always go down them if he walks on top of them facing the right direction, but he will simply walk past them if he is at the bottom. Inventions can choose to go up or down them.

2.4.3 Pits

They’re a thing! So watch out! These are pretty basic, if the scientist falls into one you lose. They come in the spike, bottomless, and laser flavors. Inventions can’t

cross pits but they won't be able to fall into them as their programming prevents them from going off the ledge.

2.4.4 Ladders

The scientist will automatically climb up the ladder if he is under it but he cannot go down them at all. Inventions can choose to go up or down them.

2.4.5 Doors

Doors will close after a timer runs out on the level so the player will need to get the scientist past the door before it closes. If getting not getting past the door means the player can't complete the level, then it will end. Inventions that do not make it past the door will be trapped on one side.

2.4.6 Rogue Inventions

These little buggers were experiments that didn't quite go right and so they wander the laboratory causing mischief like tying the scientist shoes to make him trip. If Dr. Somnum runs into a rogue invention while sleep walking it will cause him harm and you will lose the level. Luckily, they are friendly to their robotic brethren and do not harm the good inventions.

3.1 Audio Production

The audio for Sleepy Scientist was designed around the concept of a digital game, and therefore was unable to be included in the paper prototype. There were not as many inventions included in the prototype as we wished, with many being left out due to time limitations and the fact that we did not want the prototype to seem overly complicated. Sounds for each of the inventions that made it into the prototype were created, such as sounds when the invention would activate or an idling sound for the robot that activates the inventions. The levels for the digital game would also have a variety of different settings, and several short soundtracks were created for different types of settings such as a spooky or deserted setting. Without a complete idea of how many or what kind of settings would be in the final digital game, only a couple of samples were made. There were some types of sounds and samples that were not made or have yet to be made, such as a sound for when a player tries to re-use an invention that has already been activated, or a sound for when the player dies. There is also no music for when the player beats the game and credits or a menu screen is shown. Three different programs were used in order to make the audio for Sleepy Scientist. FL Studio and MAGIX Music Maker were used for base production of the different sound effects music and Audacity was used to further edit the audio. MAGIX Music Maker and FL Studio are audio design tools that have a variety of different sound effects and loops

available for mixing together in order to form more complex sound effects and audio tracks. The demo version of MAGIX was used before FL Studio because while the demo version of FL Studio allows the full use of the program, saved audio files may not be opened back up in FL Studio. Files made with MAGIX could be saved and opened back up at any time, but only a few of the samples come with the demo. Eventually a full version of FL Studio was obtained via a friend, which made a greater variety of sounds possible.

3.2 Audio Design

Most inventions two sound effects; one of which plays when they are moved and the other when they are activated. Some inventions have more than two sound effects, such as the Lincoln Logs which would have a sound effect play when they are activated, moved, and transformed into a bridge or ladder. Most of the sound effects were not too challenging to design, as the sounds they would make are fairly obvious. The jack-in-the box for instance, which would have a springing sound, or the door closing which would have a slamming sound. Others were a bit more of a challenge to design and think of, such as the Lincoln Logs or the idling sound of the robot that moves all of the inventions. The robot ended up with a soft whirring sound that will either be constant, as the robot is always there to move inventions around, or only play when an invention is being moved. The Lincoln

Logs make soft clinking sound when they are activated and a wooden sounding thump when laid out as a bridge or ladder. Making audio tracks for the different level settings was slightly challenging because there was not much artwork or design to go off of in the beginning, so several tracks were made with often used themes in mind such as; a spooky sounding audio track that would work very well in a dark or dimly lit environment with creepy additions to the level, a futuristic track with a lot of synthesized beats and sound effects that would be right at home in a lab filled with high tech equipment, and a very quiet, simplistic track that would fit a stark, white lab environment where the scientist could have been working on something that needed isolation. Several other tracks and sound effects were made withouta specific theme in mind, in case they inspired a level design or invention. Overall audio design went smoothly, with little hitches here and there while art and design concepts were fleshed out. In order for further audio development, the art and design portion of Sleepy Scientist would need to be converted into a digital setting, which will not take place at this time.

3.3 Technical Details

The easiest environment to work within for a mobile platform would be a Flash environment. Input would be entirely touch-based, with single taps used to select screen objects, a two-finger tap to open the pause menu from within the level, and a swipe or drag to scroll the screen if necessary. Each level will be displayed on the entire screen, to maximize the area the player can interact with and increase how large it is possible to draw the graphics. The main menu would contain a title splash with the name of the game and buttons to play a level or view its high score, and to view general stats about the game. There will also be two sound buttons – one to toggle the background music on or off, and another to toggle the game's other sounds on or off. Hitting the stats button will display various play statistics, including things such as the total time spent playing the game, the amount of unlocked levels, the amount of levels the player has completed at least once, the total cumulative amount of levels the player has completed (this count would include instances where the player has completed the same level more than once), and the player's highest individual level score (along with the name of the level). It could also be amusing to show how many times the levels were reset during play, either by the player restarting them from the pause menu or by the scientist becoming unable to reach his bed for any reason. Tapping on the 'play levels' button from the main screen will go to the level select screen, which will show all

of the levels currently available in the game in a grid of icons along with another button that will return the player to the main menu.

If a level has not been unlocked, its icon will be grayed out and be non-clickable. Unlocked levels that have been completed will have a star on them, showing that the level has been cleared and has a high score. If the player taps on an unlocked level that hasn't been completed, it will default to a preset score (ideally, one that can easily be surpassed as the player completes the level). Tapping on an unlocked level will pop up its full name and high score, a counter showing how many times that particular level has been completed, and a button that will load and then allow the level to be played. Once the player is at the main gameplay screen, a short counter will come up and the screen will be frozen, so the player has time to look over the level before objects start moving around. Once the timer reaches zero, level objects will become clickable and start to perform whatever behaviors they were assigned. Once this happens, the scientist will start walking in whichever direction he is facing, barring any inventions or other obstacles in his way. The player can also begin to shift around any inventions located around the level's map via tapping on any stationary invention and then tapping on the desired destination. The invention will then move to that location, and if it runs into anything it can't get past along the way it will stop moving and sit next to wherever the obstruction occurred. The inventions are faster than the scientist, and will move past him if

they intersect. The player can tap on any moving invention to stop it, and can then tap on it a second time to select a different destination. At any point during the level, the player can two-finger tap on the screen to bring up the pause menu. This will freeze and dim the game screen, and overlay a dialog with buttons to allow the player to reset the current level, exit to the level select, or exit to the main menu. It will also have the sound toggling buttons from the main menu. The player cannot directly interact with the scientist, and must move inventions into his path in order to affect him. If the scientist collides with anything in his movement path, one of these things will happen: he will have hit a wall or locked door and stops moving, and the level will need to be reset; he will have fallen into a pit of some kind and hurt himself, requiring the level to be reset; he will have encountered any one of the stationary player-manipulated inventions and will perform whatever function it serves; or he will have found his bed and the level will be completed. If either of the first two cases occurs, the level will end automatically after a few seconds of the scientist being unable to move, and a screen will pop up with buttons to either reset the level and try again or to leave the level and select another (which will send the player to the level select screen). If the scientist reaches the bed, a similar dialog will come up. It will show the player's score, the high score, and have buttons to progress directly to the next level (which is now unlocked) or return to the level select screen to pick a different one. While the level is in motion, player

interactivity is limited to instructing the various inventions around the map or opening the pause menu. A big part of what is going on is how the various objects react when they collide with each other –namely, having the inventions deflect the scientist away from obstacles and into his bed. Each invention has its own function – reversing the scientist's direction (eggbeater), pushing him forward more quickly than normal (rocket skateboard), making him jump a set distance (jack-in-the-box), or create a new platform or ladder (Lincoln logs). If the scientist collides with the eggbeater, he will flip around and continue in the opposite direction. This is largely used to keep him away from walls, and to get him to face in the proper direction to use staircases. This invention has to be next to the scientist in order to be used, and will have no effect if the scientist is on top of it when it is activated. The rocket skateboard, however, can be placed in the same space as the scientist – when he collides with it, he will step onto it and move in the same direction as he was facing at a greatly accelerated pace. This makes it useful for getting through doors (as they only remain open for a limited amount of time) or sailing across pits (as the rockets provide enough lift to get him off of the ground). After he has moved a set distance, the rockets will shut off and he will get off of the skateboard automatically. There will be a short cooldown period for the skateboard to deter players from trying to simply propel him through the entire level. The jack-in-the-box can also be used by the scientist if they are both in the same space, but the

effect will be different depending on where this occurs. If the box is placed at the bottom of some stairs and the scientist is facing the stairs when he hits the box, he will be pushed up the stairs and be left at the top. If he is walking toward a pit and hits the box, he will be pushed up and over far enough to safely land on the other side of the pit. If the scientist hits the jack-in-the-box outside of these two situations, it will not spring and therefore have no effect. This prevents problems where the box is activated and shoots the scientist over other inventions, or where he is launched into pits with no way of saving himself. The box with the Lincoln logs is the only invention that the player can activate manually. After the box has moved to the desired location and become stationary, it can be tapped and dragged in order to transform into either a ladder or a bridge. Dragging it left or right over a pit will cause it to transform into a bridge, while dragging it up or down will cause it to transform into a ladder connecting to another floor. When building either a ladder or a bridge, there needs to be open space around the points where it connects to the ground, otherwise the action will not occur. This is to prevent issues with the new object being too close to harmful obstacles within the level. Also, once the logs have been built into something, they cannot be deconstructed and re-used without resetting the entire level. While moving, the inventions all behave the same way – when the player taps to select their destination, the shortest route to that location is calculated and the object starts to move. If the remaining

path between the object and the destination becomes blocked, it will continue moving as far as it can before stopping. This will usually occur when a door closes, and in many cases the level will then have to be reset. Inventions cannot navigate past pits unless a bridge has been constructed (with the exception of the rocket skateboard while the scientist is using it), and they cannot activate each other (with the exception of when a bridge or ladder has been created along the shortest path). They can, however, freely reverse their own direction and can climb stairs without assistance. Outside of being effected by the various inventions, the scientist can only move in whatever direction he is facing in. If he walks past a ladder (be it player-constructed or static within the level), he will climb it regardless of which floor it will take him to. He will also walk down stairs, given that he is facing in the same direction as they are. Otherwise, he will walk straight past them. As mentioned above, he will use any stationary invention he comes across automatically, given that he meets whatever extra requirements there are (if any). He will not change direction when he comes into contact with a wall, closed door, or pit, and this will generally result in the level being reset. Additionally, if the scientist gets into a situation where there is no available path between him and the bed, the level will display a message to the player recommending a reset. Or, if the current layout of obstacles and inventions will allow the scientist to reach his bed without fail (as determined by the method that checks whether or not he can make

it to his bed at all), a button will appear that the player can tap in order to lock the inventions in place and greatly increase the scientist's movement speed so that they don't have to wait for him to shamble across the screen to the goal. This mode can be canceled by tapping the button again if the player decides to make changes anyway. The position of the inventions in relation to the obstacles and bed are mostly what determine if this accelerated play option is available. Given the default layout of any one level the scientist's simple movement behavior (as described above), the scientist's destination can easily be calculated. If this calculated path does not include the bed, then the accelerated play button is not available. If, through the player's manipulations of the inventions, this path is altered to include the bed, the button becomes clickable. If the scientist falls into a situation where the path cannot be altered to allow him to arrive at his bed (such as stuck at a wall, pit, or locked door), a button to reset the level will appear instead. Seeing as how the player can drastically alter the path of the scientist with any one of the inventions, the reset and accelerate checks depend on whether or not there are stops (walls, closed doors, or pits) that do not have an associated invention between it and the scientist (an example being a path containing an eggbeater between the scientist and a wall). Ideally the pathing system would catch situations where the scientist cannot reach the bed at all, but if an ambiguous case comes up

the player can always reset the level manually.

3.4 Business Details

This game will be mostly promoted online. Since this will be seen as a casual game, advertisements and promotion will be handled on facebook and other casual gaming sites. Most of the promotion will be from video ads, game ads, and gameplay videos. The game will be on Android and iOS devices, with a demo on the web for players to get a taste without having to pay. We will get promotion on sites like Touch Arcade and other website devoted to reviewing mobile games. Having the game start at an introductory price of a dollar for the first month, then increasing the price to three dollars for the next year. After that, a facebook release is planned to get some more life out of the IP while the second iteration of the game is made. By having the players pay per each level using a high amount of in game credits or a facebook credit or two, we can add revenue without having to add content. The game will be made by a programmer, an artist, and a web developer. The programmer and artist will be working on the game, while the web developer works on the website, where the game will be playable in a demo, and in charge of making all the advertisements. The game will be made in Flash, so a professional license is needed. The digital art will be made in Photoshop with a copy of Photoshop and a tablet needed to make the art of the game. For the web

developer, a domain name and server is needed to host the site. With all of these things the development of this game should only take 3-6 months with an extra 1-2 months to playtesting and fix bugs. Simply put, the game will only need an initial investment of around $4,000. Estimates show that the initial investment will be made up in the first 3 months of sales, with around $2,000 being made each month without our game going viral. Viral estimates show us making up the investment in the first month, and making $6,000 each subsequent month.