

= Robotron : 2084 =

Robotron : 2084 ( also referred to as Robotron ) is an arcade video game developed by Eugene Jarvis and Larry DeMar of Vid Kidz and released by Williams Electronics ( part of WMS Industries ) in 1982 . It is a shoot ' em up with two @-@ dimensional graphics . The game is set in the year 2084 in a fictional world where robots have turned against humans in a cybernetic revolt . The aim is to defeat endless waves of robots , rescue surviving humans , and earn as many points as possible .

Robotron popularized the twin joystick control scheme , one that had previously been used in Taito 's Space Dungeon .

Robotron : 2084 was critically and commercially successful . Praise among critics focused on the game 's intense action and control scheme . The game is frequently listed as one of Jarvis 's best contributions to the video game industry . Robotron : 2084 arcade cabinets have since become a sought @-@ after collector 's item . It was ported to numerous platforms .

= = Gameplay = =

Robotron is a 2D multi @-@ directional shooter game in which the player controls the on @-@ screen protagonist from a top @-@ down perspective . The game is set in the year 2084 in a fictional world where robots ( " Robotrons " ) have taken control of the world and eradicated most of the human race . The main protagonist is a nameless superhuman attempting to save the last human family .

The game uses a two @-@ joystick control scheme ; the left joystick controls the on @-@ screen character 's movement , while the right controls the direction the character 's weapon fires . Both joysticks allow for an input direction in one of eight ways . Each level , referred to as a " wave " , is a single screen populated with a large number of various enemy robots and obstacles ; types include invincible giants to robots that continually manufacture other robots that shoot the protagonist . Coming into contact with an enemy , projectile , or obstacle costs the player one life , but extra lives can be earned at certain point totals . Waves also include human family members who can be rescued to score additional points , but certain robots can either kill them or turn them into enemies . Destroying all vulnerable robots allows the player to progress to the next wave ; the cycle continues until all reserve lives are lost .

= = Development = =

Robotron : 2084 features monaural sound and raster graphics on a 19 @-@ inch CRT monitor . It uses a Motorola 6809 central processing unit that operates at 1MHz . To produce multiple sounds on a single audio channel , the game uses a priority scheme to generate sounds in order of importance . A custom graphics coprocessor ? which operates as a blitter chip ? generates the on @-@ screen objects and visual effects . The coprocessor increases the transfer speed of memory , which allows the game to simultaneously animate a large number of objects .

The game was developed in six months by Eugene Jarvis and Larry DeMar , founders of Vid Kidz . Vid Kidz served as a consulting firm that designed games for Williams Electronics ( part of WMS Industries ) , whom Jarvis and DeMar had previously worked for . The game was designed to provide excitement for players ; Jarvis described the game as an " athletic experience " derived from a " physical element " in the two joystick design . Robotron : 2084 's gameplay is based on presenting the player with conflicting goals : avoid enemy attacks to survive , defeat enemies to progress , and save the family to earn points . It was first inspired by Stern Electronics ' 1980 arcade game Berzerk and the Commodore PET computer game Chase . Berzerk is a shooting game in which a character traverses a maze to shoot robots , and Chase is a text @-@ based game in which players move text characters into others . The initial concept involved a passive main character ; the object was to get robots that chased the protagonist to collide with stationary , lethal obstacles . The game was deemed too boring compared to other action titles on the market and shooting was added to provide more excitement .

The dual joystick design was developed by Eugene Jarvis , and resulted from two experiences in Jarvis 's life : an automobile accident and playing Berzerk . Prior to beginning development , Jarvis injured his right hand in an accident ? his hand was still in a cast when he returned to work , which prevented him from using a traditional joystick with a button . While in rehabilitation , he thought of Berzerk . Though Jarvis enjoyed the game and similar titles , he was dissatisfied with the control scheme ; Berzerk used a single joystick to move the on @-@ screen character and a button to fire the weapon , which would shoot the same direction the character was facing . Jarvis noticed that if the button was held down , the character would remain stationary and the joystick could be used to fire in any direction . This method of play inspired Jarvis to add a second joystick dedicated to aiming the direction projectiles were shot . Jarvis and DeMar created a prototype using a Stargate arcade system board and two Atari 2600 controllers attached to a control panel . In retrospect , Jarvis considers the design a contradiction that blends " incredible freedom of movement " with ease of use .

The developers felt a rescue theme similar to Defender ? one of their previous games ? was needed to complete the game , and added a human family as a method to motivate players to earn a high score . The rescue aspect also created a situation where players had to constantly reevaluate their situation to choose the optimal action : run from enemies , shoot enemies , or rescue humans . Inspired by George Orwell 's Nineteen Eighty @-@ Four , Jarvis and DeMar worked the concept of an Orwellian world developed into the plot . The two noticed , however , that 1984 was approaching , but the state of the real world did not match that of the book . They decided to set the game further in the future , the year 2084 , to provide a more realistic timeframe for their version of " Big Brother " . Jarvis , a science fiction fan , based the Robotrons on the idea that computers would eventually become advanced entities that helped humans in everyday life . He believed the robots would eventually realize that humans are the cause of the world 's problems and revolt against them .

Jarvis and DeMar playtested the game themselves , and continually tweaked the designs as the project progressed . Though games at the time began to use scrolling to have larger levels , the developers chose a single screen to confine the action . To instill panic in the player , the character was initially placed in the center of the game 's action , and had to deal with projectiles coming from multiple directions , as opposed previous shooting games such as Space Invaders and Galaxian , where the enemies attacked from a single direction . This made for more challenging gameplay , an aspect Jarvis took pride in . Enemies were assigned to stages in different groups to create themes . Early stages were designed to be relatively simple compared to later ones . The level of difficulty was designed to increase quickly so players would struggle to complete later stages . In retrospect , Jarvis attributes his and DeMar 's average player skills to the game 's balanced design . Though they made the game as difficult as they could , the high end of their skills ended up being a good challenge for expert players . The graphics were given a simple appearance to avoid a cluttered game screen , and object designs were made distinct from each other to avoid confusion . Black was chosen as the background color to help characters stand out and reduce clutter .

Of special note is that Robotron had a major defect where the game would reset ( Carpet pattern reset / watchdog reset ) if a specific scenario was experienced while shooting an Enforcer in a corner of the screen . In 1987 , Christian Gingras evaluated the code to find the problem . A visit to Williams headquarters to consult with the VidKidz resulted in code fixes that eventually made it into all later ports of the game .

= = = Enemy designs = = =

Each enemy was designed to exhibit a unique behavior toward the character ; random elements were programmed into the enemies ' behaviors to make the game more interesting . The first two designed were the simplest : Electrodes and Grunts . Electrodes are stationary objects that are lethal to the in @-@ game characters , and Grunts are simple robots that chase the protagonist by plotting the shortest path to him . Grunts were designed to overwhelm the player with large groups . While testing the game with the new control system and the two enemies , Jarvis and DeMar were impressed by the gameplay 's excitement and fun . As a result , they began steadily increasing the

number of on @-@ screen enemies to over a hundred to see if more enemies would generate more enjoyment .

Other enemies were created to add more variety . Large , indestructible Hulks , inspired by an enemy in Berzerk , were added to kill the humans on the stage . Though they cannot be destroyed , the developers decided to have the protagonist 's projectiles slow the Hulk 's movement as a way to help the player . Levitating Enforcers were added as enemies that could shoot back at the main character ; Jarvis and DeMar liked the idea of a floating robot and felt it would be easier to animate . A projectile algorithm was devised for Enforcers to simulate enemy artificial intelligence . The developers felt a simple algorithm of shooting directly at the protagonist would be ineffective because the character 's constant motion would always result in a miss . Random elements were added to make the projectile more unpredictable ; the Enforcer aims at a random location in a ten pixel radius around the character , and random acceleration curves the trajectory . To further differentiate Enforcers , Jarvis devised the Spheroid enemy as a robot that continually generated Enforcers , rather than have them already on the screen like other enemies . Brains were conceived as robots that could capture humans and brainwash them into enemies called Progs . DeMar devised the final enemies as a way to further increase the game 's difficulty ; Tanks that fire projectiles which bounce around the screen , and Quarks as a tank @-@ producing robot .

In the summer of 2012 , Eugene Jarvis wrote a comprehensive evaluation of the Robotron Enemy Dynamics : The game is hard @-@ coded with 40 waves , whereupon the game repeats wave 21 to 40 over and over until the game restarts back to the original wave 1 , once the player completes wave 255 . In the summer of 2012 , Larry DeMar also provided details about how to trigger the secret room in Robotron .

= = Reception = =

Robotron : 2084 was commercially successful ; Williams sold approximately 19 @,@ 000 arcade cabinets , and mini cabinets and cocktail versions were later produced . The different arcade versions have since become varying levels of rarity ; the cocktail and cabaret versions are very rare , while the upright cabinets are more available . It is one of the most collected arcade games , and is consistently higher priced than other titles among collectors .

The game has been positively received by critics . Author David Ellis called Robotron : 2084 a " classic favorite " of its time , and stated that , despite the game 's difficulty , it is among the most popular video games in the industry . Retro Gamer rated the game number two on their list of " Top 25 Arcade Games " , citing its simple and addictive design . In 2008 , Guinness World Records listed it as the number eleven arcade game in technical , creative and cultural impact . Brett Alan Weiss of Allgame called it one of the industry 's " most exciting and intense " games . He complimented the gameplay , graphics and audio , calling them addictive , colorful and energized respectively . The game has garnered praise from industry professionals as well . Midway Games 's Tony Dormanesh and Electronic Arts ' Stephen Riesenberger called Robotron : 2084 their favorite arcade game . David Thiel , a former Gottlieb audio engineer , referred to the game as the " pinnacle of interactive game design " . Xot 's John Leffingwell described Robotron : 2084 as " the perfect blend of mayhem and simplicity " , and commented that its plot was an interesting commentary . Jeff Peters from GearWorks Games praised the playing field as " crisp and clear " , and described the strategy and dexterity required to play as a challenge to the senses . He summarized the game as " one of the best examples of game play design and execution . "

Critics lauded Robotron : 2084 's gameplay . Authors Rusel DeMaria and Johnny Wilson enjoyed the excitement created by the constant waves of robots and fear of the character dying . They considered it one of the more impressive games produced from the 80s and 90s . Author John Vince considered the reward system ( saving humans ) and strategic elements as positive components . ACE magazine 's David Upchurch commented that despite the poor graphics and basic design , the gameplay 's simplicity was a strong point . The control scheme in particular was well received . DeMaria and Wilson considered it a highlight which provided the player a tactical advantage . Owen Linzmayer of Creative Computing Video & Arcade Games praised the freedom of

movement afforded by the controls . Ellis commented that the unique control scheme was a factor in the game 's success . Retro Gamer lauded the controls , describing them as " one of the greatest control systems of all time . " In retrospect , DeMar felt players continued to play the game because the control scheme offered a high level of precision .

= = Legacy = =

Jarvis 's contributions to the game 's development are often cited among his accolades . Vince considered him as one of the originators of " high @-@ action " and " reflex @-@ based " arcade games , citing Robotron : 2084 's gameplay among other games designed by Jarvis . In 2007 , IGN listed Eugene Jarvis as a top game designer whose titles ( Defender , Robotron 2084 , and Smash TV ) have influenced the video game industry . GamesTM referred to the game as the pinnacle of his career . Shane R. Monroe of RetroGaming Radio called Robotron " ... the greatest twitch and greed game of all time . "

Bill Loguidice and Matt Barton of Gamasutra commented that Robotron 's success , along with Defender , illustrated that video game enthusiasts were ready for more difficult games with complex controls . Though not the first to implement it , Robotron : 2084 's use of dual joysticks popularized the design among 2D shooting games , and has since been copied by other arcade @-@ style games . The control scheme has appeared in several other titles produced by Midway Games : Inferno , Smash TV , and Total Carnage . Many shooting games on Xbox Live Arcade and PlayStation Network use this dual control design . The 2003 title Geometry Wars and its sequels also use a similar control scheme . The input design was most prominent in arcade games until video games with three @-@ dimensional ( 3D ) graphics became popular in the late 1990s . Jarvis attributes the lack of proliferation in the home market to the absence of hardware that offered two side @-@ by @-@ side joysticks . Most 3D games , however , use the dual joystick scheme to control the movement of a character and a camera . Few console games , like the 2004 title Jet Li : Rise to Honor , use two joysticks for movement and attacking .

= = = Remakes and sequels = = =

Jarvis planned to produce sequels , but the North American video game crash of 1983 halted most video game production for a few years . Prior to the full effects of the crash , Vid Kidz developed an unofficial sequel ( Blaster ) in 1983 . The game is set in the same universe and takes place in 2085 in a world overrun by Robotrons . Williams considered creating a proper sequel in the mid @-@ 1980s as well as a movie adaptation . The company released a sequel with 3D graphics titled Robotron X in 1996 for the Sony PlayStation and personal computers . It was ported two years later to the Nintendo 64 as Robotron 64 . In addition to the graphical update , the game includes new audio and multiple camera angles . Though the game features similar gameplay as the original , it was not as well received . Authors Andrew Rollings and Ernest Adams considered the moving camera in the 3D environment a negative update . They felt the original format ? an overhead perspective of a single screen ? presented the player with all the necessary information and relied on the player 's skill . The moving camera angle , however , obscured areas of the playing field and could result in the player being shot by an enemy that suddenly appeared . Vince echoed similar statements , stating that the gameplay suffered from the loss of important aspects from the original . Rollings and Adams , however , attribute the fad of classic video game remakes in the late 1990s in part to Robotron X 's release .

Robotron : 2084 has been remade on different platforms . Beginning in 1983 , the game was ported to several platforms including the Atari 5200 , Atari 7800 , Apple IIe , Commodore 64 , and TI @-@ 99 / 4A . Most conversions did not have a dual joystick and were received less favorably by critics . In 2000 , a web @-@ based version of Robotron : 2084 , along with nine other classic arcade games , were published on Shockwave.com ( a website related to Adobe Shockwave ) . Four years later , Midway Games also launched a website featuring the Shockwave versions . The game has been included in several multi @-@ platform compilations : the 1996 Williams Arcade 's Greatest

Hits , the 2000 Midway 's Greatest Arcade Hits , the 2003 Midway Arcade Treasures , and the 2012 Midway Arcade Origins . It also appeared in an expansion to Lego Dimensions . In 2004 , Midway Games planned to release a plug and play version of Robotron : 2084 as part of a line of TV Games , however , it was never released . Robotron : 2084 became available for download via Microsoft 's Xbox Live Arcade in November 2005 . In February 2010 , however , Microsoft removed it from the service citing permission issues . The Xbox Live version included high @-@ definition graphics and two @-@ player cooperative multi @-@ player with one player controlling the movement and another the shooting . Scores were tracked via an online ranking system . The game has also inspired other titles . The 1990 arcade game Smash TV , also designed by Jarvis , features a similar design ? two joysticks used to shoot numerous enemies on a single screen ? as well as ideas he intended to include in sequels . In 1991 , Jeff Minter released a shareware game titled Llamatron based on Robotron : 2084 's design . Twenty years later , Minter released an upgraded version titled Minotron : 2112 on the iPhone .

= = Reverse engineering work = =

Annotated reverse engineering of the Robotron 2084 arcade game can be found at [http : / / www.seanriddle.com](http://www.seanriddle.com)

= = Robotron II = =

The video game crash of the early 80 's saw the VidKidz disband before creating Robotron 's sequel . DeMar went back to pinball development and Jarvis went back to college . Later , both went on to entertainment industry successes with hits in pinball , racing games , light gun games , casino games , and social media games . Robotron II remained a forgotten project , never to be implemented .

= = In other media = =

The robots attacking the player show up in the movie " Pixels " , near the end where the arcade characters begin a full @-@ on attack on Earth . The game is also mentioned in the novel Ready Player One as protagonist Wade Watts ' favorite video game . A modified version of the game appears in Fallout 4 's DLC Automatron as a hidden mini game called Automatron , reskinned with the robots of the franchise .