= Nimrod (computing) =

The Nimrod , built in the United Kingdom by Ferranti for the 1951 Festival of Britain , was an early computer custom @-@ built to play a computer game , one of the first games developed in the early history of video games . The twelve @-@ by @-@ nine @-@ by @-@ five @-@ foot computer , designed by John Bennett and built by engineer Raymond Stuart @-@ Williams , allowed exhibition attendees to play a game of Nim against an artificial intelligence . The player pressed buttons on a raised panel corresponding with lights on the machine to select their moves , and the Nimrod moved afterwards , with its calculations represented by more lights . The speed of the Nimrod 's calculations could be slowed down to allow the presenter to demonstrate exactly what the computer was doing , with more lights showing the state of the calculations . The Nimrod was intended to demonstrate Ferranti 's computer design and programming skills rather than to entertain , though Festival attendees were more interested in playing the game than the logic behind it . After its initial exhibition in May , the Nimrod was shown for three weeks in October 1951 at the Berlin Industrial Show before being dismantled .

The game of Nim running on the Nimrod is a candidate for one of the first video games , as it was one of the first computer games to have any sort of visual display of the game . It appeared only four years after the 1947 invention of the cathode @-@ ray tube amusement device , the earliest known interactive electronic game to use an electronic display , and one year after Bertie the Brain , a computer similar to the Nimrod which played tic @-@ tac @-@ toe at the 1950 Canadian National Exhibition . The Nimrod 's use of lightbulbs rather than a screen with real @-@ time visual graphics , however , much less moving graphics , does not meet some definitions of a video game .

= = Development = =

In the summer of 1951 , the United Kingdom held the Festival of Britain , a national exhibition held throughout the UK to promote the British contribution to science , technology , industrial design , architecture , and the arts and to commemorate the centenary of the 1851 Great Exhibition . British engineering firm and nascent computer developer Ferranti promised to develop an exhibit for the Festival . In late 1950 , John Bennett , an Australian employee of the firm and recent PhD graduate from the University of Cambridge , proposed that the company create a computer that could play the game of Nim . In Nim , players take turns removing at least one object from a set of objects , with the goal of being the player who removes the last object ; gameplay options can be modeled mathematically . Bennett 's suggestion was supposedly inspired by an earlier Nim @-@ playing machine , " Nimatron " , which had been displayed in 1940 at the New York World 's Fair . The Nimatron machine had been designed by Edward Condon and constructed by Westinghouse Electric from electromechanical relays , and had weighed over a ton . Although Bennett 's suggestion was a game , his goal was to show off the computer 's ability to do mathematical calculations , as Nim is based on mathematical principles , and thus showcase Ferranti 's computer design and programming skills rather than to entertain .

Ferranti began work on building the computer on 1 December 1950 , with engineer Raymond Stuart @-@ Williams adapting the design by Bennett into a working machine . Development was completed by 12 April 1951 , resulting in a device twelve feet wide , nine feet deep , and five feet tall . The majority of the volume was taken up by vacuum tubes and the lightbulbs that displayed the state of the game , with the actual computer taking up no more than two percent of the total volume of the machine . The Nimrod took the form of a large box with panels of lights , with a raised stand in front of it with buttons corresponding with the lights , which in turn represented the objects the player could remove .

The player would sit at the stand and press the buttons to make their moves , while one panel of lights showed the state of the game , and another showed the computer 's calculations during its move . The computer could be set to make its calculations at various speeds , slowing down so that the demonstrator could describe exactly what the computer was doing in real time . A visual guide attached to the Nimrod explained what the computer was doing during its turn , as well as showing

possible game states and how they would be represented by the lights . Signs stating which player 's turn it was and whether one or the other had won would light up as appropriate during gameplay .

= = Presentation = =

On 5 May 1951 , the Nimrod computer was presented at the Festival as the Nimrod Digital Computer , advertised as " faster than thought " and an " electronic brain " . It exclusively played the game of Nim ; moves were made by players seated at the raised stand , with the demonstrator sitting on the other side between the stand and the computer . Nimrod could play either the traditional or " reverse " form of the game . A short guidebook was sold to visitors for one shilling and sixpence explaining how computers worked , how the Nimrod worked , and advertising Ferranti 's other developments . It explained that the use of a game to demonstrate the power of the machine did not mean that it was meant for entertainment and compared the mathematical underpinnings of Nim with modeling the economics of countries . Players of the Nimrod during the Festival included computer science pioneer Alan Turing .

Although it was intended as a technology demonstration , most of the onlookers at the Festival of Britain were more interested in playing the game than in the programming and engineering logic behind it . Bennett claimed that " most of the public were quite happy to gawk at the flashing lights and be impressed . " BBC Radio journalist Paul Jennings claimed that all of the festival attendees " came to a standstill " upon reaching the " frightful " " tremendous gray refrigerator " .

After the Festival , the Nimrod was showcased for three weeks in October at the Berlin Industrial Show , where it also drew crowds , including the West Germany economics minister Ludwig Erhard . Afterwards , however , as it had served its purpose the Nimrod was dismantled . As the Nimrod was not intended as an entertainment product , it was not followed up by any future games , and Ferranti continued its work on designing general purpose computers .

The Nimrod was created only four years after the 1947 invention of the cathode @-@ ray tube amusement device , the earliest known interactive electronic game , and one year after a similar purpose built game @-@ playing machine , Bertie the Brain , the first computer @-@ based game to feature a visual display of any sort . The Nimrod is considered under some definitions one of the first video games , possibly the second . While definitions vary , the prior cathode @-@ ray tube amusement device was a purely analog electrical game , and while the Nimrod and Bertie did not feature an electronic screen they both had a game running on a computer . The software @-@ based tic @-@ tac @-@ toe game OXO and a draughts program by Christopher Strachey were programmed a year later in 1952 and were the first computer games to display visuals on an electronic screen rather than through light bulbs .