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Research Article

The Evolution of Pong Pong: Hardware and Software Innovation

Shivam Tripathi[1], Divya Singla[2], Karan Kataria[3]

[1,2,3]Department of Computer Science & Engineering Chandigarh University, Gharuan, India.

I N F O

Corresponding Author:
Shivam Tripathi, Department of Computer Science & Engineering Chandigarh University, Gharuan, India.
E-mail Id:
19BCS1788@gmail.com
Orcid Id:
https://orcid.org/0009-0006-1572-3465
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A B S T R A C T

A freeware version of the two-dimensional electronic table tennis game called “Pong” that uses several balls and random bricks is called the “Pong Game Java Project.” The quantity of bricks and balls is adjustable by the player, a score is kept in the background. Python modules are used in the game’s primary running, brick, ball modules. Without human intervention, the system leverages machine learning and biometrics to verify participation, assuring data security and minimising paper use. Future growth in the use of attendance systems is anticipated, with fingerprint biometric technologies being a possible solution. Using Arduino software, the project generates data and records using a variety of modules, including fingerprint and ID new modules. Future users of the attendance system are guaranteed security thanks to the usage of fingerprint sensors.

Keywords: Pong, Two Dimentional, Tennis, Java Project

Introduction

One of the first video games ever made on a computer was called Pong. It is a straightforward “tennis-like” game played with two paddles and a ball. The object is to beat your opponent by scoring 10 points first. One player can compete against a paddle controlled by a computer, or the game can be played with two human players. Allan Alcorn originally created the game, which Atari companies launched in 1972. The first commercially successful game, Pong quickly rose to fame. In 1975, Atari released a home version of the game (the original was played on arcade machines), it quickly sold 150,000 copies. Since it showed that the video games business could generate large profits, the Pong Game is often regarded as the game that gave birth to the video game industry Figure 1.

In order to develop games and concepts and licence them to other businesses for mass production, Nolan Bushnell launched Atari in 1972. Pong was initially created as a training exercise for Allan Alcorn, an employee of Atari.

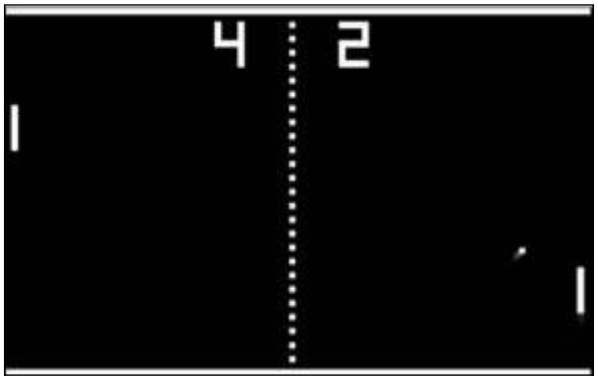

Figure 1.Pong game

After it was completed, Nolan made a few changes to the game to make it more engaging (such as adjusting the ball’s return angle) and included some basic sound effects. Due to the popularity of the first Pong Arcade system, which was installed in a nearby bar, Atari chose to create and market the game on their own rather than provide a licence to another company. Pong joined the ranks of other

well-known video games like Pacman and Tetris as an icon of computer gaming. Along with the Magnavox Odyssey, Pong was the first commercially successful video game and contributed to the development of the video game industry. Several firms started making games that closely resembled it shortly after it was released. Atari eventually encouraged its workers to develop games that were more inventive than Pong after its rivals started to introduce new video game genres that varied in how much they diverged from Pong's initial framework. Atari created many Pong sequels that improved on the gameplay of the first game by introducing new elements. Atari offered a Pong home version during the 1975 holiday season through Sears retail establishments only. The home version was also financially successful, inspiring many copies. Following its debut, the game was remade for various home and portable systems. Due of the game's influence on culture, Pong is a part of the Smithsonian Institution's permanent collection in Washington, D.C. The game's earning power resulted in an increase in the number of orders Atari received. This provided Atari with a steady source of income; the company sold the machines at three times the cost of production. By 1973, the company had filled 2,500 orders,, at the end of 1974, sold more than 8,000 units. The arcade cabinets have since become collector's items with the cocktail-table version being the rarest. Soon after the game's successful testing at Andy Capp's Tavern, other companies began visiting the bar to inspect it. Similar games appeared on the market three months later, produced by companies like Ramtek and Nutting Associates. As they hadn't initially applied for patents on the solid state technology utilised in the game, Atari had little leverage against its rivals. When the business did submit patent applications, difficulties slowed the process down. As a result, the market was dominated by "Pong clones"; according to author Steven Kent, Atari only made fewer than a third of the devices. Bushnell referred to the rivals as "Jackals" because he believed they had an unfair advantage.

Since there were numerous Pong clones available, Atari only sold around one-third of the total number of Pong computers sold worldwide, which was more over 35000. By creating more creative games and concepts, he was able to outdo them.

Following its 1975 restricted distribution through Sears, Home Pong was an immediate hit; throughout the holiday season, about 150,000 units were sold. Atari received a Sears Quality Excellence Award for the game, which at the time was Sears' most popular item. Atari's own version generated an extra 50,000 sales. Similar to the arcade version, many businesses produced clones to profit on the popularity of the home system, many of them proceeded to make new consoles and video games. Magnavox rereleased the Odyssey system, adding new capabilities and simplifying the hardware, later launched upgraded versions. With the Telstar system, which has three Pong variations and was followed by updated models, Coleco entered the video game market. In 1977, Nintendo released the six-variation Colour TV Game 6. The Colour TV Game 15, which has fifteen permutations, was released the following year as an improved edition. Since they had previously licenced the Magnavox Odyssey, the systems marked Nintendo's introduction into the home video game market and were the first that they self-produced. Since then, both the original specialised Pong consoles and the many copies have become increasingly rare; Atari's Pong consoles are widespread, while APF Electronics' TV Fun consoles are fairly uncommon. However, prices among collectors vary according to rarity; the Sears Tele-Games versions are frequently less expensive than those bearing the Atari name. shortly after the release of the first Pong game on the Atari. Atari decided to manufacture more creative games in order to compete with the Pong Game clones, such as "Double Pong," which had four players split into two teams of two a bigger screen and a side.

Background

The general background information for the virtual Pong game is provided in this section. This section also includes our project objectives and requirements.

Pong is an arcade sports video game with a table tennis theme that was first offered by Atari in 1972. It has basic two-dimensional visuals. It was one of the first arcade video games, Allan Alcorn made it as a training exercise for Atari cofounder Nolan Bushnell. However, Bushnell and Atari cofounder Ted Dabney were impressed with Alcorn's work and decided to produce the game.

The first home video game console, the Magnavox Odyssey, had an electronic pong game that served as the inspiration for Bushnell's design. In retaliation, Magnavox later filed a patent infringement lawsuit against Atari.

The revolutionary electronic game Pong was released in 1972 by American game developer Atari, Inc. Pong, one of the first video games, gained enormous popularity and contributed to the beginning of the video game business. Players of the original Pong used two paddles to volley a little ball across a screen back and forth. When he suggested developing straightforward video games that people might play on their home television sets in 1958, the American television engineer Ralph Baer, who was born in Germany, created the foundation for Pong. Table tennis, or Ping-Pong, was one of the games available on the Magnavox Odyssey, the first console video game system, when it was introduced in 1972. Nolan Bushnell, the man of Atari, adapted this idea into the arcade game Pong.

Atari, a fledgling business at the time, started making the

games in an abandoned roller rink, by 1972, it had sold more than 8,000 Pong arcade devices. Pong was converted into a console system game by Atari in 1975. Pong quickly found its way into the homes of many American families after securing an exclusive partnership with Sears, Roebuck and Company. Even if video games briefly fell out of favour in the 1980s, Pong had already cemented its legacy as the most played arcade game up to that point Figure 2-3.

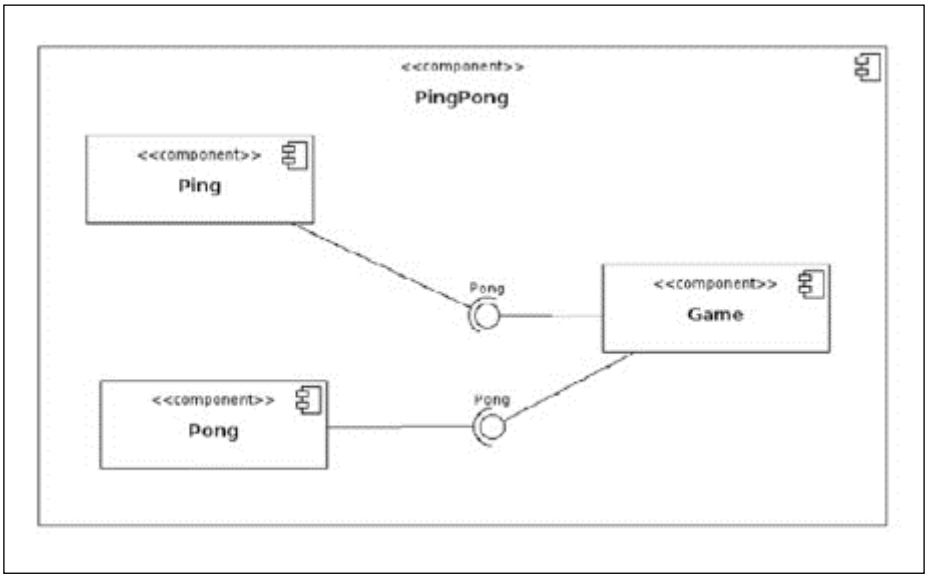

Figure 2.UML design of Ping Pong game

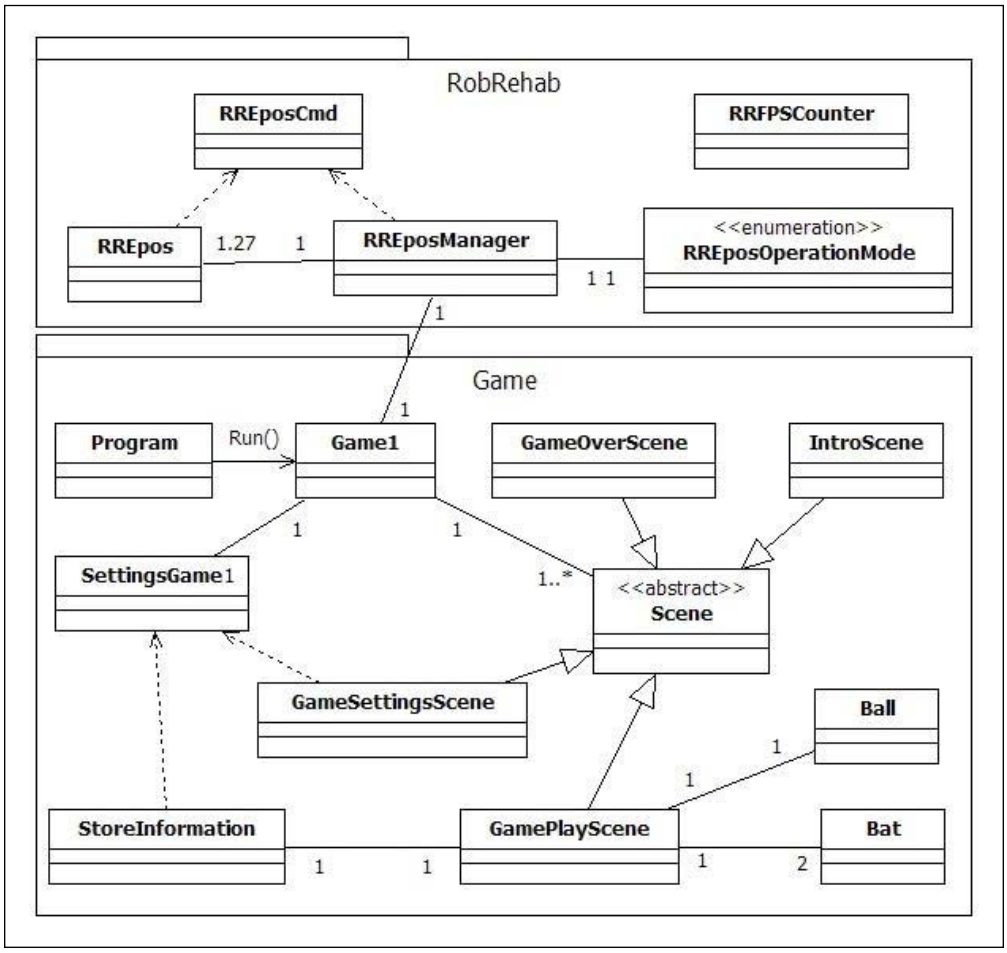

Figure 3.ong game RobRehab Frame work

Hardware Requirements

Hard Disk – 2 GB.

RAM – 512 MB.

Processor – Dual Core or Above

Software Requirements

Codeskulptor

Technology Used

Python3

Innovations

None of us knew exactly what we intended to build when we each individually up for this course. However, we were all aware that we were looking for something enjoyable and engaging. Although we had seen earlier projects and the hotel management system, none of them really resonated with us. Then this Pong game appears.

This project provided a platform for enjoyment in the midst of the pandemic, playing it allows one to unwind and even develop brainpower through creative play. So, the pandemic era served as the primary inspiration for the creation of the Pong game.

Students who are carrying their smart cards only need to pass through the pursuer, who will then check their new unique identification number before stamping the participation. Nowadays, fewer people browse online at work due to the growing number of cell phone users around the world and the web's association with them.

According to a survey, 80% of web users access websites on their mobile devices, increasing the average cell phone conversion rates by 64% when compared to work places. As a businessperson, now is the perfect time to start considering a flexible presence for your company. However, the application industry is too competitive nowadays and is becoming increasingly more eager to blend in. Going unprepared for the development of mobile applications could prove to be costly and uncertain given the huge stakes and the amount of time involved.

As a result, a sensible methodology is to plan how your new adaptable application upgrade will fit into your organization's overall, field-tested strategy. It eliminates any possibility of creating a programme that deviates from the norm and submits errors that could damage the company's reputation.

In this way, consciously developing a technique is the best strategy to enhance adaptable application development. Here are a few steps to keep in mind when you set up a process for adaptable application modification.

In educational organisations, attendance is important. The most common way to record participation in a homeroom is by counting the number of students present or by having them physically sign the participation sheet that is circulated throughout the discussion. It turns out to be really awkward to physically take and maintain the participation records. Biometric frameworks have sufficiently advanced to the point where they may currently be carried in frameworks without compromising portability. Information can now be securely stored and restored whenever necessary thanks to the development of various cloud-based registering and capacity frameworks. Fundamentally, it is believed that iris and fingerprint images are the most reliable for usage in biometric systems.

Features

he goal of our project is to design, implement, test a 2 player game called Pong which is similar to the popular game, table-tennis. This game requires at-least one or two players to play the game. The specifications of the game are:

1. Pong needs paddles to play the game.
2. The balls are needed which will be secured by paddles before goaling. The goal is to defeat your opponent by being the first one to gain10 point, a player gets a point once the opponent misses a ball. The game can be played with two human players, or one player against a computer controlled paddle Figure 4-7.

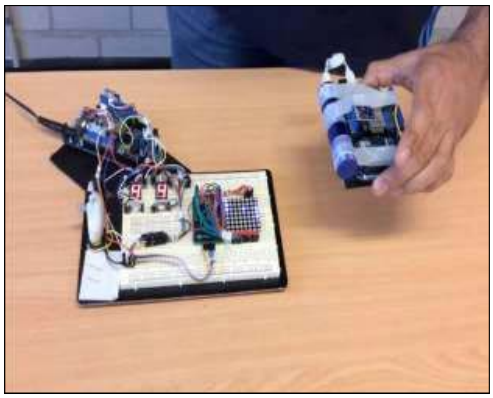

Figure 4

Figure 5

Figure 6

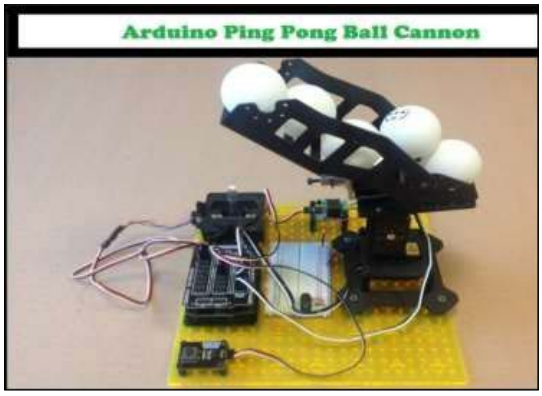

Figure 7

Discussion

In this section the Project implementation part were explained in detail that includes how to get things into work. The exploratory model was made after the circuit outline and the ideal outcomes were gotten. Each time somebody puts his fingeron the sensor the sensor peruses the information and stores it in the cloud. Next time somebody needs to really look at the unique mark he/she puts the finger on the sensor. The sensor peruses the information

A series of tests were executed varying: the number of genomes per generation (3 and 5)

the number of hidden layers per network (1 and 2)

the number of neurons per hidden layer (2 and 4)

the type of the network (backpropagation and evolutionary algorithm)

In each test two agents played against each other multiple games in a row The performance of both agents in the form of hits per game was recorded Both identical and different agents were tested against each other.

A set of randomly generated solutions is created (a population of individuals) Each solution is evaluated to determine its adequateness (its fitness) The best solutions (fittest individuals) are selected to generate a new and hopefully better set (the next generation) New solutions are generated by combining (recombination) or altering old ones (mutation) The process is repeated with the new set of solutions The population fitness gradually increases and eventually the most fit individual is chosen as an optimal approximation of the problem's solution.

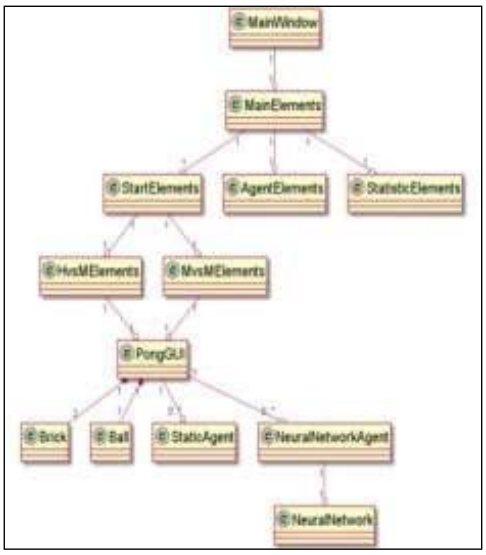

Figure 8.The exploratory model

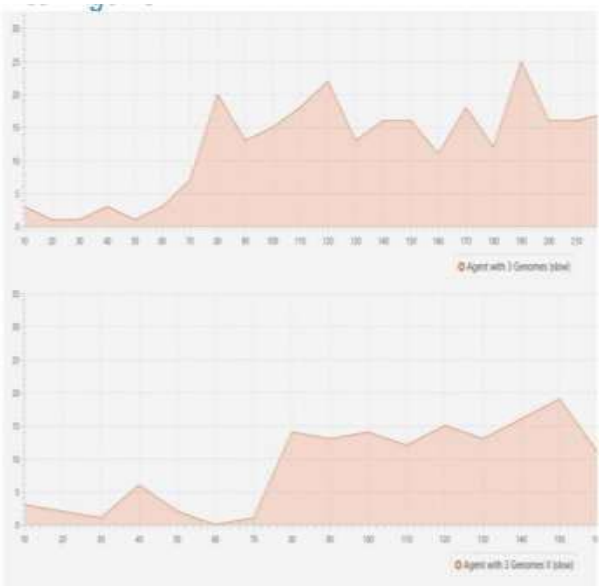

Figure 9.A series of tests

Conclusion

This section discusses the results of the project. All information here is repeated from earlier sections of this report. This product is basically a software product. This game is made up of Python. This product is very useful when we talk about fun and concentration. It also contains two paddles which is used to hit the ball and make the goal safe. It also have a ability to find mental peace. What makes this Pong game so special is that in this pandemic situation, when almost everyone has lost his/her temper, they can

use this game for fun and can make their brain sharp.

- Increasing the number of genomes per generation did not cause a significant change
- Increasing the number of hidden layers helps the agent learn earlier
- Increasing the number of neurons per hidden layers also helps the agent learn earlier

The agent using a back propagation neural network can learn faster because it is free from the overhead needed to maintain generations Figure 10.

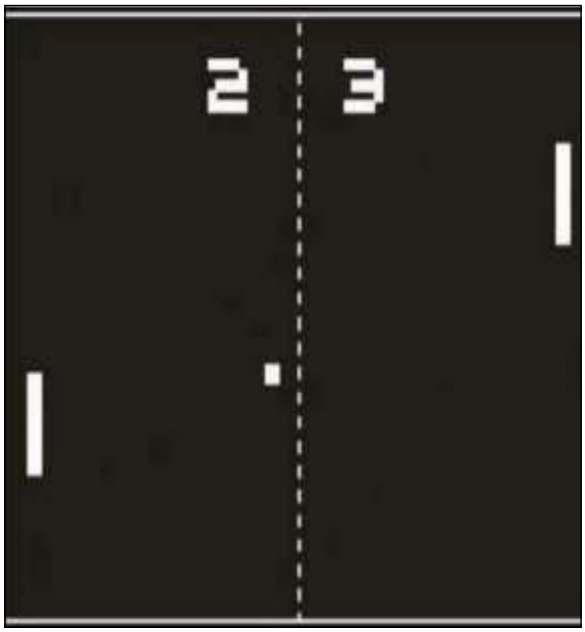

Figure 10

Presently assuming the client needs to eliminate or erase any of the put away ID or unique fingerprint, then, at that point, he/she really want to press DEL key. Once erase key is squeezed LCD will request to choose ID that should be erased. Presently client needs to choose ID and press OK key (same DEL key). Presently LCD will tell you that finger impression has been erased effectively. The conventional course of physically taking and keeping up with understudy participation is profoundly wasteful and tedious. The participation checking framework dependent on biometric verification can possibly smooth out the entire cycle. An Internet of Things (IoT) based convenient biometric participation framework can end up being of incredible worth to instructive establishments in this see as it ends up being exceptionally proficient and secure. The expense engaged with making this framework is very less, when contrasted with customary biometric participation framework. The utilization of cloud registering to store the participation records makes every one of the information simple to get to and recover as end when needed by the instructors. The utilization of finger impression scanner guarantees the unwavering quality of the participation record. The framework, because of its absence of intricacy, ends up being not difficult to utilize and client cordial. The framework can be improved by encasing it in a plastic covering. This would make it smaller and simpler to use in a study hall setting. The framework can be designed to empower lecture wise participation taking. It can additionally be improved to consequently work out participation rates of understudies and close the educators if an understudy's participation is under a certain rate. It can likewise be altered to fit the professional workplace. The conventional course of physically taking and keeping up with understudy participation is profoundly wasteful and tedious. The participation checking framework dependent on biometric verification can possibly smooth out the entire cycle. An Internet of Things (IoT) based versatile biometric participation framework can end up being of incredible worth to instructive foundations in this view as it ends up being exceptionally proficient and secure. The expense associated with making this framework is very less, when contrasted with ordinary biometric participation framework. The utilization of cloud figuring to store the participation records makes every one of the information simple to get to and recover as end when needed by the educators. The utilization of unique fingerprint scanner guarantees the dependability of the participation record. The framework, because of its absence of intricacy, ends up being not difficult to utilize and client agreeable.

Future Development

Biometric participation framework utilizing Arduino uno is exceptionally helpful for some ventures and workplaces. It's simple, financially savvy and functions admirably. Consequently, the future extent of this innovation is wide spread and very fundamental in both homegrown and modern applications.

The Fingerprint Recognition Student Attendance Management System is as it were created for the utilization of single workforce. In future, it is accepted that this framework will be upgraded to be utilized by all resources in a college, school, or school. Other than that, the framework created is more spotlight on administrator job just as instructor job which result in less elements gave to the understudy job. Under study possibly permitted seeing on the off chance that they had been banned from specific class. In this way, understudy has exceptionally restricted element to utilize in this framework. In future work, understudy ought to have the option to claim through the framework.

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