

Overview

Topic

Our project idea is an application that can be used to authenticate game & trading cards such as Yu-Gi-OH, Pokemon, Baseball and more to ensure that they are real. At a very basic level, a camera with a database of particular trading card branded images of authentic and fake cards used to distinguish the fake would be the goal, ultimately this could expand to whole machinery that can use this system.

This application can be pitched to reselling companies such as Troll and Toad & Mighty Collectibles to make it as seamless as possible when verifying trading cards. We would like this application to be used commercially first but later to be rolled out to the wider consumer base after a certain period.

Motivation

What are the motivation for our project?

A recent article written in 2022 by the Nintendo Wire has advised that over 43 billion cards have been sold by Pokemon in March 22 alone (1). The line is blurred when it comes to what's real and fake.

Why is this project important or interesting?

This project is interesting because we would download and install the app to our device easily and use it when buying and selling trading cards for determine whether card is original or fake. Also the reason that our project would be important is this app can reduce the activity of cheater and helps to destroying fake trading cards over time.

How does it fit in with current IT trends?

We would need to hardware current IT trends (Computer, Mobile, other devices) and we would need software skills like Java, HTML, CSS & more for the software to start being written which are software current IT trends.

Land scape

Since we searched about some application, device or website that could determine whether a card is fake or original, we just found some web pages which there is just some paragraphs and some information about an original card which the user should check his/her card himself/herself according to information like (<https://www.wikihow.com/Know-If-Pokemon-Cards-Are-Fake>). But it differs a lot from our project because the websites like this just give information about a particular trading card like Pokemon cards but the application that we would create will check multiple trading cards like Pokemon trading cards, Baseball

trading card, Films trading cards and etc. Also as I wrote above the websites just give information about an original trading card but the application that we will create will have multiple steps like scanning cards by the user device's camera, then compare the users scanned card with an original card's data which are exist in application's storage and then give a result whether card is fake or original.

Plans and progress

What our project will do?

It is natural that anything that is branded, used by people and attracts people to it will be misused by abusers. The abusers make a fake product that is the same as the original product and sell it to people and deceive them and like this they make money for them which causes harm to those people who use their fake product and harm to the company those who are responsible. For example, if we consider a Pokemon card, maybe someone can sell a fake card instead of a real at a high price to me that can be a severe harm to me as a product user because I can't use it or sell it but if I sell it and buyer know on me it will cause to get caught and punishment for me. As a result, this action makes me stop buying and selling and when the user of a brand or a company goes down, it causes the value and the credibility of that company go down. For this reason, we wanted to consider a solution for this purpose and we came to the conclusion to create a program through which the user can ensure the validity of his/her card.

Inspired by the market and made for the consumer, this is how we would like to describe our product. Not only are we able to penetrate such a huge market space but it'd be ever expanding for any other product that we're able to set our eyes on, with so many different companies that create(d) trading cards, the sky's the limit with how this app can be utilised.

The application that we will build will have six steps for card recognition, which are described below:

Step 1: When the user enters the app and before the user's card is checked by the app, a guide text is displayed for the user the user him/herself checks his/her own physical card so that the user can be sure of the validity of his/her physical card because there are some signs that only if the card is physically available, it can be recognized. Guide text contains: "first, you should see if your card is thinner or thicker than a real card, you should know that your card is fake. Second, you should compare your card weight with a real card and if you notice that your card is heavier or lighter weight, you should know that your card is fake. Third, if you are very suspicious about your card, then take an original card that is no longer valuable, then tear a little of your card and a little of the other card, then see the amount of damage of both cards. If your card is torn faster and more easily, then know that your card is fake. Be sure that your card is physically real then enter the next step."

Step 2: Application asks the user to allow the application to access the user's device's gallery and camera.

Step 3: If the user has a photo of the card, application will suggest the user to upload the photo.

Step 4: If there is no photo of the card in user's device, application asks the user to Fill out a form with the name of the card and the game it's from, which adds it to the user's database but does not mark it as verified. If the app doesn't recognize the card from name and origin, the user can submit a request for the developers to add to the app's database of known cards.

Step 5: The program gives the user the option of scanning his/her card with his/her device camera, so that if the app could not recognize the user's card state through the form, it could recognize it from the scan of user's card by it self's scanner.

Step 6: After receiving the user's card scan, application matches the user's card specifications with a real card specification which are describe bellow:

- **Images:** First of all, the app sees the image of the card and matches it with the original image, if there is something that looks suspicious or if it looks like it has been affixed, application gives the user result that his/her card is fake.
- If the user's card would be a Pokemon card, the app will see the card's attack and HP. If the HP of user's card is close to 300 or 300 and there is no attach, the app will give the user the result that his/her card is fake.
- **Looks for spelling mistakes:** If the application notices any spelling mistakes in text of the user's card, it will give the user the result that his/her card is fake.
- If the user's card would be a Pokemon card, the app checks the user's energy symbol and compare it with real one if the user's card is fake, it's energy symbol is larger.
- **Font:** If user's card's font has any difference with real card's font, the app will give the user the result that his/her card is fake.
- **Card box:** fake card boxes do not have trademark. For example, if the app notice that user's Pokemon card box does not have trademark, it will give the user the result that his/her card is fake.

- **Card color:** The app will check user's card's color carefully and even if the app notices the slightest darkness or lightness than a real one, it will give the user the result that his/her card is fake.

These are the specifications that matches most of the real trading cards specifications such as Yu-Gi-OH, Pokemon, Baseball or all sport trading cards and more to ensure that they are real.

The app in its final version would have different options for the type of company that it's for, EG. Pokemon, Magic the Gathering etc. We'd implement an ever growing database of images that can sort for discrepancies between certain cards and be able to give a stamp/verification seal which would allow reselling to be easier. Imagine StockX with shoes but for cards - We'd simplify the process process to allow for growth in the community.

Story of our project

As all of us had a project idea from A1, we reviewed each other's project idea. All the ideas were great and everybody had a great creativity in this part but as we had to run our project idea in A3, we had to choose an idea that could be in our level and could implement it. So, we decided to create an application that can determine whether a trading card is fake or real.

After choosing this idea started working on it on A2 and fortunately we could improve a little in our project by collecting data from different sources about creating the application that we wanted to create. Now we are in A3 and we have task to develop a plan for our project, and as much of a prototype or other artefacts that we can produce in the time available to you.

Currently we have a prototype of the layout of the app and the ability to take yes/no answers from the user for questions such as "Does the card weigh between X grams and Y grams?"

The core feature of the app, image-based verification, relies on machine learning and database collection skills that we do not have yet, so our efforts have been focused on creating the frontend user interface for the app, using Android Studio.

Our work on the backend consists mainly of research so far to find the best way of developing a machine learning model, however it is likely that we will use Tensorflow as it is well documented and seems reasonably easy to pair with android apps.

References

Wiki, 2022, *How to know Pokemon cards are fake*, viewed 24 Aug 2022. <
<https://www.wikihow.com/Know-If-Pok%C3%A9mon-Cards-Are-Fake>>.

