**Annie: Anime Assistant Deep Learning AI**

**A Capstone Project Proposal**

**Presented to the Faculty of the Information and Communications Technology Program**

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**Project Context**

In today’s day and age, there have been a lot of innovations and existing techonologies that can help us to improve your life and make your tasks easier. One of these innovations is the rise of artificial intelligence and bots, and this technology holds a lot of promise and the researchers think that it would be really helpful to find a way to utilize this technology to make the lives or tasks of people easier or atleast the proponents could get a target demographic and the proponents can figure out a project that would specifically help that demographic.

Another technological advancement that is observed nowadays is the rise of social media, social networking sites and just general messaging platforms like facebook, twitter, discord, instagram and many other platforms, these techonologies are quickly gaining traction and popularity which makes it more promising and interesting. One specific platform that caught the interest of the proponents is discord. It is a huge messaging platform geared toward online communities with a lot of possible integrations and it also has a publicly available API that could be used for free. Which is why the proponents intend to take advantage of this.

As for the main topic of this project. Through the years, anime has been making its way to the mainstream media. In fact, many anime titles today have even surpassed several live action movies in terms of revenue and popularity. One of the most recent and certainly hyped series today, “Demon slayer” even made it’s way to the box office top grossing films with its 495 million USD worldwide gross making it the highest-grossing film of 2020 According to Kyodo in his article in thejapantimes.co.jp (2021), not to mention it was released in the middle of the pandemic during which many other films barely even made any success because of the economic recession and quarantine. This goes to show how much traction the anime community is gaining and how large the community itself has become overtime.

One common problem for anime fans online is the fact that there are so many shows out ther and sometimes it can be difficult to find the shows that they like. Another problem that the anime community often complains about is the difficulty in finding the titles of the shows that they see online. A lot of people post memes or anime images online without including the title for the anime that are in the image that they posted. Because of this, many people who are interested in the show struggle in finding the title of the show. Lastly, Finding shows to watch every season can be tedious and keeping track of their airing dates can also be a hassle. This system can help alleviate these problems.

**Purpose and description of the project**

To take advantage of the popularity of the online messaging platforms and social media, as well as the current popularity of anime and the advancements that society have had with artificial intelligence. The proponents intend to make an artificial intelligence bot that also serves as an assistant for anime fans. The goal of the project is to make a bot that will help anime fans to find anime series that they love or to discover series they might enjoy through recommendations.

The core functionality of the bot will be a reverse image search which uses computer vision to help the bot recognize the title of an anime using a screenshot of the anime, this could help users to identify the title of any anime or manga as long as they have a screenshot of it, another core functionality of the bot is anime recommendations, by giving the bot information of what animes the user likes as well as the genres they they like, the bot can curate a list of recommendations that it thinks the user will like as well. And since this is an assistant bot, it will also have the ability to track the schedules of airing shows that the user wants to watch. This way, the user can easily see the release schedules for the anime series that they are watching.

Since many anime fans nowadays are trying to learn japanese as well as to make the interactions of the user with the system more enjoyable for the users, There will also be a mini game that users can play. There will be a kanji quiz feature where the bot can send kanji characters and the users will have to identify them, this could help people to learn japanese easier, There will also be kana quizzes to help users learn hiragana and katakana. For context, Kanji are japanese symbols that represent words and it is also the most complicated in all three of japanese writing systems namely hiragana, katakana and kanji.

**Objectives of the study**

* **To help anime fans to find anime series that they love or to discover series they might enjoy through recommendations using data analysis.**

The bot will have the ability to create a list of recommendations by analyzing the watchlist and watch history of the user.

* **To help anime fanse recognize anime shows by analyzing screenshots of it through computer vision.**

The bot will have the ability to recognize anime titles based on screenshots provided by the users. This way, the bot can help the users to find the anime that they are looking for.

* **To provide a calendar for seasonal animes that the users want to watch.**

The system can automatically create a calendar for all the airing shows for the season and plot all of the series that the users want to watch. This way the users can easily keep track of the shows that they love almost effortlessly.

* **Help anime fans to learn more about kanji and kana.**

Since many anime fans out there wants to learn japanese, the system will also have a little mini-game that let’s them take quick quizzes to help them recognize and understand japanese characters.

**Scope and Limitations of the Study**

The project will be an Artificial Intelligence assistant meant for anime fans, and it will have features such as anime screenshot recognition, anime recommendations, anime seasonal schedule/calendar and manga code vault. In addition, the system will also have a mini-game called kanji-kana quiz where the users can take quizzes where they will have to recognize kanji and kana characters so that they can learn more about japanese writing systems.

Due to the differences in image qualities as well as image resolutions, it is near impossible to get 100% simillarity on screenshots. This shouldn’t be problem though since even if the simillarity isn’t 100% it is still likely that the results will be accurate since the bot will choose the results that have highest similarity. Atleast 80% or above similarity guarantees accurate results. Another limitation is the fact that the bot will inevitably struggle to recognize screenshots which have really low resolution, as well as images that have been cropped, filtered, or edited in anyway. Furthermore, the bot will also struggle to recognize fan-arts of animes and will likely return incorrect results. To increase probability that the bot will give correct results, the user needs to make sure that the image is not edited, not a fan-art or has atleast 360p quality.

Another limitation that needs to be mentioned is the mini-game “kanji-kana quiz”, to keep the game simple and easy to understand, as well as to prevent needless complexity since it’s meant only as a mini-game. The quiz will only be a simple kanji-kana character recognition quiz.

Due to the fact that there is a time difference between when the show is aired in Japan and when it is released for international viewers, which may be delayed by licensing and translations or adding subtitles. There may be instances where the bot says that the episode has been aired but it is still not available on international streaming platforms depending on which streaming platform the user is using and how long the delay is between the releases of the streaming platform and the release in Japan.

**Review of Related Literature**

According to Viet Le, Tej Bhadur, et al., (2020). Customers should be informed that they are being tracked. Conversing with an AI who isn't human by demonstrating that CAs can send compelling messages, they found that deceiving customers into thinking they're talking with a human isn't always essential or desired. The focus should be on using anthropomorphism to achieve better human similarity by signaling things like identity, small conversation, and empathy, all of which have been demonstrated to increase user compliance. Providers should design dialogs as carefully as they design the user experience when using CAs, especially chatbots. Apart from focusing on dialogs that are as near to human-to-human as feasible, providers can use and test a range of additional tactics. AI-based CAs are becoming increasingly popular in a variety of scenarios, and they have the potential to provide significant benefits. There are numerous chances to save time and money. Many users, however, continue to have problems. Interactions with chatbots that were disappointing (e.g., high failure rates), which could lead to skepticism, hostility to technology, which could inhibit users to comply with it. The chatbot makes suggestions and requests. In the research, the researchers created a web-based AI application to demonstrate how Machine Learning, Python, and JavaScript. Approaches may improve user experience. Adherence to a chatbot's request for customer service feedback As a result, our research is just the beginning. ln order to gain a better grasp of how AI-based CAs may improve user compliance by employing machine learning and emphasizing the purposes of machine learning and artificial intelligence, such as the necessity to maintain consistency in the context of internet commerce customer service and markets.

In the article How an AI-based “Super Teaching Assistant” could revolutionize learning, Sachin Waikar (2020) Stated that while significant technological advancements may favor those with the most access, his team anticipates a far more inclusive process for developing their system, one that involves specific design for students from various backgrounds and locations. "The system can assist train new teachers, amplifying its effects and lowering the barrier to creating scaled human-centered education," he argues. As a result, the tool may contribute to a more equitable world in which more students have access to high-quality, skills-focused education.

According to Sudhakar Reddy M, et al. (2020) An intelligent virtual assistant (IVA) or intelligent personal assistant (IPA) may be a software agent which will perform tasks or services for a private supported commands or questions. Sometimes the term "chatbot" is used to refer to virtual assistants generally or specifically accessed by online chat. In some cases, online chat programs are exclusively for entertainment purposes. Some virtual assistants are ready to interpret human speech and respond via synthesized voices. Users can ask their assistants questions, control home automation devices and media playback via voice, and manage other basic tasks like email, to-do lists, and calendars with verbal commands. The world's digitalization ensured that humans don't need to rely on others for assistance; instead, they can rely on a device that is significantly more efficient and trustworthy and Can meet their day-to-day requirements like computers, mobile phones, and other electronic device. Laptops and other electronic devices have become an integral part of our daily lives. To minimize the complexity of large programs by doing simple computations.

In an article published in June 2019 entitled “AI-Based Digital Assistants: Opportunities, Threats, and Research Perspectves, Alexander Maedche, et al. (2019) emphasized that. Artificial intelligence (AI) is becoming increasingly pervasive in our professional and personal lives. AI-based digital assistants, which are already available in large numbers and for a wide range of uses, are an important field of application. AI-based digital assistant research dates back to Joseph Weizenbaum's well-known ELIZA in 1966. Parallel to this, major technology corporations like Microsoft, IBM, Google, and Amazon have been working on AI-based digital assistants for decades and have lately made them fit for the mass market. Empowered by recent advances in AI, these assistants are becoming part of our daily lives. AI-based digital assistants offer considerable benefits, but they also pose a risk. On the one hand, they are projected to replace humans in ordinary jobs, freeing up time and resources for more difficult tasks. According to IBM (2017), chatbots can help companies save 30% on customer support expenditures. On the other hand, because to its human likeness, Google's newly revealed advanced AI-based digital assistant, Duplex (Google AI Blog, 2018), has sparked a debate regarding potential misuses for deception and fraud. While AI-based digital assistants are becoming more common, most individuals are oblivious to their underlying design and algorithms (Frey & Osborne, 2017), resulting in serious issues and user aversion to their use (Dietvorst, Simmons, & Massey, 2015, 2018).

According to Regina Gubareva and Rui Pedro Lopes, (2020) in their paper “Virtual Assistants for Learning: A Systematic Literature Review”. Virtual assistants are becoming increasingly popular and practical. Technology contributes in a variety of ways, each with its own set of benefits. Virtual assistants are usefull for task automation and offering assistance to students in time management, information access, and other areas. Facilitation of communication The technology is still being developed. It is still in its infancy. There are numerous factors that must be improved in order for virtual assistants to be effective in motivating and engaging students.

In a Study submitted in November 2019 entitled “Voice Assistants and Smart Speakers in  
Everyday Life and in Education”, George Terzopoulos and Maya Stratzemi (2019), explained that Immersive learning technologies have the potential to modernize the educational system. New learning experiences can be provided by virtual reality, augmented reality, and voice assistants. Since voice assistants and smart speakers are only recently becoming more popular, research on this topic is limited. As smart speakers and voice assistants become more common in households, they will be the focus of attention in the next years. Because there are so many challenges, researchers are looking into how they might be employed effectively in the learning process. Because there are so many challenges, researchers are looking into how they might be employed effectively in the learning process. One of these issues is the lack of a wide range of languages, as voice assistants do not speak all of them. Furthermore, voice assistants lack many of the required security precautions and protection filters that students might employ in class. Teachers must be educated and motivated about the benefits of these gadgets before they can be used in the classroom. Although favorable outcomes for kids and instructors have been recorded in the majority of situations, the data is limited, fragmentary, and disorganized.

**Related Studies and/or System**

According to Droplr (2020), bots are a vital tool for every top Discord server. The best Discord bots can add thousands of new features to your platform–mod functions, music, games, polls, prizes, and more! If you want to build one of the top or most popular servers, then you need to add the best Discord bots.

According to Influencer Marketing Hub (2021) , Discord bots are AI-driven tools that can help you automate tasks on your Discord server. They make it a lot easier to build a community that is truly engaged and can be used to moderate your server, welcome new members, or even ban people who are creating a bad environment for everyone else.

According to CSU Global (2021), AI technology offers many critical benefits that make it an excellent tool for virtually any modern organization, including, Automation, AI is able to automate repetitive task which humans would normally do manually, and on top of that, AI can do this faster and without feeling fatigue which means they can do this more efficiently and effectively. Enhancement, AI can make products and services smarter and more effective, improving experiences for end-users, using capabitilities like optimizing conversation bots or customer service menus, delivering better product recommendations. Analysis, AI can analyze at a much faster rate than humans, allowing it to find patterns much more quickly, and it can also analyze much larger datasets than humans, allowing it to unvover patterns that humans would normally miss.

**Synthesis**

The bot’s purpose is to make it more convenient for anime fans to keep track of the shows they love and discover shows they might love. And because the bot is crossplatform, it will have clients that support windows, linux, web and mobile both Android and IOS it will be more accessible for anyone who wants to use it. Specifically the bot will help users to get the title of anime shows just by providing a screenshot of the anime. The bot can also automatically generate a calendar for the user and automatically update it by analyzing data from different anime sources online and at the same time the bot can also manage the user’s watchlist. In addition to this, the bot can analyze the user’s watchlist and watch history to create a list of recommendations for shows that the user might like depending on the user’s watchlist and history, there will also be a mini game that will help users to learn the japanese writing system. Lastly, there will be a feature that helps users keep track of manga’s from amateur manga authors.