

Atharva Undire

Creative Portfolio

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Patent

Single Stage to Orbit Rocket Engine

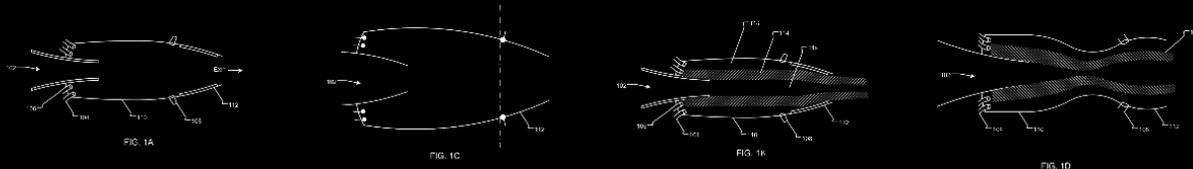
Publication No.: WO/2023/012559 | Application No.: 202121035262

Patent Expiration Year: 2041

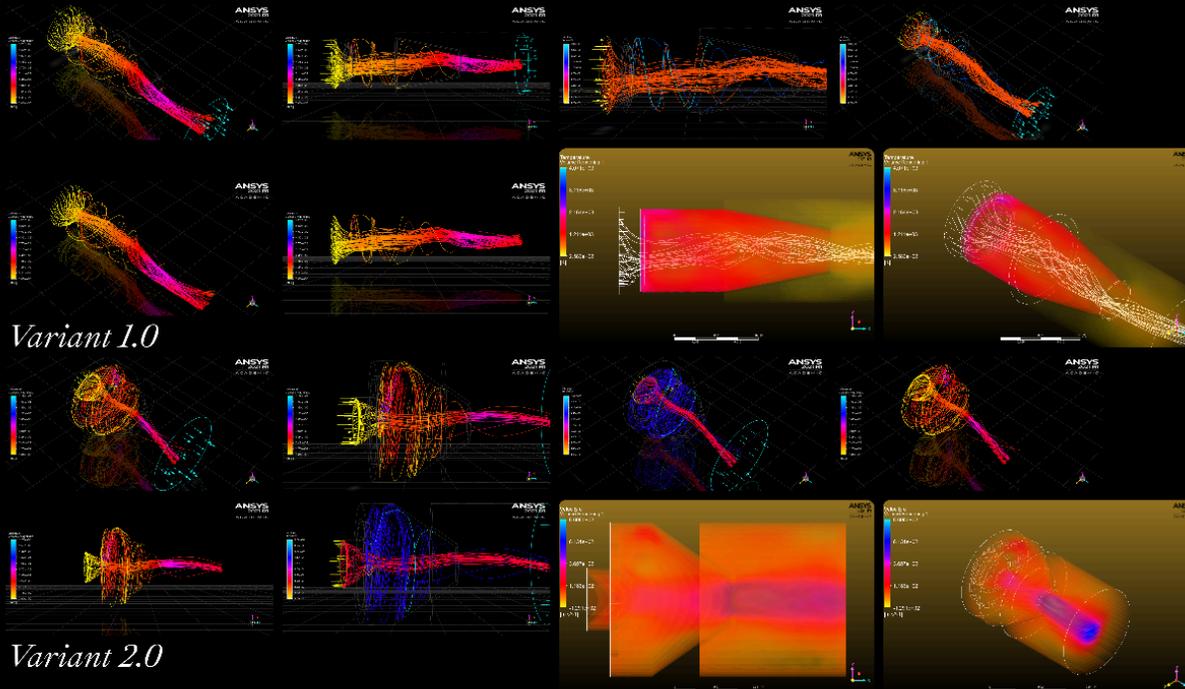
This rocket engine aims to revolutionize space travel by solving the staging problem and the cooling issues associated with aerospike nozzles. By enabling Single Stage To Orbit (SSTO) flight, this design can significantly reduce in-flight failure risk and drastically lower space travel costs.

Single Stage to Orbit Rocket Engine

A set of nozzles at the leading cross-section of the combustion chamber at an angle create a vortex of the fuel and oxidizer. This creates a 100% truncated 'vortex based virtual aerospike'.



**Saturn V Rocket for reference only.
If the Saturn V Rocket had a Vortex Based Virtual Aerospike Single Stage to Orbit Rocket Engine, it would be significantly smaller and lighter in size, as it wouldn't need to house multiple engines and massive amounts of fuel for liftoff.*



WO2023012559 enables altitude compensation, thus enabling the launch of a rocket into orbit without the need of staging, moreover unlike aerospike nozzle engines which require additional cooling as they are riddled with heat problems due to an increased surface area as compared to conventional converging-diverging or bell nozzle engines, the WO2023012559 does not require any additional cooling systems due to an equivalent amount of surface contact with combustion reactants as would be in any bell nozzle engine combustion chamber.

Talk2Note

Platform: Android & iOS
An AI-powered note-taking and study-help app that converts audio to summarized text and connects students with a community.

Visit [Talk2Note Website](#).

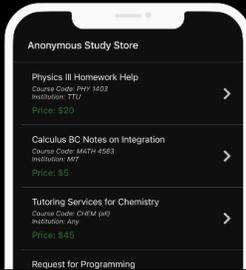


Learn, Share, Earn - the Talk2Note way



*Coming Soon
Buy, Sell, Help and Collaborate

A marketplace for study & homework help, services, notes and other materials. A win-win for everyone!



Access cutting edge AI tools

Access tools like the Talk2Note AI which creates notes in mere minutes, so you can save countless hours of your time.



*Coming Soon
Study Smarter, Not Harder

Easily collaborate with your classmates through lecture specific group-chats



Some features coming soon... Stay tuned!



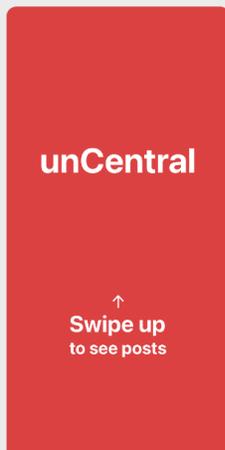
You can still access other features of the app until then

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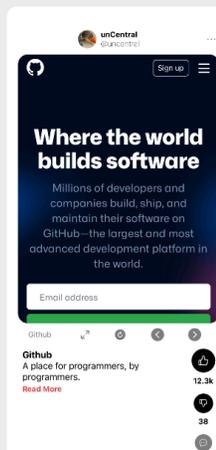
Platform: Android & iOS
A social media platform for sharing web snippets (news, merch, etc.), where content creators can directly reach their audience, retaining website traffic and ad revenue.

[Download for iOS](#)
[Download for Android](#)

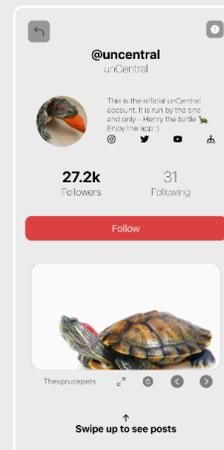
A social media app for sharing websites, or as we call them, 'WebSnippets'



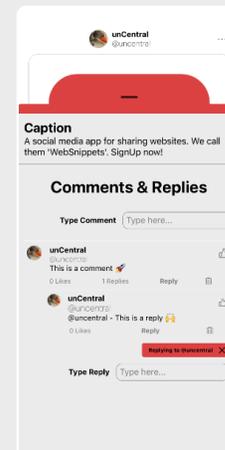
Share your WebSnippets with the world, like ones that stand out!



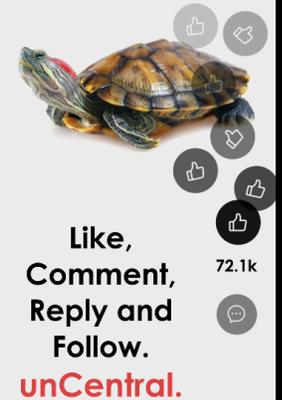
Follow people whose content you admire, show your content off to everyone



Comment and Reply on WebSnippets to give people a feedback



Our leader, Henry the Turtle

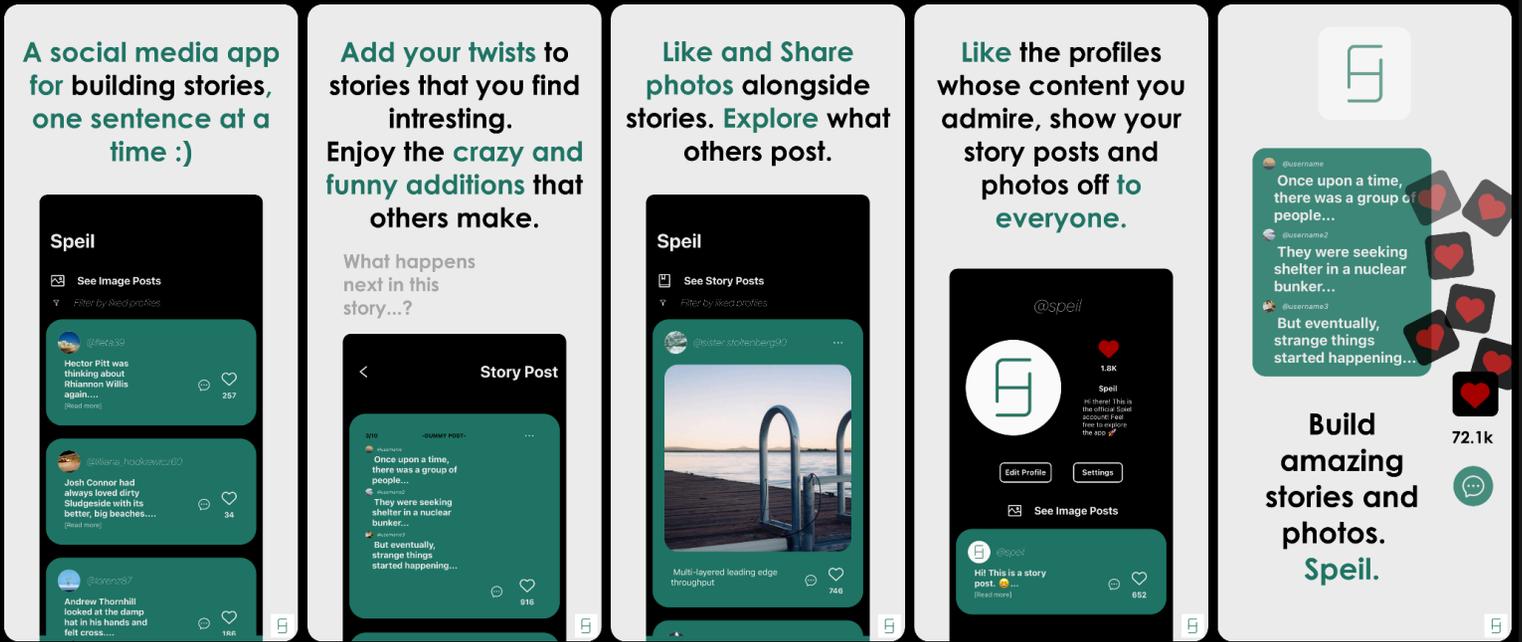


Like, Comment, Reply and Follow.
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Speil

Platform: iOS (Android coming soon)
Collaborative storytelling app where users create stories together, one sentence at a time.

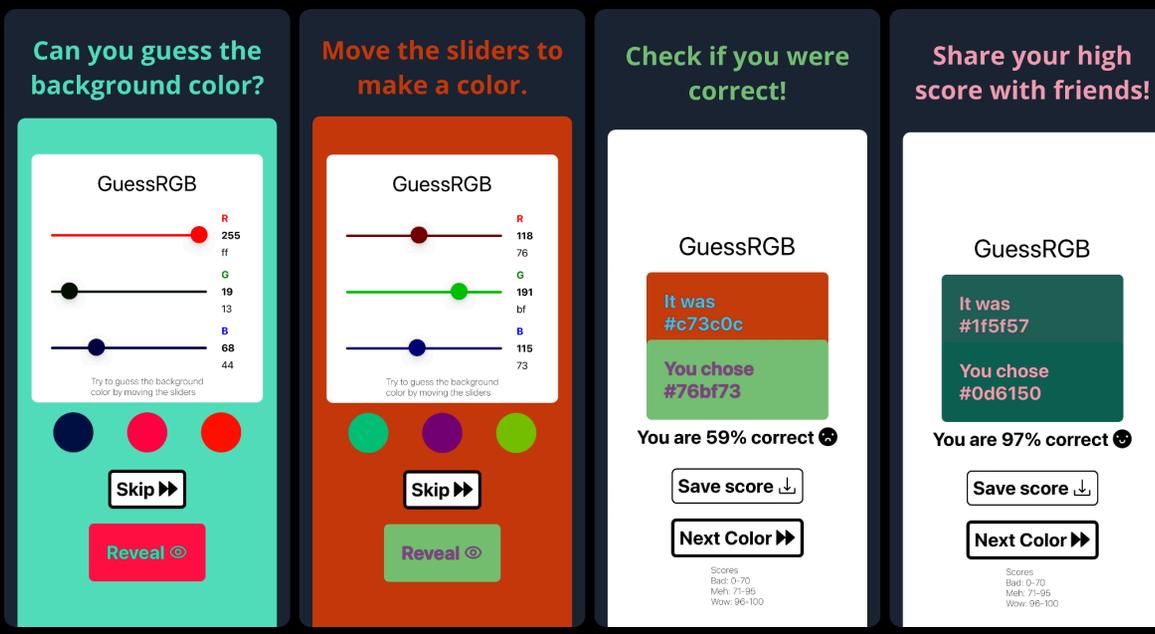
[Speil on iOS](#)



GuessRGB

Platform: Android & iOS
A fun and educational color guessing game designed for children.

[Download for iOS](#)
[Download for Android](#)



Music Production



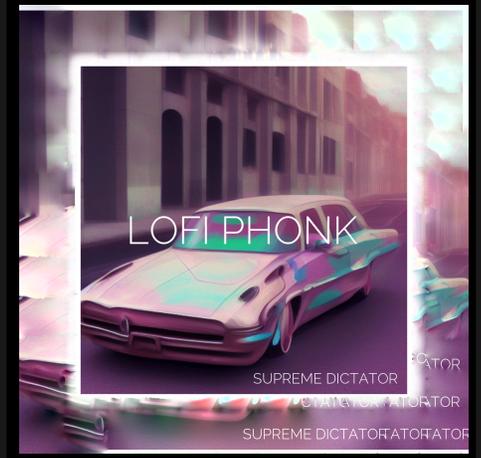
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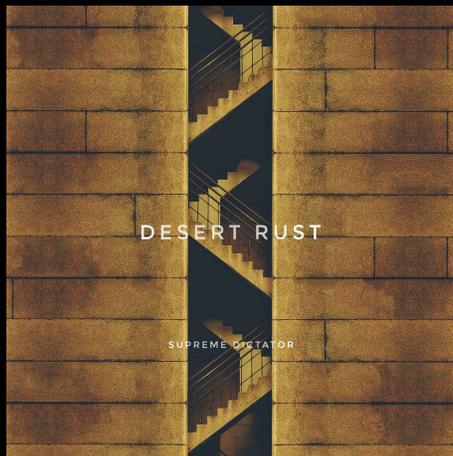
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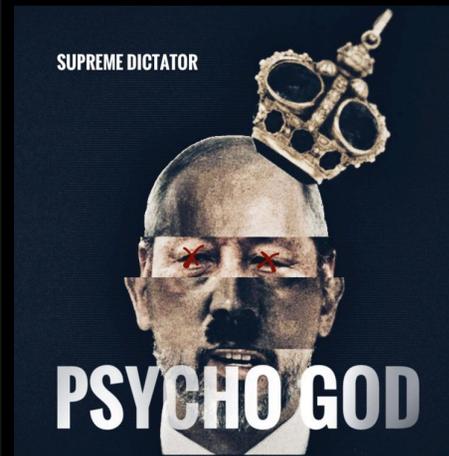
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Supreme Dictator Music

Apple Music

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Spotify

[HTTPS://OPEN.SPOTIFY.COM/ARTIST/7ITKLI8AXOEZ
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Robotics

Robotic Arm

I developed a 3D-printed robotic arm controlled by Arduino, designed to achieve precise movements and automation tasks. The arm features multiple servos for articulated motion, allowing it to perform intricate tasks with accuracy. By leveraging Arduino's programmability, the robotic arm can be customized for various applications, from simple pick-and-place operations to more complex assembly tasks, making it a versatile tool for both educational and practical uses.

SONAR-Based Obstacle Avoidance Robot

This project involved designing a robot equipped with SONAR sensors, controlled by an Arduino, to autonomously navigate and avoid obstacles. The SONAR sensors detect objects in the robot's path, enabling it to adjust its direction and avoid collisions. The Arduino processes the sensor data in real-time, guiding the robot through dynamic environments with increased safety and efficiency, perfect for applications in both exploration and automated navigation.

SONAR-Based Obstacle Notifying Glove For The Blind

This innovative project involved developing a glove equipped with SONAR sensors and controlled by Arduino, designed to assist visually impaired individuals by providing obstacle notifications. The glove uses SONAR technology to detect nearby obstacles and alerts the wearer through vibrations or auditory signals. By integrating these sensors into a wearable format, the glove enhances mobility and safety, offering a practical aid for navigating complex environments.

Automatic Floor Cleaning Bot “Dollar Store Roomba”

I created an Arduino-powered automatic floor cleaning bot, affectionately dubbed the "Dollar Store Roomba," designed for efficient and cost-effective cleaning. Utilizing basic components and a simple design, the bot autonomously sweeps and collects dust from various surfaces. The Arduino controller coordinates the bot's movements and cleaning cycles, making it a practical and budget-friendly solution for maintaining clean floors with minimal effort.

Bristle Bot

The Bristle Bot is a playful and simple robot built using a vibrator motor mounted on a toothbrush head. The motor's vibrations cause the bristles to move erratically, propelling the bot forward in unpredictable patterns. This project demonstrates the basics of robotics and motion control using minimal components, providing a fun and educational experience in creating basic autonomous robots.

Software Projects

Ethical Hacking

In the realm of ethical hacking, I have gained hands-on experience with OSINT (Open Source Intelligence), basic scripting, phishing, and the development of custom malware for white-hat purposes. A notable project is a Trojan crypto miner I developed for educational purposes only, which is intended to be used solely in a virtual machine environment. This project demonstrates my ability to understand and create malware while emphasizing the importance of ethical practices in cybersecurity. In more detail below.

Programming & Game Development

My experience in programming and game development includes creating machine learning algorithms using Python and JavaScript. I've worked on both frontend and backend development with technologies such as React.js, React Native, Firebase, and Supabase. Among my fun projects are classic games like Snake and PONG, and a custom-built physics engine. These projects showcase my ability to combine coding skills with creative problem-solving to develop interactive and engaging applications.

- [Snake Game](#)
- [PONG](#)
- [Physics Engine](#)

Stock Prediction using AI

I developed a stock price prediction model utilizing various machine learning algorithms, including Linear Regression, DecisionTreeClassifier, and BayesianRidge. This model analyzes historical stock data to forecast future price trends, helping investors make informed decisions based on predicted market movements. The project demonstrates my proficiency in applying AI techniques to financial data and showcases the potential of machine learning in predicting stock performance.

Auto Sentiment Analysis of News

I developed a sentiment analysis tool for news articles using Vader PY, which automates the process of evaluating the sentiment of news content. This tool is designed to quickly analyze and categorize the emotional tone of various news pieces, providing insights into the prevailing sentiment and helping users gauge public opinion and trends effectively.

Trojan Virus - Malicious Crypto Miner

I created a Trojan virus that installs a malicious crypto miner while masquerading as legitimate software (Minecraft Installer). This project was intended to showcase my understanding of malware creation and its potential risks. It underscores the importance of robust security measures and ethical considerations when developing software that interacts with sensitive systems and data.

- [Trojan Crypto Miner](#)

Keylogger & Mouse Logger Software

I developed keylogger and mouse logger software in Python for monitoring user inputs. This tool records keystrokes and mouse movements, providing a way to track user interactions for various purposes, such as usability testing or security analysis. The development of this software highlights my ability to create tools for input monitoring and data collection.

Physics Simulations

I created physics simulations using p5.js to make complex scientific concepts more engaging and accessible. These simulations illustrate fundamental physics principles through interactive visualizations, helping users better understand and explore the behavior of physical systems in a dynamic and educational way.

Marketing

Website Design for Continuum Design

I designed and hosted the website for Continuum Design, a luxury fashion brand, ensuring a sleek and sophisticated online presence that aligns with the brand's high-end image. The website features an elegant design and user-friendly interface, showcasing Continuum Design's collections and enhancing the brand's digital footprint.

Social Media Marketing for Continuum Design

I launched and managed Instagram and Facebook marketing campaigns for Continuum Design, effectively boosting the brand's visibility and engagement. Through targeted advertising and strategic content creation, these campaigns helped expand the brand's reach and attract a larger audience.

Social Media Survey Campaign

I spearheaded a social media survey campaign to assess the impact of COVID-19 on education, gathering over 7500 responses. This campaign provided valuable insights into how the pandemic affected students, educators, and institutions, contributing to a better understanding of the educational landscape during a challenging period.

Other

3D Modeling & VFX

Explore my 3D modeling, rendering, and visual effects work on Instagram @just_some_renderers. My portfolio features a range of projects showcasing my skills in creating detailed 3D models and dynamic visual effects, highlighting my proficiency in bringing digital concepts to life through advanced modeling techniques.



Photography & Videography

View my photography and videography projects on Instagram [@atharva_raje_me](#) or check out my video edits on [Google Drive](#). My work includes a variety of visual content, demonstrating my expertise in capturing compelling images and creating engaging video edits that convey a strong visual narrative.

Cardistry & Speedcubing

I practice advanced sleight of hand skills in cardistry and have developed competitive-level speedcubing techniques, with a personal best of 37.36 seconds. My cardistry work focuses on intricate and creative card flourishes, while my speedcubing demonstrates a high level of proficiency in solving cubes quickly.
