Following is the List of Some Suggestive Problem Statement:

• Accessible **Healthcare Diagnostics**
Problem Statement: Develop an AI-powered diagnostic tool that works offline, enabling low-resource areas to detect diseases like malaria, tuberculosis, or diabetes.

Description: This idea centers on creating an AI-powered diagnostic tool that operates offline, ideal for use in areas with limited resources. By employing sophisticated machine learning algorithms, this tool will be capable of analyzing medical images and diagnostic data to accurately identify diseases such as malaria, tuberculosis, and diabetes. Designed to function on local devices, it will provide essential diagnostics in real-time without the need for internet connectivity, significantly enhancing healthcare delivery in underserved regions.

Relevant SDGs: SDG 3 (Good Health and Well-being), SDG 10 (Reduced Inequalities).

• Smart **Water Management System**
Problem Statement: Create an IoT-based platform to monitor and optimize water usage in agriculture, minimizing wastage and improving irrigation efficiency.

Description: This idea revolves around developing an IoT-based platform designed to monitor and optimize water usage in agricultural settings, aiming to minimize wastage and boost irrigation efficiency. By integrating sensors and smart devices across farms, this system will gather real-time data on soil moisture, weather conditions, and water consumption. The platform will analyze this data to provide actionable insights and automated irrigation controls, ensuring water is used judiciously and crops receive optimal hydration. This solution not only conserves water but also supports sustainable farming practices, potentially leading to increased crop yields and reduced environmental impact.

Relevant SDGs: SDG 6 (Clean Water and Sanitation), SDG 12 (Responsible Consumption and Production).

• **AI-Powered Inclusive Education Platform**
Problem Statement: Design an AI-driven education platform that personalizes learning for students with disabilities, offering voice-controlled navigation and Braille support.

Description: This idea focuses on designing an AI-driven education platform tailored specifically for students with disabilities. The platform will feature voice-controlled navigation and Braille support to ensure accessibility for users with visual and mobility impairments. By leveraging AI, the system will adapt learning materials and methods to the individual needs and abilities of each student, enhancing their learning experience and engagement. The inclusion of interactive tools and personalized feedback mechanisms will further enable students to learn at their own pace, promoting an inclusive educational environment that accommodates diverse learning styles and needs.

Relevant SDGs: SDG 4 (Quality Education), SDG 10 (Reduced Inequalities).

• Disaster-**Resilient Farming Systems**
Problem Statement: Build a predictive analytics tool to help farmers adapt to climate change by identifying optimal planting schedules and crop types.

Description: This idea involves building a predictive analytics tool designed to assist farmers in adapting to climate change. By integrating historical weather data, soil conditions, and climate forecasts, the tool will provide farmers with insights into optimal planting schedules and suitable crop types for their specific regions. The AI-powered system will analyze environmental trends and predict future conditions, enabling farmers to make informed decisions that maximize crop yields while minimizing risks associated with unpredictable weather patterns. This tool aims to enhance agricultural resilience, promote sustainability, and support farmers in navigating the challenges posed by a changing climate.

Relevant SDGs: SDG 2 (Zero Hunger), SDG 13 (Climate Action).

• Community-**Driven Renewable Energy Grid**
Problem Statement: Develop a decentralized, blockchain-based system for sharing renewable energy within communities, promoting energy equity.

Description: This idea proposes the development of a decentralized, blockchain-based system to facilitate the sharing of renewable energy within communities, promoting energy equity. By leveraging blockchain technology, the platform will ensure transparent, secure, and efficient transactions of energy between producers and consumers. The system will enable households with surplus renewable energy to easily transfer excess power to neighbors, effectively creating a local energy grid that reduces dependence on traditional power sources. This peer-to-peer energy trading model not only democratizes access to energy but also encourages the adoption of renewable sources, contributing to a more sustainable and equitable energy landscape.

Relevant SDGs: SDG 7 (Affordable and Clean Energy), SDG 11 (Sustainable Cities and Communities).

• Waste-**to-Wealth Management Platform**
Problem Statement: Design an AI-driven waste segregation system for urban areas that incentivizes recycling and composting through gamification.

Description: This idea focuses on designing an AI-driven waste segregation system tailored for urban environments, aiming to enhance recycling and composting efforts through gamification. By using smart sensors and AI technology, the system will automatically sort waste into recyclables, organics, and landfill-bound materials. The platform will integrate with a user-friendly app that tracks individual and community waste segregation performance, rewarding points for responsible behavior. These points can be exchanged for discounts, services, or community improvements, effectively motivating users to participate actively. This innovative approach not only streamlines waste management but also fosters a culture of sustainability and community engagement.

Relevant SDGs: SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action).

• Real-**Time Air Quality Monitoring App**
Problem Statement: Create a mobile application that provides hyper-local air quality data and actionable suggestions to minimize exposure to pollution.

Description: This idea involves creating a mobile application that delivers hyper-local air quality data to users, providing them with actionable suggestions to minimize their exposure to pollution. The app will harness real-time data from environmental sensors distributed throughout urban areas, offering precise air quality readings for specific neighborhoods or streets. Users will receive personalized notifications about pollution levels and tailored advice on the best times for outdoor activities, optimal routes for commuting, and precautions to take during high-pollution periods. This tool aims to empower individuals with the information needed to protect their health while raising awareness about air quality issues in their immediate environments.

Relevant SDGs: SDG 3 (Good Health and Well-being), SDG 11 (Sustainable Cities and Communities).

• Empowering **Women in STEM**
Problem Statement: Build an AI-powered mentorship platform connecting young women to STEM professionals and resources to promote gender equality in technology fields.

Description: This idea aims to build an AI-powered mentorship platform designed to connect young women with STEM professionals, fostering gender equality in technology fields. By utilizing artificial intelligence, the platform will match mentees with mentors based on shared interests, career goals, and professional backgrounds, creating personalized guidance and networking opportunities. The system will also provide access to a wealth of resources, including educational materials, webinars, and workshops, tailored to support women in their STEM career progression. This initiative not only aims to inspire and educate young women but also to build a supportive community that encourages their active participation and leadership in tech-oriented sectors.

Relevant SDGs: SDG 5 (Gender Equality), SDG 4 (Quality Education).

• Blockchain **for Transparent Food Supply Chains**
Problem Statement: Develop a blockchain system that tracks food products from farm to table, ensuring transparency and reducing food fraud.

Description: This idea proposes the development of a blockchain-based system designed to track food products from farm to table, enhancing transparency and combating food fraud. By implementing blockchain technology, each step of a food item's journey can be recorded and verified, from cultivation and harvesting to processing, packaging, and distribution. Consumers and businesses alike can access this immutable ledger to verify the origin, handling, and quality of food products, fostering trust and accountability in the food supply chain. This system not only helps prevent fraudulent activities but also supports informed consumer choices and promotes sustainable practices within the food industry.

Relevant SDGs: SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production).

- Localized **Disaster Recovery Framework**

Problem Statement: Implement a drone-based mapping system to assess disaster-hit regions and prioritize recovery efforts based on real-time data.

Description: This idea centers on implementing a drone-based mapping system to assess disaster-hit regions and prioritize recovery efforts effectively. By deploying drones equipped with cameras and sensors, this system will capture high-resolution images and data of affected areas, providing real-time insights into the extent of damage and the current conditions. The data collected will be analyzed to create detailed maps that highlight critical areas needing immediate attention, such as severely damaged infrastructure or areas at risk of secondary disasters. This approach enables efficient allocation of resources, helps coordinate emergency response teams, and supports strategic planning for reconstruction, ultimately accelerating recovery processes and enhancing resilience to future disasters.

Relevant SDGs: SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action).

- AI-**Driven Mental Health Support Chatbot**

Problem Statement: Design an AI chatbot providing multilingual mental health support, prioritizing accessibility for underserved communities.

Description: This idea involves designing an AI-powered chatbot that provides multilingual mental health support, with a focus on accessibility for underserved communities. The chatbot will use advanced natural language processing techniques to understand and respond in multiple languages, ensuring users can receive help in their native tongue. It will offer immediate, 24/7 emotional support, coping strategies, and guidance on mental health issues, making it especially valuable where professional services are scarce or stigmatized. The platform will also include an easy-to-use interface and the ability to handle a range of mental health queries, from stress and anxiety to more complex conditions, aiming to make mental health support universally accessible and inclusive.

Relevant SDGs: SDG 3 (Good Health and Well-being), SDG 10 (Reduced Inequalities).

- Low-**Cost Assistive Devices for Mobility**

Problem Statement: Create affordable, AI-enhanced prosthetics for individuals with physical disabilities, improving their quality of life.

Description: This idea focuses on creating affordable, AI-enhanced prosthetics to improve the quality of life for individuals with physical disabilities. Leveraging artificial intelligence, these prosthetics will offer advanced functionality, such as adaptive grip strength and responsive movement, closely mimicking natural limb behavior. The AI will learn from the user's movement patterns to optimize performance and comfort, making daily tasks more manageable. By prioritizing affordability and accessibility, the project aims to ensure that cutting-edge prosthetic technology is available to a broader audience, particularly in underserved regions, thereby fostering greater independence and inclusion for people with disabilities.

Relevant SDGs: SDG 3 (Good Health and Well-being), SDG 10 (Reduced Inequalities).

• Educational **Access for Marginalized Communities**
Problem Statement: Build an offline-first e-learning platform with localized content for remote or underserved areas.

Description: This idea proposes building an offline-first e-learning platform that delivers localized content, specifically designed for remote or underserved areas. The platform will allow users to download courses and materials when they have internet access and use them offline at any time, ensuring educational continuity regardless of connectivity. Content will be tailored to meet local educational standards and cultural relevance, enhancing engagement and comprehension. The system will also include interactive elements like quizzes and simulations that function without internet access, supporting effective, self-paced learning. This approach aims to democratize education, making learning resources accessible to all, regardless of geographical and infrastructural barriers.

Relevant SDGs: SDG 4 (Quality Education), SDG 10 (Reduced Inequalities).

• Sustainable **Urban Mobility App**
Problem Statement: Develop an app to integrate public transport, bike-sharing, and carpooling for eco-friendly urban travel.

Description: This idea involves developing an app that integrates public transport options, bike-sharing, and carpooling to promote eco-friendly urban travel. The app will serve as a comprehensive mobility solution, allowing users to plan and optimize their routes using various modes of sustainable transport. It will provide real-time data on bus and train schedules, availability of bikes, and carpooling opportunities, all in one platform. Users can compare travel times, costs, and environmental impacts, making informed choices that reduce their carbon footprint. The app will also feature a rewards system to incentivize sustainable travel behaviors, further encouraging users to opt for greener alternatives in their daily commutes.

Relevant SDGs: SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action).

• AI-**Driven Soil Health Monitoring**
Problem Statement: Build an IoT-based soil health monitoring system that provides insights to farmers for sustainable land use and improved crop yield.

Description: This idea centers on building an IoT-based soil health monitoring system that provides farmers with crucial insights for sustainable land use and improved crop yield. By embedding sensors in the soil, the system will continuously collect data on moisture levels, pH balance, temperature, and nutrient content. This data will be transmitted to a central platform where advanced algorithms analyze the conditions and generate actionable recommendations for irrigation, fertilization, and crop rotation. The system aims to optimize resource use, prevent over-farming, and enhance soil conservation practices. By helping farmers make data-driven decisions, this technology not only boosts crop productivity but also supports the broader goals of environmental sustainability and agricultural efficiency.

Relevant SDGs: SDG 15 (Life on Land), SDG 2 (Zero Hunger).

• Decentralized **Clean Cooking Solutions**
Problem Statement: Develop an IoT-enabled network to distribute and track clean cooking stoves in rural households, reducing reliance on biomass.

Description: This idea involves developing an IoT-enabled network to efficiently distribute and monitor the usage of clean cooking stoves in rural households, aimed at reducing reliance on traditional biomass fuels. The network will employ IoT sensors embedded in stoves to track usage patterns, fuel efficiency, and emissions in real-time. This data will be analyzed to provide feedback on stove performance and to inform improvements in design and distribution strategies. Additionally, the system will enable remote troubleshooting and maintenance alerts, ensuring the stoves are used effectively and safely. By providing rural communities with access to cleaner technology, this initiative seeks to improve health outcomes, reduce environmental impact, and foster sustainable development in underserved areas.

Relevant SDGs: SDG 7 (Affordable and Clean Energy), SDG 13 (Climate Action).

• Affordable **Early Childhood Education Kit**
Problem Statement: Design an AI-based interactive learning toolkit for early childhood education in economically weaker sections.

Description: This idea revolves around designing an AI-based interactive learning toolkit tailored for early childhood education in economically weaker sections. The toolkit will utilize artificial intelligence to create personalized learning experiences that adapt to the individual learning pace and style of each child. It will include engaging educational games, interactive stories, and activities that promote foundational skills such as literacy, numeracy, and problem-solving. The AI will also provide real-time feedback and progress tracking to help educators and parents support the child's development effectively. By making the toolkit accessible on affordable devices and potentially offline, it aims to bridge the educational divide and provide high-quality educational resources to children in underserved communities.

Relevant SDGs: SDG 4 (Quality Education), SDG 10 (Reduced Inequalities).

• Biodiversity **Preservation through AI**
Problem Statement: Create an AI system to monitor endangered species in real-time, analyzing data from camera traps and drones.

Description: This idea is to create an AI system dedicated to monitoring endangered species in real-time, utilizing data collected from camera traps and drones. The system will employ advanced machine learning algorithms to analyze images and video feeds, accurately identifying species and counting individuals. It will also detect behavioral patterns and potential threats to these animals, such as poaching or habitat encroachment. By processing data in real-time, the AI can trigger instant alerts to conservation teams, enabling swift responses to any detected dangers. This innovative approach not only enhances the efficiency of wildlife monitoring but also supports proactive conservation efforts, helping to preserve biodiversity in vulnerable ecosystems.

Relevant SDGs: SDG 15 (Life on Land), SDG 13 (Climate Action).

- AI **for Reducing Digital Divide**
Problem Statement: Build an adaptive AI tutor to teach digital literacy skills to non-tech-savvy adults, empowering them to access online services.

Description: This idea focuses on building an adaptive AI tutor designed to teach digital literacy skills to non-tech-savvy adults, empowering them to access and utilize online services effectively. The AI tutor will adjust its teaching methods based on the learner's pace and preferred learning style, using interactive lessons, video tutorials, and practical exercises. The system will cover essential topics such as using the internet, understanding cybersecurity basics, and navigating common online services like email, social media, and e-commerce platforms. By making the learning process engaging and personalized, the AI tutor aims to enhance the digital competence of adults, helping them to participate more fully in the digital world and improve their overall quality of life.

Relevant SDGs: SDG 4 (Quality Education), SDG 10 (Reduced Inequalities).

- Energy-**Efficient Smart Housing System**
Problem Statement: Develop a system to optimize energy consumption in affordable housing, using AI to learn and adapt to residents' needs.

Description: This idea involves developing a system that uses AI to optimize energy consumption in affordable housing, adapting intelligently to the residents' needs. The system will be equipped with sensors and smart meters that monitor energy usage patterns across different household appliances and systems. Utilizing machine learning, the AI will analyze this data to understand residents' habits and preferences, automatically adjusting heating, cooling, lighting, and water usage to optimize energy efficiency without compromising comfort. The goal is to reduce energy waste and lower utility bills, making sustainable living more accessible. Additionally, the system will provide residents with tips and insights on how to further reduce their energy consumption based on their specific usage patterns.

Relevant SDGs: SDG 11 (Sustainable Cities and Communities), SDG 7 (Affordable and Clean Energy).

- AI-**Powered Rural Healthcare System**
Problem Statement: Develop a telemedicine platform using AI for diagnosis and consultation, tailored for remote villages with limited healthcare facilities.

Description: This idea proposes the development of a telemedicine platform using AI to provide diagnosis and consultation services tailored for remote villages with limited healthcare facilities. The platform will incorporate AI-driven diagnostic tools that can analyze symptoms and medical data to offer preliminary diagnoses and treatment recommendations. It will also facilitate virtual consultations with healthcare professionals, enabling residents of remote areas to receive expert medical advice without the need for travel.

Relevant SDGs: SDG 3 (Good Health and Well-being), SDG 10 (Reduced Inequalities).

- **Smart Flood Management System**
Problem Statement: Create a system that integrates IoT sensors and AI to monitor river levels and predict floods in real-time, ensuring timely evacuation.

Description: This idea is to create a system that integrates IoT sensors and AI to monitor river levels and predict floods in real-time, enhancing early warning capabilities and ensuring timely evacuation. The system will deploy a network of IoT sensors along rivers to continuously measure water levels, flow rates, and other relevant environmental data. This data will be sent to a central platform where AI algorithms analyze the information to detect patterns and predict potential flooding events.

Relevant SDGs: SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action).

- AI-**Driven Literacy Booster**
Problem Statement: Build an AI application that teaches basic literacy and numeracy to children and adults through gamified lessons in regional languages.

Description: This idea centers on building an AI application designed to teach basic literacy and numeracy to children and adults through gamified lessons, offered in various regional languages. The application will feature interactive games and challenges that make learning engaging and fun, tailored to the learner's age and skill level. The AI will adapt the difficulty and pace of lessons based on the user's progress and learning style, providing personalized feedback and encouragement.

Relevant SDGs: SDG 4 (Quality Education), SDG 10 (Reduced Inequalities).

- **Real-Time Wildlife Conservation Monitoring**
Problem Statement: Implement a system using IoT sensors and drones to prevent poaching and monitor wildlife movement in protected areas.

Description: This idea involves implementing a system using IoT sensors and drones to prevent poaching and monitor wildlife movement in protected areas. The system will consist of a network of IoT sensors placed strategically throughout the habitat, capable of detecting sounds, movements, and even chemical signals related to human presence or wildlife distress. These sensors will feed real-time data to a central AI system that analyzes patterns and detects anomalies indicative of potential poaching activities. In addition to ground sensors, drones equipped with thermal and night vision cameras will patrol the area, providing aerial surveillance that complements the data gathered from the ground. These drones can be deployed rapidly to investigate suspicious activities identified by the sensors. The integration of these technologies will enable continuous monitoring of vast and inaccessible areas, enhancing the ability to detect and respond to threats promptly. This proactive approach aims to significantly reduce poaching incidents and improve overall wildlife conservation efforts in protected regions.

Relevant SDGs: SDG 15 (Life on Land), SDG 13 (Climate Action).

- Smart **Wastewater Recycling System**
Problem Statement: Develop an AI-enabled water treatment and recycling system for urban households and industries, reducing freshwater usage.

Description: This idea proposes developing an AI-enabled water treatment and recycling system tailored for urban households and industries to reduce freshwater usage and enhance

sustainability. The system will incorporate advanced sensors and AI algorithms to monitor water quality and usage patterns continuously. Based on this data, the AI will optimize water treatment processes, efficiently recycling greywater for non-potable uses such as irrigation, flushing, and industrial cooling.

Relevant SDGs: SDG 6 (Clean Water and Sanitation), SDG 12 (Responsible Consumption and Production).

- Crowdsourced **Disaster Mapping Platform**
Problem Statement: Build a platform where users can upload photos and reports during disasters to create real-time maps for rescue operations.

Description: This idea involves building a platform where users can upload photos and reports during disasters to create real-time maps that aid in rescue operations. The platform will serve as a crowdsourced hub, collecting data directly from individuals in the affected areas. By utilizing GPS tagging on photos and text entries, the system will be able to pinpoint the exact locations of emergencies, obstacles, and safe zones.

Relevant SDGs: SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action).

- AI **for Local Employment Opportunities**
Problem Statement: Create an AI platform to match unemployed individuals in rural areas with local job opportunities based on their skills.

Description: This idea involves creating an AI platform designed to match unemployed individuals in rural areas with local job opportunities that align with their skills and qualifications. The platform will utilize advanced AI algorithms to analyze users' resumes, skills, interests, and previous job experiences. It will also gather data on local job markets, identifying opportunities across various sectors that might not be widely advertised. The AI will provide personalized job recommendations and connect potential employers with suitable candidates directly, streamlining the hiring process. Additionally, the platform will offer career advice, training resources, and skill development programs to help users enhance their employability. This initiative aims to reduce unemployment in rural areas by leveraging technology to bridge the gap between job seekers and local employers, fostering economic growth and improving livelihoods in underserved communities.

Relevant SDGs: SDG 8 (Decent Work and Economic Growth), SDG 10 (Reduced Inequalities).

- IoT**-Based Smart Energy Meters**
Problem Statement: Develop a system to track household energy consumption in real-time and provide recommendations for energy efficiency.

Description: This idea involves developing a system to track household energy consumption in real-time and provide actionable recommendations for improving energy efficiency. The system will consist of IoT sensors installed in major energy-consuming appliances and areas around the home. These sensors will collect data on power usage and communicate it to a centralized AI hub.

Relevant SDGs: SDG 7 (Affordable and Clean Energy), SDG 12 (Responsible Consumption and Production).

- AI-**Powered Forest Fire Detection System**
Problem Statement: Create a system that uses satellite imagery and AI to detect and predict forest fires, reducing their spread and damage.

Description: This idea involves creating a system that uses satellite imagery combined with AI to detect and predict forest fires, aiming to reduce their spread and damage. The system will leverage high-resolution satellite data to monitor forested areas continuously, detecting changes in vegetation health and spotting signs of potential fires, such as unusual heat patterns or smoke. AI algorithms will analyze these data points to identify early warning signs of fire, predict its potential spread based on weather conditions, topography, and vegetation type, and alert local authorities and firefighting teams in real-time. The predictive capability of the AI will allow for quicker responses, potentially extinguishing fires before they can spread extensively. Additionally, the system could be used for planning controlled burns and managing forest health to prevent large-scale wildfires. This proactive approach aims to protect ecosystems, property, and lives by leveraging advanced technology in wildfire management and response strategies.

Relevant SDGs: SDG 15 (Life on Land), SDG 13 (Climate Action).

- Digital **Healthcare Record System for Migrants**
Problem Statement: Build a blockchain-based system for migrants to store and access their medical records securely across locations.

Description: This idea focuses on building a blockchain-based system that enables migrants to store and securely access their medical records across different locations. The system will utilize blockchain technology to create a decentralized ledger of medical data that is tamper-proof and accessible only to authorized users, ensuring privacy and data security. Migrants often face challenges in maintaining continuity of care due to displacement and the need to navigate new health systems. This platform will allow individuals to carry their medical history with them electronically, providing healthcare providers with immediate access to their records regardless of geographic location. Each medical entry can be verified and added to the blockchain, ensuring that records are not only secure but also up-to-date and accurate. The system will feature multi-language support and easy-to-use interfaces to ensure accessibility for users with varying levels of tech proficiency. This solution aims to enhance the medical care continuity for migrants, improving their health outcomes and easing the integration into new healthcare systems.

Relevant SDGs: SDG 3 (Good Health and Well-being), SDG 10 (Reduced Inequalities).

- Community-**Based Food Redistribution App**
Problem Statement: Develop an app to connect restaurants, grocery stores, and households with surplus food to local shelters or food banks.

Description: This idea involves developing an app that connects restaurants, grocery stores, and households with surplus food to local shelters or food banks, facilitating the distribution of excess food to those in need and reducing food waste. The app will serve as a real-time platform where food providers can post available surplus items, and nearby charities and food banks can claim them based on their current needs. The app will feature an easy-to-navigate interface for both donors and recipients, including functionalities like GPS-based location services to match donors with the closest food banks or shelters. It will also include scheduling options for pick-ups and deliveries, ensuring the timely and efficient transfer of goods. Additionally, the app will provide essential data analytics tools to track the types and quantities of food donated, helping optimize the matching process and improve the overall effectiveness of food redistribution. This initiative not only helps in combating hunger by ensuring that surplus food reaches those who need it most but also promotes sustainability by minimizing food wastage.

Relevant SDGs: SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production).

• AI **for Safe Drinking Water**
Problem Statement: Build a real-time water quality monitoring system for rural communities, using AI to analyze contaminants.

Description: This idea centers on building a real-time water quality monitoring system specifically designed for rural communities, utilizing AI to analyze and detect contaminants. The system would involve deploying a network of IoT sensors in various water sources, such as wells, rivers, and community water reservoirs. These sensors will continuously collect data on key water quality parameters like pH, turbidity, temperature, and the presence of harmful contaminants including heavy metals and bacteria. The collected data will be transmitted to a central system where AI algorithms will analyze the information to identify anomalies, trends, and potential risks associated with water quality. The AI component will be trained to recognize the signatures of different contaminants, enabling it to provide accurate assessments in real-time. Alerts and reports will be generated automatically and sent to community leaders and local health officials, allowing for prompt action to mitigate risks, such as issuing boiling alerts or initiating cleanup processes. Additionally, the system will be designed to function with minimal internet connectivity, using low-bandwidth data transmission methods to ensure functionality in remote areas. This approach aims to provide rural communities with the tools needed to ensure their water supply is safe, improving public health and well-being.

Relevant SDGs: SDG 6 (Clean Water and Sanitation), SDG 3 (Good Health and Well-being).

• Smart **Public Transportation System**
Problem Statement: Create an AI-driven app to optimize public transport routes and schedules, reducing travel time and emissions.

Description: This idea involves creating an AI-driven app to optimize public transport routes and schedules, aiming to reduce both travel time for users and emissions for the environment. The app will use machine learning algorithms to analyze vast amounts of data from traffic patterns, user demand, weather conditions, and historical transit usage to predict the most efficient routes and schedules. The AI will continuously update and optimize routes and

timings to respond dynamically to real-time conditions, such as traffic jams, roadworks, or large-scale events, ensuring that public transport remains the fastest and most convenient option. This real-time optimization will help reduce unnecessary stops, minimize idling and rerouting, and optimize occupancy rates, which in turn decreases fuel consumption and lowers emissions. Additionally, the app will provide passengers with instant updates and the best possible options for their journeys, including multi-modal travel suggestions combining buses, trains, and other forms of public transport. By making public transit more efficient and user-friendly, the app aims to encourage higher usage rates, further contributing to a reduction in individual car use and overall urban emissions.

Relevant SDGs: SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action).

● Blockchain **for Ethical Supply Chains**
Problem Statement: Design a blockchain solution for companies to ensure fair labor practices and environmentally responsible sourcing.

Description: This idea involves designing a blockchain solution that enables companies to ensure fair labor practices and environmentally responsible sourcing throughout their supply chains. The blockchain system will create a transparent and immutable ledger of all transactions and interactions across the supply chain, from raw material sourcing to final product delivery. Each participant in the supply chain, from miners and farmers to manufacturers and distributors, will record their activities on the blockchain. This includes details about working conditions, wages paid, environmental impact assessments, and compliance with local and international regulations. The decentralized nature of blockchain ensures that no single party can alter past entries, promoting transparency and accountability. Consumers and regulators can access parts of this blockchain to verify claims about ethical labor practices and environmental stewardship, ensuring that companies adhere to their corporate social responsibility commitments. Additionally, smart contracts can be implemented to automatically enforce agreements, such as releasing payments only when suppliers meet specified conditions regarding labor and environmental standards. This solution not only helps protect workers and the environment but also enables companies to build trust with consumers and investors who are increasingly demanding ethical and sustainable business practices.

Relevant SDGs: SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption and Production).

● Personalized **AI Career Counselor**
Problem Statement: Develop an AI-powered chatbot to guide students in remote areas on career opportunities and skill development.

Description: This idea involves developing an AI-powered chatbot that guides students in remote areas on career opportunities and skill development, tailored to their personal interests and local job market trends. The chatbot will use natural language processing to interact with students in a conversational manner, making it easy and engaging for them to explore various career paths. The AI will analyze data from a range of sources, including job market trends, educational resources, and user interactions, to provide personalized advice and recommendations. It will help students identify skills they need to develop for specific careers

and suggest online courses, workshops, and resources available to them, even in remote locations. Additionally, the chatbot can assist students in setting achievable goals, tracking progress, and staying motivated. It will also be equipped to answer questions about college applications, scholarships, and other educational opportunities that could help them advance their careers. This tool aims to empower students in underserved areas by providing them with tailored guidance and access to educational resources, helping bridge the gap between them and their urban counterparts.

Relevant SDGs: SDG 4 (Quality Education), SDG 10 (Reduced Inequalities).

- AI **for Mental Health in Crisis Zones**
Problem Statement: Build a system that provides anonymous mental health support to individuals in conflict or disaster-stricken areas.

Description: This idea focuses on building a system that provides anonymous mental health support to individuals in conflict or disaster-stricken areas, where stigma or fear may prevent people from seeking help. The system will consist of a secure, easy-to-use platform accessible via mobile devices or computers, ensuring users can reach out for support without revealing their identity. The core of the system will be powered by an AI chatbot trained in psychological first aid and crisis counseling techniques, capable of offering immediate, empathetic support 24/7. This AI will guide users through calming exercises, provide coping strategies, and, when necessary, escalate cases to human counselors who can offer more in-depth support through encrypted channels. To enhance its effectiveness, the system will be designed to operate with minimal internet bandwidth and be accessible in multiple languages commonly spoken in the target areas. The anonymity and ease of access are critical to encouraging use among those who might otherwise hesitate to seek help due to privacy concerns or lack of resources. This system aims to provide a lifeline, reducing the mental health burden on communities affected by crisis and conflict.

Relevant SDGs: SDG 3 (Good Health and Well-being), SDG 16 (Peace, Justice, and Strong Institutions).

- IoT-**Enabled Renewable Microgrids**
Problem Statement: Design an IoT-based solution to manage and optimize energy flow in renewable energy-powered microgrids for rural electrification.

Description: This idea involves designing an IoT-based solution to manage and optimize energy flow in renewable energy-powered microgrids, specifically tailored for rural electrification. The system will integrate a network of IoT sensors and smart meters across the microgrid to monitor and control the energy production, storage, and consumption in real-time. The IoT devices will collect data on solar panel output, wind turbine efficiency, battery storage levels, and consumer energy usage. This data will be fed into an AI-powered control system that uses machine learning algorithms to predict energy demand patterns and optimize energy distribution accordingly. The AI will ensure that energy is efficiently routed to where it's needed most, reducing waste and improving the overall stability and reliability of the grid. Additionally, the system will provide remote monitoring capabilities, allowing operators to

manage the microgrid from a central location and quickly address any issues that arise, such as equipment faults or sudden changes in energy demand. This IoT solution will not only enhance the efficiency of renewable energy microgrids but also support sustainable development by making reliable, clean energy accessible to rural communities.

Relevant SDGs: SDG 7 (Affordable and Clean Energy), SDG 11 (Sustainable Cities and Communities).

- AI **for Coastal Ecosystem Preservation**

Problem Statement: Develop an AI-powered platform to monitor and restore coastal ecosystems, such as mangroves and coral reefs.

Description: This idea entails developing an AI-powered platform designed to monitor and aid in the restoration of coastal ecosystems, specifically focusing on mangroves, coral reefs, and other vital marine habitats. The platform will utilize satellite imagery, drone footage, and underwater sensors to collect comprehensive data on the health and extent of these ecosystems. AI algorithms will analyze this data to identify areas of degradation, disease outbreaks in coral reefs, or illegal deforestation in mangrove regions. By processing large datasets, the AI can detect subtle changes over time, providing early warnings of environmental stressors that could lead to significant damage if unchecked. Additionally, the platform will use predictive modeling to guide restoration efforts, suggesting optimal locations for replanting mangroves or transplanting corals to maximize survival rates and ecological impact. The system can also help coordinate local and global conservation efforts by providing stakeholders with real-time access to data and analysis, supporting informed decision-making and enhancing collaborative approaches to environmental protection. This AI-driven approach not only streamlines monitoring and restoration tasks but also enables proactive management of coastal ecosystems, which are crucial for biodiversity and the livelihoods of local communities.

Relevant SDGs: SDG 14 (Life Below Water), SDG 13 (Climate Action).

- AI **for Inclusive Voting Systems**

Problem Statement: Create a secure and accessible voting platform for persons with disabilities, ensuring their participation in democratic processes.

Description: This idea involves creating a secure and accessible voting platform specifically designed to facilitate the participation of persons with disabilities in democratic processes. The platform will be developed with input from accessibility experts to ensure that it meets a wide range of needs, including those of individuals with visual, hearing, mobility, and cognitive impairments. Key features will include screen reader compatibility, voice command functionality, high-contrast visual options, and easy-to-navigate layouts. The platform will also support multiple languages and offer simple, clear instructions to accommodate users with different educational backgrounds and cognitive abilities. Security will be a top priority, with robust encryption methods to protect the integrity and confidentiality of the voting process. The system will include two-factor authentication and real-time anomaly detection algorithms to prevent unauthorized access and ensure that all votes are accurately recorded and counted.

This platform aims to empower all voters, regardless of disability, to participate fully and independently in elections, promoting inclusivity and equal access to democratic rights.

Relevant SDGs: SDG 10 (Reduced Inequalities), SDG 16 (Peace, Justice, and Strong Institutions).

- Smart **Urban Green Spaces**

Problem Statement: Build a system using AI and IoT to monitor and maintain urban green spaces, enhancing air quality and biodiversity.

Description: This idea involves building a system that uses AI and IoT technologies to monitor and maintain urban green spaces effectively, with the goal of enhancing air quality and biodiversity. The system will consist of a network of IoT sensors deployed across various green spaces such as parks, green roofs, and community gardens. These sensors will collect data on soil moisture, temperature, air quality, plant health, and water usage. The AI component of the system will analyze the collected data to detect patterns and potential issues, such as under-watered areas, disease outbreaks in plants, or unusual changes in air quality. Based on this analysis, the AI can make informed decisions to optimize irrigation schedules, suggest specific plant care, and even alert human managers to problems that require more complex interventions. Additionally, the AI will use predictive analytics to anticipate future conditions and adapt maintenance plans proactively. For example, adjusting care schedules based on weather forecasts or seasonal changes to ensure that urban green spaces are resilient and thriving. This system not only aims to improve the environmental and aesthetic quality of urban areas but also supports public health and biodiversity by maintaining robust and healthy green spaces. It provides city planners and environmental managers with real-time insights and automated control options, making urban green space management more efficient and effective.

Relevant SDGs: SDG 11 (Sustainable Cities and Communities), SDG 15 (Life on Land).

- **AI-Driven Disaster Resilience**

Problem Statement: A Real-Time Analytics System for Prediction, Response, and Recovery

Description: Smart Disaster Response System using Real-time Data Analytics Develop an AI-powered system that uses real-time data from weather sensors, satellites, and social media to predict and respond to natural disasters such as floods, cyclones, or earthquakes. The solution should include features for early warning alerts, resource allocation optimization, and post-disaster damage assessment.

Relevant SDGs: SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action).

- **Resilient Communities:**

Problem Statement: An Interactive App for Disaster Preparedness and Response

Description: Create an interactive mobile application to educate and prepare communities for disaster resilience. The app should feature multilingual content, virtual disaster drills, emergency contact mapping, and real-time updates.

Relevant SDGs: SDG 4 (Quality Education), SDG 11 (Sustainable Cities and Communities).

Smart Infrastructure Resilience:

- **IoT-Driven Monitoring and AI-Powered Predictive Maintenance**

Problem Statement: IoT-Driven Monitoring and AI-Powered Predictive Maintenance

Description: Sustainable and Adaptive Infrastructure Monitoring System Develop an IoT-based adaptive monitoring system for critical infrastructure (e.g., bridges, dams, and buildings) to detect structural vulnerabilities and ensure resilience during disasters. The system should include predictive maintenance using AI and alert mechanisms for immediate action.

Relevant SDGs: SDG 9 (Industry, Innovation, and Infrastructure), SDG 13 (Climate Action).