Dr. A P J Abdul Kalam Ignited Mind children creativity and innovation Awards Final Result 2023

AWARDS

Sr, No.	Name	District	State and UTs	Class	School Name	Title	Problem	Idea Solution
1.	Aditya Raj Chopra	Ghaziabad	Uttar Pradesh	10th	DPS Indirapuram, Ghaziabad	Revolutionizing LED Lighting: The G.LED Bulb for Sustainability and Cost-Efficiency.	Reduces carbon emissions and earn carbon credits, by reduced use of plastic and aluminum in LED lightening Industries. It also reduces replacement cost for failed LED bulb.	LED bulbs and lights have 90% of their body by weight made up of plastic and aluminum having a life of more than 20 years. The rest 10% is the Lightning component PCBA-LED (Printed Circuit Board Assembly -with- Light Emitting Diodes). Whenever a LED bulb fails, it is only this PCBA-LED of the bulb that is required to be changed for a new one. Unfortunately, all these failed bulbs enter the garbage. As these LED bulbs have all their parts glued, soldered, screwed, and machine pressed, making them impossible to be economically repaired. My Innovative G.LED bulb has only 3 assembly parts. Reusable Bulb body with Diffuser cap, and Replaceable PCBA-LED-Cartridge. Every time the LED bulb fails, just remove the PCBA-LED-cartridge by pulling it out by fingers and replace it with the new one by simply pushing it inside the slot, just like replacing a SIM card. The existing bulb now glows like a new bulb with negligible replacement cost. Hence, there is reduction in plastic and aluminum consumption and reducing carbon emissions and global warming.

2.	Udayshankar Ravikumar	Thammanam	Kerala	9th	Nalanda Public School, Thammanam	1) Voice interactive indoor navigation smartphone app for the Blind People	1)As of now the blind needs help of another person to navigate unfamiliar indoor spaces. My idea is for a voice interactive indoor navigation smartphone app for the blind which will allow easy navigation of unfamiliar indoor spaces like hospitals, government offices, train stations, airports and shopping centers.	1)3rDi 4 All is a smartphone android application for the blind that is used with voice interaction to navigate a pre-set path through turn-by-turn instructions and also gives real time audible warning to the user of any obstacles. The preset path has metadata about steps, elevators and such features. This indoor navigation application will provide voice cues to take the person to preset point of interest. By way of one example, a blind person entering an office asks the application the direction to the washroom. The app will give auditory directions and also warn if there is any obstacles on the way. This is implemented by using Google ARCore and Cloud Anchors. Obstacle avoidance is by using Depth API and the app is built using Unity.
						2) Remote Lane Reversal System: A Portable Solution for Efficient Traffic Management and Decongestion	2)Traffic congestion and blocks occur during rush hour in the morning and evening in cities leads to a great economic loss for the nation and the individual. My invention, Remote Lane Reversal System, solves this issue by increasing the availability of lanes as per the flow of traffic thus reducing the need for costly infrastructure investments.	2) The invention, Remote Lane Reversal System, consists of a combination of gates fitted with servo mechanism, electronic road signages with sensors and Time of Flight cameras fitted on the gates, connected together with Internet of Things modules. This entire system is portable and can be placed or removed at any point along the road. The system consists of two such units placed in the middle of the multi lane road, at a distance from each other. As per the traffic needs, a particular contraflow road lane is closed to allow rush hour (commuter) traffic to go through, thereby increasing the availability of lanes to decongest rush hour traffic.

						3) CodeBhasha: Empowering Learning Through Native Language Coding Apps	3) Computer coding can be learnt only with English language. There is no native language computer coding software. It has been seen that learning in native language gives the best results in understanding science. My idea is to help children learn computer coding in their native language thus overcoming the need to learn English. I have made CodeBhasha an android app and ezr Malayalam coding language to overcome this problem.	3) I have made CodeBhasha and android coding app which can be used to learn computer code in native languages without the need for costly computers. As of now I have made ezr Malayalam where coding can be done in the Malayalam language in the CodeBhasha android app. This can be implemented in any native language like Hindi, Sanskrit, etc by just changing the syntax of the computer code. The programming language is made using Dot Net C# and the app was made in Unity.
3.	Oorjit Mahajan	Noida	Uttar Pradesh	12th	Shiv Nadar School, Noida	DextraBot: Empowering Lives with Affordable Tremor-Assistive Technology and AI-Enhanced Insights	Project DextraHelp is an innovative endeavor with the potential to engender significant social impact and empower older individuals (aged 45-75+) afflicted with hand tremors associated with severe neuromuscular Parkinson's disease and Essential Tremors.	Our flagship product - DextraBot is a cost-effective and non-intrusive device designed to assist individuals afflicted with hand tremors caused by neuromuscular conditions that impair dexterity. The device aims to empower these individuals by enabling them to perform daily activities such as eating and brushing with dignity and self-sufficiency. The development of DextraBot was preceded by an extensive review of relevant literature and comprehensive surveys, which garnered over 500 responses. Developed at a fraction of the cost (2500 ₹/35$) of the solutions available in the market, the extremely accessible, user-friendly and the disruptive product is an external handheld gyroscopically stable robotic handle with various attachments, including but not restricted to spoons, forks, or toothbrushes. The IOT enabled state-of-the-art dual-axis

								gyroscopic stabilization system (Accelerometer Sensor Module - MPU6050) built with a reliable open-source electronics platform (Arduino Nano 33 BLE) with Li-Po batteries for power, and Servo Motors for dual axis correction, movement correction and attachment control, will ensure that the end of the handle remains stable even when the patient's hands shake. The current prototype boasts an ergonomic design, featuring a sturdy 3D-printed structure, designed using sophisticated CAD/CAM Software (Fusion 360), manufactured using PLA Filament, and comfortable rubber grips to optimize user comfort during prolonged usage. Furthermore, our future plans include the active integration of Artificial Intelligence-enabled Tremor Profiling Algorithms. This integration is designed to provide doctors with valuable insights into the user's tremors in real time, leveraging the data generated by the device.
4.	Saiansh Tapuriah	Gurugram	Hariyana	8th	The Shri Ram School, Moulsari	A wearable device to detect epileptic seizures and raise alarms on caregiver's mobile phone.	Alerting the caregiver of an epileptic patient when he/she is having a seizure	A wearable device to detect epileptic seizures and raise alarms on caregiver's mobile phone, thereby enabling immediate care and medical attention for the patient who is suffering an attack at that moment. The innovation has two parts – 1. A wearable wristband containing a microcontroller with a sensor and Bluetooth connectivity. 2. A mobile application which connects to the wristband. It receives data from the microchip and raises an alarm
5.	Tuhin Bhattacharjee	Dhanbad	Jharkhand	11th	D.A.V. Public School, Koyla Nagar, Dhanbad	Anushrawan (Anti-Theft Transportation)	A problem of illegal smuggling of natural resources during its transportation, e.g.transportation of coal, sandalwood, etc. and disturbance of sustainable development of natural resources	The present invention relates to a system for detecting and preventing theft of loaded goods during transportation from the origin to the destination. Once the goods are loaded on the truck or vehicle, the initial weight of the loaded goods to be transported is recorded. After loading vehicle departs for its respective delivery location. The proposed system as illustrated in figure 1, comprising a microcontroller, Global Positioning System (GPS), load cell weigh bridge and Internet of Things/ Global System for Mobile

							due to its illegal smuggling, leads to overuse of natural resources.	Communication (IoT/GSM) unit aims to track the real time location of the vehicle with the help of GPS and real time measurement of the weight of the loaded goods with the help of a load cell installed on the vehicle side. A weigh bridge or load cell is installed above ground level height underneath the vehicle or truck's trailer. The installed weigh bridge measures the goods weight throughout the transportation journey. The weigh bridge is operationally connected with Internet of Things/ Global System for Mobile Communication (IoT/GSM) unit, for the transportation or the vehicle to be tracked in urban area with IoT system and in rural areas in GSM system, so that a real time weight measurement of the loaded goods throughout the journey is transferred to the control room. All the information regarding real time activities of the vehicle including its location, goods weight, ignition, communication, etc. are sent to the control room through cloud, which is connected to the GSM/IoT. The system is configured with a valve unit connected with the fuel supply pipe of the vehicle. Once any discrepancy is detected, the control room sends signal to the valve unit on the vehicle side through the IoT/GSM unit, and the fuel supply to the vehicle's engine gets stopped. When the fuel supply of the vehicle gets stopped, the vehicle driver gets alarm with help of an indicator installed on vehicle side. Therefore, the proposed system disclosed in the present invention stops any theft or illegal activity regarding the goods transportation from the origin to the destination point. The proposed system facilitates the tracking and sending the real time location of the moving vehicle to the control room. Any illegal activity such as unloading goods before destination point or de-routing the vehicle is detected.

6.	RISHITA SAMANTARAY	Bhubaneswar	Odisha	8th	KIIT INTERNATIONAL SCHOOL	Devices installed at bus stops which inform conductors if pregnant women's presence	Unsafe travel for Pregnant Women	Devices installed at bus stops which inform conductors if pregnant women's presence
7.	Sindhoora Raja	Bangalore	Karnataka	10th	New Horizon Public School, Bangalore	Advancing Brain Age Prediction: Integrating Vascular Status Enhances Accuracy	More accurate brain age prediction could be useful for identifying individuals at risk for neurodegenerative diseases like Alzheimer's. Brain age models typically rely only on structural MRI, but cerebral blood flow measured with ASL MRI may provide complementary information about vascular dysfunction that occurs early in Alzheimer's disease. This project investigates whether adding ASL-derived cerebral blood flow features to standard structural	Methods 1. Used multimodal MRI data from 478 healthy adults covering a wide age range (24-86 years) 2. Structural MRI: T1-weighted images to derive gray matter, white matter, CSF volumes; FLAIR images to assess white matter hyperintensities 3. Arterial Spin Labeling (ASL) MRI: To measure cerebral blood flow (CBF) Engineered features from structural MRI (volumes, tissue ratios) and ASL MRI (total and regional CBF, spatial coefficient of variation) 4. Evaluated different machine learning algorithms (linear, kernel, tree-based, clustering) to predict age using different combinations of features 5. Performed 100 iterations of 70/30 cross-validation to estimate model performance Findings 1. Adding ASL-derived CBF features significantly improved prediction accuracy (reduced MAE by ~1 year) compared to structural MRI alone across all algorithms 2. Extra-trees ensemble with T1w+ASL features showed lowest error (MAE=4.49 years) Important features: Tissue volume ratios and vascular territory CBF from T1w and ASL respectively

							MRI features improves brain age prediction accuracy. More accurate models could better identify differences between chronological age and predicted "brain age" that may reflect neurodegeneratio n.	
8.	Akshar a Gupta	Khatim a	Uttarakhan d	9th	SMS Dutta Memoria l Nosegay Public School, Khatima	Safeguarding Health: Efficient Soldering Exhaust System for Poison Gas Mitigation	Problem Faced By Electrician During Soldering	The soldering exhaust system utilizes highly efficient ventilation with low cost. It incorporates an exhaust hood positioned directly above the soldering work area to capture and pull the toxic fumes or gases. The captured gases are then directed through a network of ducts to outlet. Further these gases can be collected to filter for further experiments. Conclusion By effectively removing poison gases from the soldering atmosphere, this exhaust system ensures the protection of workers' health and well-being. It minimizes their exposure to hazardous airborne pollutants, reducing the risks of respiratory issues and other health problems associated with soldering fumes.

9.	Dakshesh Sarda	Gurgaon	Haryana	9th	Amity International School, Gurgaon	Equilibrium in Nature: Mathematical Modeling for Sustainable White-Tailed Deer Population Management	Population Fluctuation	Using a mathematical model to solve population related problems in various animal species
10.	SHITAL MANDALAKAR	Navi Mumbai	Maharashtra	6th	NMMC SCHOOL NO 34, Navi Mumbai	Smart Beach Cleaner: Automated Solution for Efficient Beach Cleanup	Cleaning of Beach Manually by digging the sand and picking the waste without using hands	The smart beach cleaner consists of one automatic wheel made up of a net that filters the sand through the net and collects all waste material after elimination. The remaining sand will settle again on the beach. Hand-driven or motor-operated machines will run on wheels and dig out the sand with the help of spikes placed at the front side. The excavated sand is then sifted into the mesh-like sieve. This sieve is continuously rotating and sifting the waste through the sand. Finally, after sifting the collected waste inside that mesh is shifted to the waste collector. Advantages a. Reduces the waste material from beaches and helps in maintaining cleanliness. b. Reduces the direct contact with waste material like plastic, glass, syringes, etc. c. Cleaning is done in a very effective way and in very little time. d. Require very little manpower to clean the beaches.
11	Alagulakshmi p	Thailapuram	Tamil Nadu	9th	Govt Hr Sec School, Thailapuram	Simple Gear lock system for stand of motorcycle	It will prevent accident in gear bikes. which means remove mobyke stand with the help of a gear system. If you dont remove bike stand . you are not to able to move the mobyke	To help stop accidents, we need to be more careful when riding motorcycles. We should always pay good attention and not get distracted. For example, remember to put up the motorcycle stand before riding. If we are more careful like this, we can prevent accidents from happening. This system is designed in such manner that a person is unable to start his motorcycle unless he pushes the stand upwards. Generally accidents occur because the motorcycle side-stand had not been pushed back after riding on the vehicle. It has developed a simple, low cost hook, which can be retrofitted to a two-wheeler,

								so That the user is unable to move his vehicle unless the side stand is pushed upwards and is made free from the ground. It is a small mechanical device which can be assembled and disassembled easily. It is very easy to fabricate.
12	Duvesh Vyanjare			10th	Swami Avataranand Sevat	Ways to Avoid Animals	Ways to Avoid Animals	If we create a sensor using our mobile phones that can detect animals like snakes, scorpions, etc., around us, we will be alerted and become cautious. If we know there is no danger, we can venture into fields and forests without fear.
13	Reena Dilkar			10th	The Gurdian and Guide Public School	Special type Bluetooth glasses		For those who cannot see, a special Bluetooth glasses will be equipped with a sensor to detect obstacles, making it easier for them to walk on the road. These Bluetooth glasses will guide them to their homes or specific places, indicating directions. These glasses will connect with their phones' location, and if they wish to read something, the sensor of the Bluetooth glasses will read those words into their ears, allowing them to hear them. This will enable them to comprehend the content by listening. This is my idea for the convenience of people. To make this, we'll need glasses, a Bluetooth device, and a sensor (similar to the one found in mobile phones, but this sensor will work when touched).