

Proposed Business Ideas

Sl. No.	Team Code	Name(s) of Participants	Course enrolled with University Campus	Name of Proposed Business	Summarisation of Business Idea
1	RE-01	Koulik Kumar Ghosh, Argho Chakraborty, Surottam Mukherjee, Sulagna Ganguly	B.Tech. (Salt Lake Campus)	CoreCircle: An AI-Driven Reverse Vending Machine for E-Waste	CoreCircle addresses the global e-waste crisis—where only 17% of 50 million tons discarded annually is recycled - by transforming disposal into a rewarding, automated transaction. This AI-driven reverse vending machine utilizes a 360-degree camera array and image stitching to identify electronics via YOLO and OCR models. By employing triangulation and physical sensors (weight and metal) to verify dimensions and authenticity, the system prevents fraud before calculating real-time valuations. —To resolve data privacy concerns, an on-site electromagnetic degausser physically destroys memory chips. Collected devices are either refurbished or sold to specialized recycling plants to extract precious metals, which are significantly more concentrated in e-waste than in raw ore. Strategically placed in high-traffic urban hubs, CoreCircle provides immediate UPI rewards, making sustainable electronic disposal accessible and profitable.
2	RE-02	Rajdeep Das, Prosenjit Siddhya	RUSA (Ballygunge Science College Campus)	UrbanDhara — Community Rainwater Micro-Storage	UrbanDhara is a community based rainwater micro storage initiative designed to address the dual challenge of urban waterlogging and water wastage in densely populated areas in urban Kolkata. During periods of heavy rainfall, large volumes of rainwater are rapidly drained away, contributing to flooding while remaining unused. UrbanDhara proposes the installation of shared, modular rainwater storage units in underutilised common spaces such as staircases, clubhouses, and neighbourhood corners. These units are connected to existing rooftops to capture rainwater, which is subsequently filtered and stored for non-potable uses including cleaning, small-scale gardening, and emergency needs. What distinguishes UrbanDhara is its para-level, community-owned approach, which offers a practical alternative to costly building-scale or municipal systems, particularly in older urban neighbourhoods of Kolkata. The initiative operates on a sustainable revenue model

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					through installation services and annual maintenance contracts. Aligned with Sustainable Development Goal 11, UrbanDhara strengthens urban resilience, reduces local flood stress, and promotes sustainable resource management at the neighbourhood level.
3	HC-01	Saheli Biswas	PhD Scholar (Ballygunge Science College Campus)	Gut-bliss : Probiotic health drink as gut rejuvenate	There are various non-communicable diseases that has no assured curity. Some of the diseases have already been studied in our lab using probiotics as therapy. We have successfully validated this product through rigorous scientific experiments. Inflammatory bowel disease (IBD) is a common disease of the intestines and colon causing oxidative damage and breach of the intestinal epithelial barrier by pathogenic bacteria and loss of protective commensal bacteria, this disease has no permanent cure. Our novel probiotic formulation, containing 3 probiotic bacterial strains ABT-inulin, has been validated in a preclinical mouse model of IBD, with significant reduction of the disease. People suffering from obesity has problem with body weight management and infertility. Here comes the role of prebiotic based drink against IBD and obesity. <i>Prebiotic drink can very well manage body weight and overcomes infertity in female and can also be ingested as a wellness drink.</i> We wish to market this product <i>as pocket friendly drink. Travelers can have it as energy boosters.</i>
4	SE-02	Mrinmoy Das	PhD Scholar (Ballygunge Science College Campus)	KrishiSetu	Across India, large areas of agricultural land remain underutilized due to migration, while farming households face irregular income and limited security. At the same time, cities show growing demand for greenery, clean living spaces, and reliable sources of plants and fresh produce. KrishiSetu is a scalable agriculture and livelihood platform that activates idle land through professionally managed, modern farming systems. Farmers associated with KrishiSetu earn continuous income, gain skill training, and access social security, improving stability without increasing operational risk. Alongside core farming, KrishiSetu runs commercial nurseries in partnership with de-addiction centres, where plant cultivation supports recovery while contributing to supply. In old-age homes, simple microgreen cultivation enables low-effort participation and supplementary income. By integrating farmland production, nurseries, microgreens, and urban rooftop and balcony greening services, KrishiSetu creates multiple

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					revenue streams with recurring demand. The model is designed to scale steadily, converting unused land into productive assets while delivering measurable economic, social, and environmental value.
5	SE-01	Ayan Ghosh, Shreya Datta, Avijit Halder, Kingshuk Banerjee	Research Scholar (Dept of Comparative indian language and literature, University of Calcutta)	Calcutta Comparatists 1919	Revitalising Marginal Languages through a Sustainable Translation-Driven Academic Model. Calcutta Comparatists 1919 (CC19) is a forum led by students, alumni, and research scholars of the Department of Comparative Indian Language and Literature, University of Calcutta, dedicated to sustaining India's linguistic diversity through innovation and collaboration. Our proposal presents a self-sustaining academic-cultural model where Indian language education and translation practices generate both social impact and revenue. CC19 organises Indian language certificate courses, humanities seminars and conferences, and hands-on translation workshops, with a special focus on marginal and endangered languages such as Toto, Shershabadia, and Subarnaraikhik. These initiatives equip young translators with employable skills while supporting further research. CC19 has published the first Toto Word Book, receiving nationwide media attention from The Hindu, The Telegraph, and Anandabazar Patrika, and was honoured with the P. V. Narasimha Rao Multilingualism Recognition by the Rethink India Group, New Delhi. With active collaborations with institutions including Goethe-Institut Kolkata, Sri Sri University, and SNTD Women's University, CC19 demonstrates how humanities-led innovation can be socially relevant, scalable, and sustainable.
6	RE-03	Suchetana Das, Shrijita Ghosh, Tanushka Ray, Riddhima Dey	B.Tech. (Salt Lake Campus)	Pee-O-Safe	Our business aims to develop an innovative women's hygiene product(bio-degradable) that prevents splashed urine from coming into contact with the private area during urination. Contact with contaminated surfaces and splashed urine is a major yet overlooked cause of urinary tract infections (UTIs), as well as bacterial and fungal disorders in women. This risk increases significantly in situations where clean and hygienic urination facilities are unavailable, such as in remote areas like hills and forests, or in heavily used and poorly maintained public washrooms at railway stations, airports, and hotels. Unlike men, women require physical proximity and contact while urinating, making them more vulnerable to contamination and

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					infection. Our product acts as a protective barrier that minimizes splashback and exposure, promoting better intimate hygiene and health. By offering a simple, portable, and effective solution, we aim to create a meaningful impact, empower women to urinate safely anywhere, and reduce preventable urinary health issues through improved hygiene practices.
7	RE-04	Danishta Aqueel	RUSA (Ballygunge Science College Campus)	ZARRA-ZARR (Zonal Ash Recovery & Resource Augmentation via Zero-waste Advanced Recombinant Resilient)	India generates approximately million tonnes of coal fly ash annually. While currently classified as a "toxic liability" that leaches heavy metals into groundwater, this ash contains a significant concentration of Rare Earth Elements (REEs)â€”the critical minerals required for EVs, green energy, and advanced defense systems. India currently faces a 100% import dependency on foreign monopolies for these metals. I introduce ZARRA-ZARR (Micro Scavenger) a disruptive bio-mining platform that converts environmental waste into a domestic "Urban Mine." Our core technology utilizes a genetically engineered E. coli host that implements Surface Display Technology to act as a high-precision mineral scavenger. Unlike traditional bio-leaching, which relies on slow internal cell uptake, our system anchors the ultra-selective protein Lanmodulin (LanM)â€”sourced from the methylotrophic bacterium Methylobacterium extorquensâ€”directly onto the bacterial outer membrane. By fusion-tagging Lanmodulin with the Lpp-OmpA anchor system, we have created a "biological magnet" with a 100-million-fold selectivity for lanthanides over common environmental ions like Calcium and Magnesium. This surface-based capture eliminates the diffusion bottleneck, allowing for rapid, high-purity recovery in a fraction of the time required by traditional methods. Furthermore, the non-destructive nature of surface binding allows for the reuse of the bio-catalyst, significantly lowering the cost of production. ZARRA-ZARR (Micro scavenger) represents a Circular Economy model that provides three-way value: 1.Detoxifies coal ash by removing hazardous trace metals. 2.Disrupts the REE supply chain by providing a domestic, low-cost source of minerals. 3.Directly supports Indiaâ€™s goal of becoming a global hub for EV and semiconductor manufacturing.

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					By engineering biology to scavenge what industry discards, ZARRA-ZARR (Micro-scavenger) turns waste of India's power plants into the wealth of its future. We are not just mining waste; we are securing the Sovereignty of our Soil.
8	RE-05	Saheli Chatterjee, Aagnik Bhattacharya, Rupam Chakraborty	B.Tech. Chemical Technology (Rajabazar Science College Campus)	ROH-NITY (Waste to Wheels)	Every year, large amounts of expired or seized alcoholic beverages are destroyed by authorities, usually by crushing or discarding. This not only creates a waste management problem but also wastes a material already rich in ethanol. Instead of being wasted, these beverages can be converted into bioethanol fuel, a clean and renewable energy source that blends well with petrol for vehicles. In this work, expired beer, wine, and spirits are collected and treated through filtration and fractional distillation to recover ethanol. For low-alcohol drinks, a second fermentation step with yeast can increase ethanol yield. The recovered bioethanol is then purified and blended with petrol at 5-10% (E5-E10). Simple tests such as ethanol purity, calorific value, and blending efficiency are compared with petrol standards. a small life cycle study shows that recycling 1,000 L of expired beverages could prevent more than 2 tons of CO ₂ emissions while also reducing disposal costs and environmental risks. This approach highlights how green chemistry and chemical technology can turn regulatory waste into a sustainable fuel alternative, supporting circular economy practices and national goals for renewable energy and climate action.
9	GE-01	Dr. Barnali Mandal, Deowan Tufan Badsha, Sreedep Dey, Shibram Karmakar	Faculty, Research Scholars (Department of Chemical Engineering)	Bio-ethanol production aimed to EBP by rural community using agricultural and kitchen wastes	Bio-ethanol is a green energy source alternative to fossil fuels. India government recommended ethanol – blended petrol (EBP). National policy on Biofuels – 2018 achieved 10% ethanol blending in petrol aiming to 20% (E20) by 2025-26. The particular rural community (villagers), those who are directly associated with the start up entrepreneur will be well trained to produce bioethanol individually in their own residence. The product (ethanol) will be collected from their house and they are paid individually for their production based on quantity (volume) and quality (%ethanol). The total products (ethanol) collected from total members (seller) will be supplied to nearest petrochemicals oil refinery (buyer). The ethanol production will be their (members' villagers) sources of earnings (based on daily or weekly). They will collect low cost raw materials (agricultural or

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					daily kitchen wastes) for the production. The proper training and laboratory support will be provided by PI (principal investigator).
10	HC-02	Akashlina Marik	PhD Scholar (Ballygunge Science College Campus)	With-health functional health drink	Solvent-specific extraction of Withania coagulans fruit yields bioactive-rich concentrates, scientifically validated for antidiabetic, anti-obesity reproductive cycle regulating and antioxidant properties, offering a novel functional ingredient for health drinks targeting metabolic and lifestyle disorders. Solvent based extraction will increase the bio availability and the repertoire of the large plethora of compounds that is otherwise unavailable from just raw form.
11	HC-03	Payal Pal	PhD Scholar (Ballygunge Science College Campus)	NanoSure	This proposal aims to commercialize camelid nanobody libraries as next-generation veterinary biologics for managing atopic dermatitis and allergic asthma in companion animals. These chronic conditions affect a significant proportion of dogs and cats and are currently treated with steroids and immuno suppressants that are costly, provide only symptomatic relief, and carry long-term side effects. The venture leverages two validated platforms: an anti-alkaline phosphatase nanobody library for atopic dermatitis and an anti-IgE nanobody library for allergic asthma. Camelid nanobodies are small, stable, highly specific antibody fragments that enable targeted, disease-modifying therapy with improved tissue penetration and reduced adverse effects. Their bacterial expression allows scalable, low-cost production without cold-chain dependence. The immediate business goal is to develop a licensed veterinary therapeutic kit for companion animals, with a clear pathway from prototype to regulatory approval and market entry. In the long term, the platform will be expanded to address additional high-impact animal disease targets, creating a scalable pipeline of veterinary biologics.
12	HC-04	Bejoy Biswas	PhD Scholar (Ballygunge Science College Campus)	GanoCore Life Sciences	Ga8noCore Life Sciences is a science-driven health and wellness enterprise dedicated to unlocking the therapeutic potential of Ganoderma lucidum_ through advanced extraction and formulation technologies. The company focuses on developing standardized Ganoderma extracts for use in medicinal products and evidence-based functional food supplements. By integrating traditional medicinal knowledge with modern life-science research, GanoCore Life Sciences aims to deliver high-quality, safe, and efficacious

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					formulations targeting immune modulation, metabolic health, stress resilience, and overall well-being. Emphasis is placed on extract standardization, bioactive profiling, and regulatory compliance to ensure consistency and clinical relevance. Through innovation, quality assurance, and translational research, GanoCore Life Sciences aspires to position Ganoderma at the forefront of next-generation nutraceuticals and integrative health solutions.
13	RE-06	Soham Sarkar, Chanchal Banerjee	B.Tech. (Salt Lake Campus)	FlexStick	FlexStick is a reusable, heat-applied fabric sticker designed to reduce temporary clothing waste. Instead of buying new T-shirts for events, trends, or branding, users can apply FlexStick using a household iron and peel it off later without damaging the fabric. The product uses a layered structure with controlled heat-activated adhesive to ensure temporary bonding and reuse. Targeting college events, fashion enthusiasts, and temporary branding needs, FlexStick positions itself as an affordable accessory alternative to fast fashion purchases. By extending garment usability without changing user habits, it offers a practical, scalable approach to more responsible consumption.
14	DD-01	Dr. Soumyadip Banerjee	Research Scholar (Ballygunge Science College Campus)	Holystick	Holystick is a LinkedIn alternative for higher education “made in Bharat. It’s a next-generation platform that enables one-on-one appointments with researchers and faculty members from universities across the globe. Holystick offers exclusive insights into various research labs and serves as a dynamic repository of top academic minds, available lab instruments, and cutting-edge software tools” creating a connected ecosystem for collaboration, mentorship, and innovation in higher education.
15	GE-02	Deblina Biswas, Shreyashi Bera	B.Tech IT 1st Year (Technology Campus)	AgriLoop	AgriLoop is a decentralized circular-economy venture that transforms agricultural waste, specifically underutilized jute sticks into high-value green energy. By deploying modular, containerized micro-factories directly to rural clusters, we eliminate the "logistics gap" and convert biomass into standardized bio-pellets and liquid organic fertilizer. This "plug-and-play" model turns the "Golden Fibre's" remains into a secondary income stream for farmers while providing local industries with a carbon-neutral coal alternative. AgriLoop operates at the intersection of six UN Sustainable Development Goals: it empowers Women’s Self-Help Groups through

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					localized operation, eliminates the environmental hazard of stubble burning, and generates tradable carbon credits. By bringing processing power to the farm gate, AgriLoop ensures that rural waste becomes an industrial asset, creating a sustainable, scalable loop that benefits people, profit, and the planet simultaneously. Our solution proves that the future of energy isn't just green, it's localized and inclusive.
16	SE-03	M. Shine, Pushpita Mondal, Debabrata Roy, Abhiman Das	Research Scholar (Ballygunge Science College Campus)	cultuRoam	Our ethnotourism venture is a purpose-driven travel startup offering deeply immersive, high-value cultural experiences grounded in lived realities rather than staged performances. We curate small-group journeys where travellers live among community members, share meals, participate in daily routines, and engage in meaningful conversations that reveal how culture is practiced not displayed. Led by a team of anthropologists and local experts, our experiences translate ethnographic insight into scalable tourism products: community homestays, shared cooking and farming activities, craft apprenticeships, oral history walks, and seasonal rituals. Host communities are co-creators and economic partners, ensuring dignity, consent, and fair value distribution. Our model responds to growing global demand for slow, responsible, and experiential travel. Aligned with the UN Sustainable Development Goals, we generate livelihoods, preserve cultural knowledge, and promote responsible consumption. Positioned at the intersection of tourism, knowledge, and impact, we offer a sustainable alternative to mass tourism where profit and purpose grow together.
17	GE-03	Deowan Tufan Badsha, Dr. Barnali Mandal	PhD Scholar, Department of Chemical Engineering, Rajabazar Science College Campus, University of Calcutta Affiliated Campus	Bioethanol Production by <i>Saccharomyces cerevisiae</i> from Vegetable Wastes	Bioethanol, a renewable and biodegradable alcohol fuel, is used across several industries due to its versatility include blending with petrol as a renewable transportation fuel, reducing vehicle emissions, heat production, and use as a versatile chemical feedstock for dyes, solvents, and plastics, beverage production, electricity generation, providing an environmentally friendly alternative to fossil fuels. In 2023, the USA produced 15,550 million gallons and Brazil 8,260 million gallons led global bioethanol production, while India ranked third with 1,430 million gallons, achieving E11.7 blending. India is accelerating its E20 program by 2025–26, driven by sugarcane and grain-based feedstock. Current Indian capacity is ~6.3 billion liters/annum (BLPA), with a target to reach E30 by 2030. Depending

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					on the feedstock, it is classified into four generations. First-generation bioethanol sourced from food crops, second-generation bioethanol uses low-cost lignocellulosic feedstocks and can be adopted widely. Third-generation bioethanol primarily relies on algae, while fourth-generation bioethanol uses genetically modified algae to enhance bioethanol yield which is still in the lab and pilot stages. Current bioethanol production mainly comes from the first-generation route, globally recognized and has attained the status of an industrial tag while second-generation bioethanol is slowly taking off. The goal of my research is to develop a noble fermenter process on second-generation bioethanol production by using efficient microorganisms like <i>Saccharomyces cerevisiae</i> which produce higher amounts of ethanol through anaerobic respiration make it economically competitive and sustainable by utilizing sugar-rich domestic food waste. I have started my research work with the examination of different feedstock for the total sugar content obtained from various parts of household food waste, including peels and unusable portions of vegetables and fruits, using the DNS method. My research will focus on developing a noble fermenter process which improves substrate utilization, stress tolerance, and the overall production of ethanol at an industrial scale for oil industry collaboration.
18	SD-01	Satadal Sengupta	Research Scholar, Dept. of Polymer Science & Technology (Rajabazar Science College Campus)	Neuro-AI2D	Picture a wearable that can detect the connection between the brain and the heart in real time—without consuming the battery or relying on the cloud. We are developing Neuro-AI2D, an ultra-low-power mobile sensor that integrates EEG and heart rate variability (HRV) directly into hardware. Currently, neuro-cardiac monitoring involves power-hungry hospital equipment or wearables that send raw data to cloud servers, affecting battery life and privacy. Our system delivers intelligence to the edge. We use printable 2D perovskite-polymer memristive devices to produce flexible neuromorphic chips that adjust to HRV-EEG dynamics on-device. This is more than simply a sensor; it's an autonomous diagnostic engine. Neuro-AI2D provides continuous stress, anxiety, and rhythm monitoring with weeks of battery life and complete data privacy by doing personalised signal

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					fusion locally at femto-joule energy levels. The platform is scalable, cost-effective, and intended for real-world wearable deployment.
19	RE-07	Manojit Sinha, Goutam Basak, Anwesha Gangopadhyay, Muskan Das	M.Sc. Students (Dept of Biochemistry)	SOLANEX	Every year, over 2.5 billion tons of food is wasted globally, with India alone generating approximately 78 million tonnes of household food waste annually - a large portion of which is composed of vegetables. This mounting waste not only represents a loss of valuable resources but also significantly burdens the environment. In this context, our study explores the utilization of potato peels - one of the most common vegetable wastes - in the formulation of an eco-friendly, enzyme-based detergent. Conventional detergents, widely used in households, contain synthetic chemicals that frequently contaminate water sources, harm aquatic life and disrupt natural ecosystems. By harnessing potato waste as a sustainable ingredient, our research aims to produce a biodegradable detergent that effectively reduces water pollution and exemplifies how simple steps in daily life contribute to a greener future.
20	SE-04	Arnab Kumar Das	Department of Indian Language & Literature (College Street)	Community-Oriented Library Cafe, Commercial Skill Hub, and Student-Friendly Accommodation: An Academica “Industry “Community Linkage Model	The proposed initiative is a multi-functional, community-oriented development integrating education, entrepreneurship, and student support within a single G+3 infrastructure in Narendrapur, West Bengal. The ground floor will operate as a library cafe, offering a unique space where visitors can read, purchase books, and engage in intellectual exchange while enjoying food and beverages. This model fosters sustained reader engagement and promotes reading culture beyond formal academic settings. The first floor is planned as a commercial and skill-development hub, supporting training programs, student-led enterprises, and incubation of micro-entrepreneurial ideas aligned with academic mentorship. The upper two floors will provide affordable, student-friendly mess/PG accommodation, ensuring a safe and study-conducive environment. Together, these components create a sustainable academic-industry-community linkage model that generates local employment, enhances student employability and entrepreneurship, and aligns strongly with the objectives of RUSA, inCUBate initiatives, and university extension activities.

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21	HC-05	Shibaram Karmakar, Dr. Barnali Mandal	B.Tech Chemical Engineering	Lactic Acid Production and it's Usages	Lactic acid production by Lactic acid bacteria using fruit and Veg source
22	SE-05	Laxmi Kanta Mahato	Alumni (University of Calcutta)	Work as a seed grower and give rent for farm machineries	
23	RE-08	Sreedep Dey, Dr. Barnali Mandal	Research Scholar and Faculty/PI (Department of Chemical Engineering)	MicroRemed SolNs	Various conventional methods like adsorption, flocculation and precipitation are available for wastewater treatment, but operating these methods need high cost, specifically for treatment of recalcitrant dye. We have identified such microbial consortium in our laboratory that can help to break these barriers and can be applied for such treatment with minimal resource. The data obtained from kinetic study have shown that the study is suitable for scale up from laboratory. The idea to incorporate this into business is to develop prototype of low cost bioreactor that can be applied in industrial scale.
24	SE-06	Atanu Mahanty, Dipika Das, Dipsmita Chattopadhyay, Souvik Saha, Dr. Ashim Kumar Dolai	Research Scholar, RUSA and Faculty/PI (Institute of. Agricultural. Science)	Commercial Production of Oyster Mushroom (Pleurotus Ostreatus) Spawn: A Strategic Agri-business Model For West Bengal	The commercial production of Oyster Mushroom spawn is presented as a strategic agri-business model for West Bengal, focusing on the preparation of fungal cultures rather than mature mushrooms. This initiative addresses the need for rural employment and the recycling of farm residues into nutritious food through a low-cost, high-profit venture. The production cycle involves three core steps: isolating fungal cultures on Potato Dextrose Agar, preparing mother spawn on sterilized grains, and finally generating commercial spawn. Financially, the project requires an initial investment of ₹28.71 lakh, which covers laboratory construction and equipment. With an annual production capacity of 17,648 kg, the model projects an annual net profit of ₹7.78 lakh and a high internal rate of return of 57%. The venture is deemed highly feasible with a 2.5-year payback period, offering significant potential for women's empowerment and economic development within the region's moderate climate.
25	HC-06	Dr. Piyali Mukherjee, Dr. Sutithi Dey, Dr. Sankalita Sarkar,	Research Scholar (Department of Physiology)	'HUMAN'; H - Healthy Workforce U - Upgraded Performance M - Measurable Outcomes A - Actionable Insights N - Network	Our 'HUMAN' Consultancy will deliver integrated preventive and occupational healthcare services to Indian workplaces aligned with ISO 45001 principles. The business will focus on early detection and prevention of work-related physical and mental health disorders including work stress, musculoskeletal issues, diabetes, obesity and other lifestyle diseases that reduce productivity. Target clients will

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		Dr. Subhankar Banerjee			include manufacturing industries, IT companies, logistics firms, construction businesses, and Small scale Manufacturing Enterprises seeking regulatory compliance and improved employee well-being. Services will include workplace risk assessments, ergonomic audits, quarterly/annual health screenings, mental health counselling, wellness workshops and ISO compliance advisory. Revenue will be generated through corporate retainers, per-employee screening packages and annual wellness subscriptions. With moderate initial investment and strong recurring contract potential, the consultancy is scalable across India, with an expected break-even period of 18â€“24 months.
26	HC-07	Aditya Banerjee, Dishari Ghosh, Sneham Dey, Aniruddha Bal	M.Tech students (Department of Applied Optics & Photonics, University of Calcutta, Technology Campus)	"ThermoCoded"- Temperature Monitoring Strips	Cold chain failure is one of the most silent and costly threats in healthcare. Vaccines, insulin, biological products, blood products, and diagnostic reagents can lose potency when exposed to temperatures outside their prescribed range. The most dangerous part? Once returned to refrigeration, there is often no visible sign that damage has already occurred. Compromised products continue circulating - putting patient safety at risk. 'ThermoCoded' addresses this critical gap with a power-free, irreversible temperature monitoring strip that provides immediate and permanent visual evidence of temperature excursions. When a predefined threshold is crossed, the strip undergoes a calibrated colour change that cannot revert, even if the product is later restored to safe storage conditions. This ensures that cold storage defects are detected instantly, preventing ineffective or unsafe medicines from reaching patients. Unlike digital loggers, 'ThermoCoded' requires no batteries, no infrastructure, and no technical training. It integrates directly onto vials, vaccine boxes, transport cartons, and cold storage units. The strips are manufactured using engineered thermochromic composites encapsulated within protective films to ensure stability, biocompatibility, and long shelf life. Applications extend beyond vaccines to biologics, insulin supply chains, laboratory reagents, organ transport, and rural healthcare delivery systems where monitoring infrastructure is limited. By offering a low-cost, scalable, and environmentally responsible

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					solution, 'ThermoCoded' strengthens cold chain accountability, reduces wastage, and safeguards therapeutic efficacy - making temperature safety visible, verifiable, and universally accessible. Furthermore, we are conducting experiments to try and develop our own proprietary colour-changing material based on a precisely tuned titration-driven reaction mechanism to enable irreversible and threshold-specific temperature indication.
27	SE-07	Sudeshna Ghose	RUSA (University of Calcutta)	Calcutta Comparatists 1919	Revitalising Marginal Languages through a Sustainable Translation-Driven Academic Model Calcutta Comparatists 1919 (CC1919) is a forum led by students, alumni, and research scholars of the Department of Comparative Indian Language and Literature, University of Calcutta, dedicated to sustaining India's linguistic diversity through innovation and collaboration. Our proposal presents a self-sustaining academic-cultural model where Indian language education and translation practices generate both social impact and revenue. CC1919 organises Indian language certificate courses, humanities seminars and conferences, and hands-on translation workshops, with a special focus on marginal and endangered languages such as Toto, Shershabadia, and Subarnaraikhik. These initiatives equip young translators with employable skills while supporting further research. CC1919 has published the first Toto Word Book, receiving nationwide media attention from The Hindu, The Telegraph, and Anandabazar Patrika, and was honoured with the P. V. Narasimha Rao Multilingualism Recognition by the Rethink India Group, New Delhi. With active collaborations with institutions including Goethe-Institut Kolkata, Sri Sri University, and SNTD Women's University, CC1919 demonstrates how humanities-led innovation can be socially relevant, scalable, and sustainable.
28	HC-08	Sanjib Patra, Sudipta Naskar	Research Scholar (Department of Genetics)	Functional Sattu-Based Complete Meal Solution	NutriSattva+ is an innovative, plant-based functional meal developed by enhancing traditional Indian sattu with scientifically selected superfoods and natural bioactives. The product is designed as a complete, ready-to-mix nutrition solution that delivers balanced protein, complex carbohydrates, healthy fats, antioxidants, and essential micronutrients in a single serving. Fortified with mushroom-derived protein, natural botanical antioxidants, citrus

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					bioactives, and electrolyte support, NutriSattva+ addresses modern nutritional gaps while preserving the cultural value of indigenous ingredients. Positioned at the intersection of traditional wisdom and contemporary nutrition science, the product targets health-conscious consumers, emergency relief programs, institutional buyers, and performance-focused individuals. With a clean-label, plant-based formulation and scalable production potential, NutriSattva+ aims to redefine sattv as a premium functional food for both domestic and global markets. This venture represents a sustainable, science-backed opportunity in the rapidly expanding functional nutrition sector.
29	SD-02	Prithwjit Mukherjee	Research Scholar (Institute Of Radio Physics And Electronics, University Of Calcutta)	Rehabotix : AI-Powered Robotic Physiotherapy System	Rehabotix is an AI-powered robotic physiotherapy device designed to deliver affordable, standardized, and semi-automated lower-limb rehabilitation. We have successfully developed a working prototype that assists patients in performing structured knee rehabilitation exercises such as sitting knee bending, straight leg raises, and active knee flexion without continuous physiotherapist supervision. The device consists of motorized robotic links, an intelligent control unit, and a user-friendly interface ensuring controlled joint movement, adjustable repetitions, correct posture, and built-in safety mechanisms including an emergency stop system. An integrated AI-driven framework enables real-time pain assessment and automatically selects the appropriate pain level to personalize therapy intensity and motion range. The estimated manufacturing cost is approximately ₹1,40,000 per unit, with strong commercial scalability across clinics, hospitals, and rural healthcare centers in India. (Indian Design Patent Granted – “Knee Movement Rehabilitation Device,” Application No. 430148-001, Sept 11, 2024; Indian Utility Patent Filed & Published – “A Deep Learning-based Comprehensive Robotic System for Lower Limb Rehabilitation,” Application No. 202431086856, Patent Office Journal No. 46/2024, Nov 15, 2024.)
30	SE-08	PRATISTHA MITRA		Agro-Based Eco-Tourism	Agro-Based Eco-Tourism: A Sustainable Model for Urban–Rural Integration

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					Agro-based eco-tourism is an innovative model designed to reconnect urban populations with agriculture, nature, and rural culture while promoting sustainable development. In today's fast-paced and digitally dependent urban lifestyle, people experience stress, pollution, and social disconnection. This model proposes the creation of a pollution-free micro agro-ecosystem within urban or peri-urban areas, offering "farm-to-table dining", eco-friendly homestays, hands-on cultivation experiences, educational farm tours, and cultural festival celebrations. It encourages physical activity, environmental awareness, and mental well-being under the motto "Less Screen Time, More Green Time." The initiative also generates employment opportunities for rural youth, women, and farmers as agronomists, coordinators, skilled labourers, and hospitality providers. By integrating sustainable farming practices with tourism and community participation, this model strengthens rural-urban linkages, enhances farmer income, and contributes to long-term environmental sustainability, supporting the India's vision of Viksit Bharat by 2047.
31	SE-09	Oudarjya Pramanik, Ayan Ghosh	RUSA, PhD Scholar (Department of Comparative Indian Language and Literature, University of Calcutta)	Revitalising Marginal Languages through a Sustainable Translation-Driven Academic Model	Calcutta Comparatists 1919 (CC19) is a forum led by students, alumni, and research scholars of the Department of Comparative Indian Language and Literature, University of Calcutta, dedicated to sustaining India's linguistic diversity through innovation and collaboration. Our proposal presents a self-sustaining academic-cultural model where Indian language education and translation practices generate both social impact and revenue. CC19 organises Indian language certificate courses, humanities seminars and conferences, and hands-on translation workshops, with a special focus on marginal and endangered languages such as Toto, Shershabadia, and Subarnaraikhik. These initiatives equip young translators with employable skills while supporting further research. CC19 has published the first Toto Word Book, receiving nationwide media attention from The Hindu, The Telegraph, and Anandabazar Patrika, and was honoured with the P. V. Narasimha Rao Multilingualism Recognition by the Rethink India Group, New Delhi. With active collaborations with institutions including Goethe-Institut Kolkata, Sri Sri University, and SNTD Women's University, CC19

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					demonstrates how humanities-led innovation can be socially relevant, scalable, and sustainable.
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