

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
পেটেন্ট, শিল্প-নকশা ও ট্রেডমার্কস অধিদপ্তর
শিল্প মন্ত্রণালয়
৯১, মতিঝিল বা/এ, ঢাকা-১০০০
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নং-৩৬.০৮.০০০০.২০০.১৬.০০১.২২. ২৫৭

তারিখঃ ১৮/০২/২০২৬ খ্রি.

বিষয়ঃ দাখিলকৃত পেটেন্ট আবেদনসমূহ ওয়েবসাইটে প্রকাশ।

বাংলাদেশ পেটেন্ট আইন, ২০২৩ এর ধারা ১৭(৪) অনুযায়ী ডিপিডিটিতে ২০২৫ সালের পেটেন্ট আবেদন নং ১৪০, ১৪৬, ১৬৫, ১৬৬, ১৭১, ১৮৬, ২৬১, ২৯৮, ৩০৩, ৩৫৫, ৩৮২, ৩৮৩, ৩৮৪, ৩৮৫ এবং ২০২৬ সালের পেটেন্ট আবেদন নং ১২ মোট ১৫ (পনের) টি আবেদন নিম্নবর্ণিত তথ্যাদি সহ অধিদপ্তরের ওয়েবসাইটে (www.dpdt.gov.bd) প্রকাশ করা হল।

- (ক) উদ্ভাবনের শিরোনাম;
- (খ) পেটেন্ট আবেদনকারী ও উদ্ভাবকের নাম;
- (গ) আবেদন দাখিলের তারিখ ও নম্বর;
- (ঘ) অগ্রাধিকার নম্বর ও তারিখ, যদি থাকে;
- (ঙ) পেটেন্ট এর শ্রেণিবিন্যাস;
- (চ) উদ্ভাবনের মূল উপাদান চিত্রায়িত করে এইরূপ অংকন, যদি থাকে;
- (ছ) বিষয়বস্তুর সার-সংক্ষেপ।

সংযুক্তিঃ ১৫ (পনের) পাতা।


২৬/০২/২৬
মোঃ হাবিবুর রহমান
উপ-পরিচালক (পেটেন্ট)

অনুলিপিঃ

- ১। পরিচালক (সকল), পেটেন্ট, শিল্প-নকশা ও ট্রেডমার্কস অধিদপ্তর, ঢাকা।
- ২। সিস্টেম এনালিস্ট, পেটেন্ট, শিল্প-নকশা ও ট্রেডমার্কস অধিদপ্তর। (ওয়েবসাইটে প্রকাশের জন্য)
- ৩। উপ-পরিচালক (পেটেন্ট) (সকল), পেটেন্ট, শিল্প-নকশা ও ট্রেডমার্কস অধিদপ্তর, ঢাকা।
- ৪। মহাপরিচালক মহোদয়ের ব্যক্তিগত সহকারী, পেটেন্ট, শিল্প-নকশা ও ট্রেডমার্কস অধিদপ্তর, ঢাকা।



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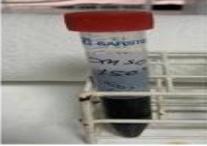
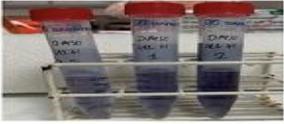
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(11) Patent registration No and date , (21) Appl. No. BD-P-2025-140 (22) Filed: 07/04/2025
(23) Priority Data: United Kingdom, Number :24079584, Date : 05-06-2024.
(71) Applicant: Johnson Matthey Public Limited Company of 5th Floor, 2 Gresham Street, London EC2V 7AD, Nationality -United Kingdom
(72) Inventors: (1) Martin Lucas SMIDT of c/o Johnson Matthey, 10 Eastbourne Terrace, London W2 6LG, United Kingdom Nationality -Netherlands
(74) Agent : Islam & Co., Flat No- 1/506, 36 Kakrail Estern Pioneer Road, Segunbagicha, Dhaka-1000, Bangladesh
(51) INT. CL. : C07C 21/06
(54) Invention Title: “HEAT INTEGRATION IN AN ACETYLENE-BASED PROCESS FOR PRODUCING VINYL CHLORIDE MONOMER”
(57) Abstract The specification describes a process for the production of vinyl chloride monomer (VCM) from acetylene. The process involves a specific arrangement between the lights column reboiler and the refrigeration service. A portion of the hot refrigerant vapour generated by the refrigeration service is used for the heating duty in the lights column. This arrangement reduces the amount of cooling water required by the refrigeration service and avoids the need to generate steam or hot water for the lights column reboiler.
<p>Figure 1</p>



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(11) Patent registration No and date , (21) Appl. No. BD-P-2025-146 (22) Filed: 17/04/2025	
(23) Priority Data: N/A	
(71) Applicant: Textile Change IP ApS of Fredericiagade 21B 7100 Vejle, Nationality -Denmark	
(72) Inventors: (1) Ditte Ladegård Højland of Stævnen 53, 7100 Vejle, Denmark Nationality -Denmark, (2) Emma Thonesen Hostrup of Bakkehegnet 30, 8210 Aarhus V, Denmark Nationality -Denmark, (3) Frederik Wildfang Lykkebo of Platan Allé 8, 7100 Vejle, Denmark Nationality -Denmark, (4) Anna Tode of Søndergade 34, 8000 Aarhus C, Denmark Nationality -Denmark	
(74) Agent : Islam & Co., Flat No- 1/506, 36 Kakrail Estern Pioneer Road, Segunbagicha, Dhaka-1000, Bangladesh	
(51) INT. CL. : B01J 23/92	
(54) Invention Title: “A PROCESS FOR PROVIDING A SOLID FRACTION COMPRISING TEXTILE FIBERS”	
(57) Abstract The present invention relates to a process for decoloring textiles, and for preparing a textile product for recycling. In particular, it relates to a process providing a solid fraction of textile fibers such as natural fibres and/or synthetic fibres, which process comprises the steps of: 5 (i) providing a textile product e.g. from discarded, finely shredded or refined textiles comprising natural fibres and/or synthetic fibres, (ii) performing a pretreatment step by dispersing the textile product to an aqueous solution comprising a pretreatment agent, and thereby providing a pretreated textile product, 10 (iii) performing a decolorization step and/or elastane removal step by dispersing the textile product to a solution comprising a decolorizing or elastane removal agent, and thereby providing a decolorized or elastane reduced textile product, (iv) optionally, performing a polyester removal and/or polyamide removal step, wherein the textile product in either step (ii) and/or step (iii) and/or step (iv) is 15 subjected to ultrasound at a frequency of at least 20 kHz for a period t of at least 10 seconds.	 



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(11) Patent registration No and date , (21) Appl. No. BD-P-2025-165 (22) Filed: 12/05/2025
(23) Priority Data: N/A
(71) Applicant: International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) of 68, Shaheed Tajuddin Ahmed Sarani, Mohakhali, Dhaka-1212, Nationality -Bangladesh
(72) Inventors: (1) Tahmeed Ahmed of Apartment 10B, House 21, Road 47, Gulshan-2, Bangladesh Nationality - Bangladesh, (2) Mustafa Mahfuz of C6-Rupayan Tower 77/2 Shah alibagh road Mirpur-1 Dhaka, Bangladesh Nationality -Bangladesh, (3) Md. Shabab Hossain of Bldg-8/A, Flat-17, Kazi Nazrul Islam Road, Mohammadpur, Dhaka-1207, Bangladesh Nationality -Bangladesh, (4) Ishita Mostafa of House-115, Road-9, Block-C, Flat-A4, Rangs Niketan, Niketan, Gulshan-1, Dhaka-1212, Bangladesh Nationality -Bangladesh, (5) Kazi Nazmus Saqeeb of House No. 711/3 (2nd floor), Road -11, Baitul Aman Housing, Adabor, Mohammadpur, Dhaka -1207, Bangladesh Nationality - Bangladesh, (6) Mehjabin Tishan Mahfuz of House 657 Road 10, Mirpur DOHS, Dhaka 1216, Bangladesh Nationality - Bangladesh
(74) Agent : MentorIP, 501, Concord Tower, 113, Kazi Nazrul Islam Avenue, Dhaka-1000, Bangladesh
(51) INT. CL. : A23J 3/14
(54) Invention Title: “Microbiota-Directed Balanced Energy Protein (MD-BEP)”
(57) Abstract The present invention relates to a Microbiota-Directed Balanced Energy Protein (MD-BEP) supplement developed to address maternal malnutrition and improve neonatal outcomes, particularly in undernourished settings like Bangladesh. Approximately 24% of pregnant women in Bangladesh suffer from undernutrition, increasing health risks for both mothers and infants. This high prevalence is influenced by socioeconomic factors and seasonal food availability, particularly in rural areas. Maternal undernutrition leads to severe complications such as anemia, pre-eclampsia, and postpartum hemorrhage, while also contributing to low birth weight, preterm birth, and intrauterine growth restriction (IUGR) in infants. The MD-BEP supplement is a unique formulation, made from locally sourced ingredients, provides 250-500 kcal of energy and 14-18 grams of protein daily, targeting gut microbiota imbalances to enhance maternal nutritional status. This approach supports better maternal weight gain, reduces the risk of maternal anemia, and improves overall maternal health. For infants, it promotes increased birth weight, reduces IUGR incidence, and enhances neonatal health and development, thereby breaking the cycle of intergenerational undernutrition due to gut dysbiosis and fostering long-term health improvements.



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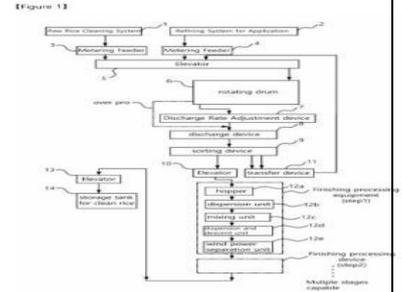
(11) Patent registration No and date , (21) Appl. No. BD-P-2025-166 (22) Filed: 12/05/2025
(23) Priority Data: N/A
(71) Applicant: International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) of 68, Shaheed Tajuddin Ahmed Sarani, Mohakhali, Dhaka-1212, Nationality -Bangladesh
(72) Inventors: (1) Tahmeed Ahmed of Apartment 10B, House 21, Road 47, Gulshan-2, Bangladesh Nationality - Bangladesh, (2) Mustafa Mahfuz of C6-Rupayan Tower 77/2 Shah alibagh road Mirpur-1 Dhaka, Bangladesh Nationality -Bangladesh, (3) Md. Shabab Hossain of Bldg-8/A, Flat-17, Kazi Nazrul Islam Road, Mohammadpur, Dhaka-1207, Bangladesh Nationality -Bangladesh, (4) Ishita Mostafa of House-115, Road-9, Block-C, Flat-A4, Rangs Niketan, Niketan, Gulshan-1, Dhaka-1212, Bangladesh Nationality -Bangladesh, (5) Kazi Nazmus Saqeeb of House No. 711/3 (2nd floor), Road -11, Baitul Aman Housing, Adabor, Mohammadpur, Dhaka -1207, Bangladesh Nationality - Bangladesh, (6) Mehjabin Tishan Mahfuz of House 657 Road 10, Mirpur DOHS, Dhaka 1216, Bangladesh Nationality - Bangladesh
(74) Agent : MentorIP, 501, Concord Tower, 113 Kazi Nazrul Islam Avenue, Dhaka-1000, Bangladesh
(51) INT. CL. :
(54) Invention Title: “Ready-to-Use Supplementary Food with Balanced Energy and Protein (RUSF-BEP)”
(57) Abstract This invention addresses the critical issue of maternal undernutrition, which affects approximately 24% of pregnant women in Bangladesh, posing serious health risks for both mothers and their infants. Socioeconomic factors and seasonal food availability, particularly in rural areas, exacerbate this high prevalence of undernutrition. Maternal malnutrition increases the risk of life-threatening complications such as anemia, pre-eclampsia, and postpartum hemorrhage, while also contributing to adverse neonatal outcomes like low birth weight, preterm birth, and intrauterine growth restriction (IUGR). These conditions lead to heightened neonatal mortality and long-term health issues, including impaired immune function and cognitive delays. The invention provides a specialized nutritional supplement designed to meet the increased dietary demands of pregnancy by improving maternal nutrition status. Using locally sourced ingredients such as Ready-to-Use Supplementary Food for Balanced Energy and Protein (RUSF-BEP), the supplement supports better maternal weight gain, reduces the risk of anemia, and improves overall maternal health. For the developing fetus, the supplement promotes healthier birth outcomes, including increased birth weight and a lower risk of IUGR, and reduces the incidence of preterm births. By addressing maternal malnutrition through accessible and effective nutritional interventions, this invention aims to break the cycle of intergenerational undernutrition and foster long-term health and development for both mothers and their children.



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(11) Patent registration No and date , (21) Appl. No. BD-P-2025-171 (22) Filed: 17/05/2025
(23) Priority Data: Republic of Korea, Number :1020230063555, Date : 17-05-2023.
(71) Applicant: SENONGTECH LTD. of E9dong 702ho (Gaesin-dong, Chungbuk National University Industrial Technology Research park), 1, Chungdae-ro, Seowon-gu Cheongju-si, Chungcheongbuk-do 28644, Nationality - Republic of Korea
(72) Inventors: (1) YANG, Jae Seung of c/o 111dong 2103ho (Baekseok-dong, Baekseok maeul ipark APT), 100, Handeul 3-ro, Seobuk-gu Cheonan-si, Chungcheongnam-do 31091, Republic of Korea Nationality -Republic of Korea
(74) Agent : Islam & Co., Flat No-1/506 (5th floor), 36 Kakrail, Eastern Pioneer Road, Segunbagicha, Dhaka-1000, Bangladesh
(51) INT. CL. : F26B 15/00
(54) Invention Title: CUTTING-AND DRY TYPE RICE WASHING MACHINE
(57) Abstract The cutting-and-dry type rice washing machine according to the present invention includes a hopper (220) into which rice is input, a transfer screw (260) for conveying the rice input from the hopper (220), and a no-wash rice processing unit (280) that finely cuts the surface of the rice conveyed from the transfer screw (260) and separates and removes residual bran attached to the surface of the rice. The cutting-and-dry type rice washing machine is expected to improve the quality of processed no-wash rice by maintaining an appropriate surface cutting amount of rice, while ensuring complete removal of residual bran during the no-wash rice processing process. It also improves the quality of the processed no-wash rice by preventing the mixing of rice introduced before and after the no-wash rice processing process. Moreover, since it does not require abrasive materials or adsorbents, the equipment configuration is simplified, and the no-wash rice processing efficiency increases.





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(11) Patent registration No and date , (21) Appl. No. BD-P-2025-186 (22) Filed: 04/06/2025
(23) Priority Data: India, Number :202441045361, Date : 12-06-2024.
(71) Applicant: TVS MOTOR COMPANY LIMITED of Chaitanya, No.12, Khader Nawaz Khan Road, Nungambakkam, Chennai 600 006, Nationality -India
(72) Inventors: (1) GANGI REDDY DUMPALA of Chaitanya, No.12, Khader Nawaz Khan Road, Nungambakkam, Chennai 600 006, India Nationality -India, (2) PATTABIRAMAN VENUGOPALAN of VENUGOPALANc/o TVS MOTOR COMPANY LIMITEDof Chaitanya, No.12, Khader Nawaz Khan Road, Nungambakkam, Chennai 600 006, India Nationality -India, (3) YELLAMRAJU VENKATA SHANMUKHA CHANDRAKANTH of c/o TVS MOTOR COMPANY LIMITED of Chaitanya, No.12, Khader Nawaz Khan Road, Nungambakkam, Chennai 600 006, India Nationality -India
(74) Agent : Islam & co., Flat No-1/506 (5th Floor), 36 Kakrail, Eastern Pioneer Road, Segunbagicha, Dhaka-1000, Bangladesh
(51) INT. CL. : B60L 13/04
(54) Invention Title: A SUSPENSION ASSEMBLY FOR A VEHICLE
(57) Abstract The present subject matter relates generally to a vehicle (100) and asuspension assembly (200) thereof.The suspension assembly (200) comprises a steering column (201), a linking arm (203), a suspension member (204), and a fender mount (206). The suspension member (204) is a single side suspension fork. The suspension member (204) is configured to fixedly connect with the axle assembly (202). The suspension member (204) is configured to detachably connect with the steering column (201) through a mounting bracket (205). The fender mount (206) is disposed at a predefined portion of the steering column (201). The fender mount (206) is configured to support a fender (102) of a wheel (101). The fender (102) is configured to rotate in a conjunction with the wheel (101) upon a rotational movement of the steering column (201).



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(11) Patent registration No and date , (21) Appl. No. BD-P-2025-261 (22) Filed: 05/09/2025
(23) Priority Data: N/A
(71) Applicant: Sheikh Mohammad Faruque of West Alipur , Faridpur sader, Faridpur city corporation, 7802, Bangladesh
(72) Inventors: (0) Sheikh Mohammad Faruque of West Alipur , Faridpur sader, Faridpur city corporation, 7802, Bangladesh
(74) Agent : Sheikhmohammad, , Bangladesh
(51) INT. CL. : H02K 44/18
(54) Invention Title: Fuel-free gravity-based net-zero carbon emission power generation solution.
(57) Abstract Keeping in mind the unexpected and terrible damage of climate change, the great threat of environmental disaster in the future, to maintain the stability and development of all, everyone has continued to produce electricity by emitting more carbon. The emission of harmful gases due to the use of fossil fuels in vehicles has not stopped. And everyone is worried about this issue, and at the same time, efforts are also being made to keep carbon emissions under control. And I, in solidarity with this effort, have invented a mechanical machine for generating electricity without the use of fossil fuels. The machine is capable of generating electricity according to demand by running at all times and places on the basis of gravity. As a result, the use of environmentally friendly electricity will be ensured for everyone. The cost of production of products will be reduced. New work organizations will be created. It will play an effective and successful role in protecting the environment. And this planet will be saved.



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(11) Patent registration No and date , (21) Appl. No. BD-P-2025-298 (22) Filed: 13/10/2025
(23) Priority Data: N/A
(71) Applicant: SafeCare24/7 Medical Services Limited of Plot 16, Road 13, Sector 4, Uttara, Dhaka 1230, Nationality -Bangladesh
(72) Inventors: (0) SafeCare24/7 Medical Services Limited of Plot 16, Road 13, Sector 4, Uttara, Dhaka 1230, Bangladesh Nationality -Bangladesh
(74) Agent : Ariful Islam Shuvo, Advocate, Mobile: 01944060988, Address: Shonir Akhra, Ward - 13, Dhaka City Corporation South, Dhaka., Bangladesh
(51) INT. CL. : G01B 5/008
(54) Invention Title: A Smart Digital Platform for Real-Time Ambulance Coordination, Dispatch, and Emergency Medical Response (“AmbuFast System”).
(57) Abstract The invention, “AmbuFast Smart Emergency Mobility System,” provides a real-time digital solution for ambulance dispatching and emergency response coordination. It integrates GPS tracking, AI-based routing, and multi-interface applications for users, drivers, and hospitals. The system ensures transparency, speed, and data security in medical transport operations, representing a novel advancement in health mobility technology suitable for national deployment.



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(11) Patent registration No and date , (21) Appl. No. BD-P-2025-303 (22) Filed: 16/10/2025
(23) Priority Data: N/A
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(51) INT. CL. :
(54) Invention Title: APPRAISAL OF THE WATER-BASED PAINT SLUDGE'S 3RS POTENTIAL TOWARDS WASTE TO ASSET NEXUS
(57) Abstract The use of industrial sludge in the blue circular economy not only extends the waste's life cycle but also demonstrates its potential for product development. A recycling option for the sludges generated in water-based paint factories has been demonstrated as a supplementary binding material, serving as a cement substitute in various applications, including cement paver block manufacturing. The process involves air-drying of the sludge for a couple of weeks, grinding it into a fine particle fraction of size 4-6 μm , and using it as a replacement of 5% cement by weight. The paver blocks manufactured by incorporating grounded paint sludge meet the required compressive strength threshold within the 90-percentile confidence in comparison to the commercially available cement blocks of the same design mix. The other physical and chemical testing of the paint-sludge incorporated paver blocks, as per various guidelines, remain within a 95-percentile confidence level and are consistent with various guidelines, as appropriate. Furthermore, the manufacturing and use of sludge reduces the overall carbon footprint by 2% without introducing harmful impacts through the reuse of building blocks, aligning with sustainability principles and the waste-to-assets nexus.



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(51) INT. CL. : A61B 17/20
(54) Invention Title: Live Attenuated Lumpy Skin Disease (LSD) vaccine
(57) Abstract The present invention relates to a live attenuated vaccine for the prevention and control of Lumpy Skin Disease (LSD) in Bangladesh. The vaccine comprises an attenuated strain of <i>Lumpy Skin Disease Virus</i> (LSDV) developed from a locally isolated virulent field strain through serial passaging (60 passages) in multiple cell line (Primary LTC, Vero and MDBK cell line). The attenuated virus is genetically stable, non-reverting, non-transmissible, and capable of eliciting strong protective immunity in vaccinated animals with minimal or no adverse effects. The vaccine is formulated in a lyophilized form with pharmaceutically acceptable stabilizers, allowing for long-term storage and ease of transport under field conditions. The invention further includes the method of virus attenuation, vaccine preparation, and use in livestock immunization programs. This vaccine provides a safe, effective, and scalable solution for controlling LSD outbreaks in Bangladesh.



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(51) INT. CL. : F25D 23/10
(54) Invention Title: An injection-molded Refrigerator body stand made from a bio-based filler compound using eggshells and recycled plastic enhances environmental safety.
(57) Abstract Eggshells, an industrial by-product composed of approximately 95% bio-CaCO ₃ , pose significant environmental hazards due to their large-scale disposal, which threatens local ecosystems. This research addresses the issue by utilizing eggshell waste as a sustainable filler alternative to petroleum-derived mineral fillers. Bio-based filler compounds made from eggshells and recycled plastic are engineered to enhance mechanical properties, including tensile strength, flexural strength, impact resistance, and toughness. These compounds also improve key attributes of the refrigerator body stand, such as Young's modulus, stiffness, thermal stability, and dielectric insulation. The primary objective of this research is to leverage eggshell bio-based fillers to mitigate the limitations of bio-plastics while meeting the rising demand for eco-friendly, renewable, and sustainable materials. This innovative approach not only reduces environmental pollution but also promotes green manufacturing practices and advances the development of sustainable products.



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(71) Applicant: WALTON Hi-Tech Industries PLC. of Plot: 1088, Block: i, Road: Sabrina Sobhan 5th Avenue, Bashundhara, P.O: Khilkhet, P.S: Vatara, Dhaka-1229, Nationality -Bangladesh
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(51) INT. CL. : F25D 15/00
(54) Invention Title: Comprehensive 8-in-1 Convertible Modes for Household Refrigerator.
(57) Abstract The present invention relates to a household refrigerator with comprehensive flexibility through eight convertible modes, designed to optimize storage conditions and energy efficiency. The refrigerator features a user-friendly control panel and advanced sensors for precise temperature, enabling it to switch between Standard Mode, Gentle Freezer Mode, Chill Fridge Mode, Ultra Fresh Mode, Vacation Mode, Lite Freezer Mode, Dairy Cooler Mode, and Lite Fridge Mode. Each mode caters to specific storage needs: from deep freezing and gentle cooling to energy-saving and vacation settings. The innovative design includes ducting, an efficient compressor, eco-friendly refrigerants, and advanced insulation materials to minimize energy consumption. This versatile appliance enhances food preservation, reduces food waste, and provides adaptable storage solutions for varying household requirements.



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(71) Applicant: WALTON Hi-Tech Industries PLC. of Corporate Office: Plot: 1088, Block: I, Road: Sabrina Sobhan 5th Avenue, Bashundhara, P.O: Khilkhet, P.S: Vatara, Dhaka-1229, Dhaka , Nationality -Bangladesh	
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(51) INT. CL. : F24H 15/124	
(54) Invention Title: Cloud-Integrated AI System for Real-Time Fault Detection in Air Conditioners.	
(57) Abstract The present invention relates to an AI-based fault detection and predictive maintenance system for split-type residential air conditioners. The system comprises integrated sensors for collecting real-time operational parameters such as temperature, compressor activity, fan speed, and so on. These data points are transmitted to a remote server via a communication module. An artificial intelligence (AI) model hosted on the server processes the data to detect operational anomalies, diagnose faults, and predict potential failures. Upon identifying an issue, the system automatically generates a comprehensive diagnostic report and transmits it to the customer service interface, enabling timely and informed service response. The invention supports remote diagnostics, reduces system downtime, improves service efficiency, and enhances user satisfaction. Designed to be compatible with both new and existing residential AC units, the invention offers a scalable and retrofit-friendly solution for intelligent air conditioner maintenance.	<p>Figure: 01</p> <p>(Signed)</p>



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(51) INT. CL. : F24F 11/00	
(54) Invention Title: Adaptive Power Management in Air Conditioners Using Solar Energy and Grid Sources with Protection Against Low Solar Input Conditions.	
(57) Abstract	<p>Figure 01 is a block diagram illustrating the configuration and functional flow of the solar hybrid air conditioning system according to an embodiment of the present invention. The diagram depicts the interrelations between the primary components of the system:</p> <ul style="list-style-type: none"> [1101] A Photovoltaic Module (symbolically with a sun and solar panel) serves as the source of renewable energy, providing direct current (DC) or single-phase alternating current (AC) to the system. [1102] The Solar Power Input Unit receives power from the photovoltaic module and channels it to the Power Management Unit for further processing. [1103] The Grid Power Input Unit receives conventional AC power from the external utility grid and is also connected to the Power Management Unit. [1104] The Power Management Unit is the core control mechanism for dynamically allocating power from the solar and/or grid sources. It prioritizes solar power usage, supplements it with grid power when required, and sends the managed energy directly to the next operational stage. [1105] The Inverter and Compressor Unit receives power from the Power Management Unit. The unit converts and modulates electrical power to drive the air-conditioning compressor based on the input power level. [1106] A Real-Time Shutdown Protection Module is integrated with the inverter and compressor unit. It is designed to monitor the power input continuously and trigger a soft shutdown procedure to prevent tripping or damage in the event of low or unstable power. <p>Figure-01 (Signed)</p>



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(71) Applicant: Walton Hi-Tech Industries PLC. of Plot No-1088,Block-i,Road-Sabrina Sobhan 5th Avenue, Bashundhara., Dhaka, Vatar, Nationality -Bangladesh
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(51) INT. CL. : F25D 16/00
(54) Invention Title: Comprehensive 9-in-1 Convertible Modes for Household Refrigerator.
(57) Abstract The present invention relates to a household refrigerator with comprehensive flexibility through eight convertible modes, designed to optimize storage conditions and energy efficiency. The refrigerator features a user-friendly control panel and advanced sensors for precise temperature control, enabling it to switch between Standard Mode, Gentle Freezer Mode, Extended Chill Fridge Mode, Ultra Fresh Mode, Holiday+ Mode, Lite Freezer Mode, Holiday Fresh Mode, and Holiday Mode. Each mode caters to specific storage needs: from deep freezing and gentle cooling to energy-saving and vacation settings. The innovative design features ducting, an efficient compressor, eco-friendly refrigerants, and advanced insulation materials, all designed to minimize energy consumption. This versatile appliance enhances food preservation, reduces food waste, and provides adaptable storage solutions for varying household requirements.

