ERCIYES TECHNOLOGY TRANSFER OFFICE

PATENT AND TECHNOLOGY

PORTFOLIO

ETTO
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DEPLOYABLE TENT STRUCTURE

This system, developed for emergency sheltering, military, and health and personal purposes, is a tenting/structure system, which provides multiple functions, quickly and easily changes its structure, and is used in closed and open modes.

Quick and Easy Setup for Various Needs

Demountable systems are often used to meet emergency or social sheltering needs. One of the most substantial defects of demountable systems is inadequate speed to demount the sheltered area. Therefore numerous emergency shelter needs cannot be met as required. However if the need for closed are is of larger sizes, installation of all pieces requires more labor force as well as additional assembly equipment in various occasions.

Using this method, a sheltered area in fully open, half-open, and closed structures, which can be installed to meet emergency sheltering needs and serve for multiple functions upon transformation, will be more easily and quickly created. Besides the cover coat is manufactured with a functional nature and in a form capable of fully covering the skeletal structure. The cover coat is made of a material intended for summer, winter or four seasons as per the need.

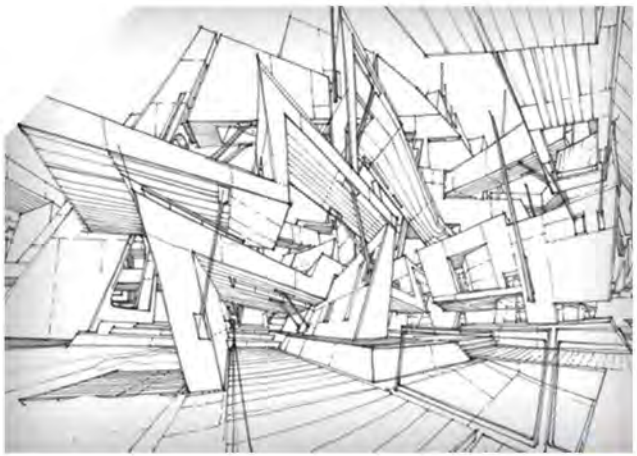
It can be manufactured from an air-permeable, water resistant, antibacterial, anti-stain and -dust (this can be achieved through coating with nanoparticle nature as well), odorless, self-cleaning with UV rays, and lightweight material. Thus those within the transformable structure system are provided with the utmost comfort and do not threaten the user health when used densely, and decrease the risk for infectious diseases.

Advantages

* Quick installation and easy-to-use
* Transformable for various uses
* Easy portability and high durability
* Antibacterial
* Easy to transport with its lightweight structure
* Saving man power

IP Protection

All rights of this developed product are protected by patents. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.



Representative Picture

DUAL GAS FUEL INJECTOR SYSTEM

With the injector system, developed at Erciyes University, two different fuel in gas form are sprayed to suction manifold after mixing them in the injector according to the live revolution and load conditions of the engine and combusted within the cylinder.

High Performance and Low Exhaust Gas Emission

In known methods, fuels are mixed outside the injector through different devices. Then the fuel mix is transferred to the injector and sprayed to the suction manifold. A delay occurs when the fuel mix is prepared outside the injector and sprayed to the suction manifold. After this lag, the need for fuel mix adjusted as per the engine revolution and engine load changes. Hence the fuel required by the engine to be supplied to the engine cannot be sprayed to the suction manifold. As a result it causes performance loss with the engine.

Using this technique, two different fuel in gas form can be mixed within the dual fuel gas injector system. Thus without being subject to any delay, which may cause performance losses, the fuel mix required in that very moment by the engine can be sprayed to the suction manifold in a rapid and quick manner. Some of the advantages of this injector system for users are as follows:

Advantages

- Decreasing exhaust gas emission
- More affordable fuel consumption
- High engine performance
- Quick reaction in various load conditions
- Better mixing rates
- Easy start-up and warming

Advantages

- To ensure two different fuel in gas form to be mixed within the injector according to the current revolution and load conditions of the engine, sprayed to the suction manifold, and combusted within the cylinder;
- To calculate the required fuel mixture rate as per the engine temperature, environmental temperature, instant load on the engine and engine revolution; To calculate the diameter of gas inlet orifices to acquire the fuel mixture value calculated by using the resulting pressure values;
- To command the engines over ECU socket in order to ensure the calculated orifice diameters.

National References

This product has successfully completed the trial courses at Erciyes University and Erciyes Technopark and been rewarded in contests including R&D Automotive Project Outlets.

IP Protection

All rights related to this recently developed product have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

COLOR CHANGING FABRIC BY DOMESTIC WASHING

This method, realizing a textile product in a certain color, using natural colorants such as herbal extracts via pressing techniques, allows color changes, using washing machines at a domestic textile washing environment as well; it is easier and more affordable than the equivalent methods.

Easy, Quick and Affordable

Thanks to this method developed at Erciyes University Department of Textile Engineering, a color changing textile product and its coloration have been realized. Textile product users can change the color of their product for once using their washers at their own places whenever they want. This invention aims to prevent the consumption frenzy, one of the biggest problems of our age, and provides users with a wide color range.

Today although there are various methods to manufacture chromatic textiles, with current technique through known methods, it is not possible to change the color at domestic washing environments. Chameleon textiles are manufactured by allowing the stimulation of the colorant through methods including pH change, oxidation status change, new bond formation or fracture, or electrical or magnetic field effect. Scientific researches related to colorant groups changing their colors via pH change are particularly common. However these products are hard and costly to manufacture. Some of the advantages of this technique are as follows

Advantages

- **Quick and easy-to-use**
- **Low cost**
- **Simple use at domestic environments**
- **Alternative to higher consumption habits**
- **Wide color range**
- **Textile products not harmful to human health thanks to the natural colorants.**

Usage Areas and Market Opportunities

This method thought to be contributing to the Turkish textile industry, featuring product and services of high added value, innovative, competitive, and technology, will enlarge the share of the Turkish Textile industry in the world trade. As a simple definition of the economy, the definition "the art to satisfy unlimited wants of individuals and societies with limited resources" is gradually changing today with the habit of using products in multiple functionality or colors. Especially in textile field, chameleon textiles technology developed to meet this demand could not meet the requested amount. Difficult and complex production course of the chameleon textiles as well as higher costs of these operations result therein.

Using this technique developed at Erciyes University, a product would not become non-durable due to consumption habits of users, and for the first time in the world, just only with a simple washing at home, users would get their textile products in whatever color they desire.

National References

This technique has succeeded the test courses at Erciyes University and Erciyes Technopark.

IP Protection

All rights related to this recently developed product have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

PLASMA STERILIZATION DEVICE

LICENSED

This product, which can operate wherever the electrical power is on without any need for anything and realizes the sterilization process lasting long hours in 1 to 10 sec as per the material variety, can provide sterilization services, not only with fixed uses, but also for field use purposes with its portable nature.

Quick and Hundred Percent Sterilization

Various metal materials are used in surgeries, and blood, solution, organic wastes, and residues of chemical substances which may be required depending on the surgery type may remain over the said surgical materials after the surgery. If not properly sterilized surgical materials are used on a patient during the next surgery, then infections may arise due to these surgical materials. Therefore it is of significant importance to clean any wastes on the surgical materials used during the surgery.

Formerly any sterilization course was lasting in hours, however with the product developed in Erciyes University, this duration is converted to just seconds. Some of its advantages for users are as follows:

LICENSED

Advantages

- 100% sterilization in 1 sec to 10 sec
- Easy to move with its portable design
- Operation wherever the power is available without the need for anything
- Low sterilization costs
- Long lifetime
- Low maintenance costs

IP Protection

All rights of this developed product are protected by patents. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

SOLAR PANEL RUNNING WITH CHLOROPHYLL

A product intended for developing an affordable, productive, and ecologist solar panel cell allowing to generate electricity using chlorophyll pigments and a production method. Also with its long and productive lifetime, it will create a new alternative to the Energy field.

Affordable, Productive and Ecologist Solar Panel

Chlorophyll is a green biological pigment in plants, ensuring photosynthesis in plants by absorbing lights at various wavelengths. Due to the excessive amount of the chlorophyll pigments in nature and as an affordable raw material, it provides an alternative and affordable method to gold plated, silver plated, and high cost synthetic polymer structures which have been commonly used in solar panels to date. Moreover with the former technique, while the productivity was approximately 50%, it increases up to 89% with this technique, and it allows more energy production in more limited areas.

Materials hazardous to the environment, including heavy metals, acids, bases, and petroleum products, are used with the current technique to produce solar panels.With this new technique, 100% organic solar panels not harmful to the environment will be manufactured. Some of the advantages of this new technique are as follows:

Advantages

- Low cost up to 50%
- Productivity up to 98%
- Two times longer lifetime
- 100% recyclable organic elements
- Wide use areas

National and International References

This method has been successfully tested and developed at the research centers of our university and technopark.

- **Erciyes University**
- **Erciyes Technopark**

IP Protection

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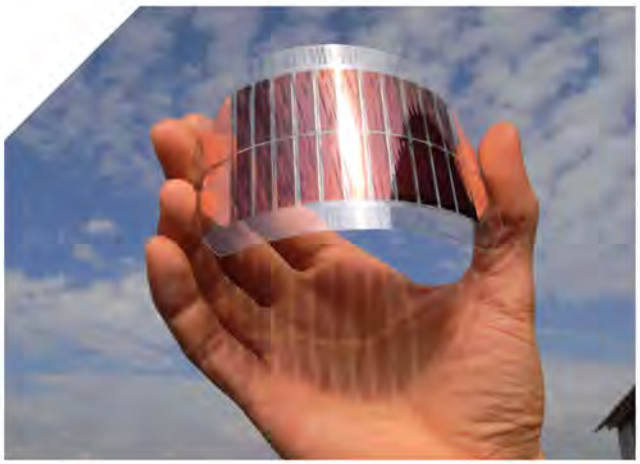


Representative Picture

INDUSTRIAL PASTRAMI

This production process, which allows production from affordable meat pieces in common environmental conditions in a highly short span of time and most importantly featuring slices with standard characteristics and quality, has been developed as an alternative to long and risky production course and special environment production courses of expensive meat blocks.

Affordable, High Quality, Short Production Course

One of the preconditions to protect and maintain social health is a balanced and adequate nutrition. Our carbohydrate weighted kitchen culture and yet not industrialized livestock raising and meat supply are some of the related factors. Pastrami is a rich nutrient as one of the most expensive products in this context. With this technique, as an alternative from expensive meat block over a risky production course, there will be a pastrami type which can be manufactured during all seasons and at every conditions.

This invention also allows to solve some issues commonly encountered during pastrami production. We have solved the problems including the current pastrami production techniques not featuring required standard physical, chemical, and microbiological characteristics, its commercialization being limited by stock production quantities, and inadequate conversion of a basic raw material such as meat to pastrami as a high value added product. Some of the advantages of this technique are as follows:

Advantages

- More affordable production course
- Short and seamless production
- Improved consumer health
- Higher export potential
- Production at international standards

National References

This research has been developed at the Food Engineering Department of Erciyes University and succeeded related test courses.

IP Protection

All rights of this developed product are protected by patents. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

POWER ADJUSTMENT DEVICE

This device, developed to reduce energy costs, providing its users with flexible usage opportunities, can control the power on AC as well as DC load in the structure. It allows to periodically check/start the power control on AC and/or DC load at certain times.

High Energy Saving and Usage Flexibility

With the current technique, the power is controlled on DC or AC loads via separate devices. This means additional costs in two types of load controlling applications. Besides the user can schedule the time intervals of this power control from some of the applications of the device. Thus unnecessary power expenses and overheating issues of the current control devices are prevented. These issues which cannot be overcome using current technique are now possible to solve using this device developed at Erciyes University. Some of its advantages also proven through the accredited test report.are as follows:

Advantages

- An approximate 50% saving in watt
- Light flow control up to 80%
- Low voltage operability
- Low cost
- Application without replacing current fixtures
- Easy-to-use and assemble
- Conformance with different strength sodium/mercury-vapor lamps
- Scheduling enabling times
- Elimination of reprogramming and getting quickly broken problem, as PIC (Peripheral Interface Controller) is not used,
- Usage also with halogen and mercury-vapor lamps..

National References

This device has succeeded the test courses at Erciyes University and Erciyes Technopark.

IP Protection

All rights of this developed product are protected by patents. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

A SUPERHYDROPHOBIC NANOCOMPOSITE COATING

This method, increasing surface holding of superhydrophobic coating when applied as a thin film, is of vital importance for applications subjected to compelling conditions, including particularly plane surfaces.

Bidirectional Wetting Feature, Strong Adhesion

The method, even if it is applied as a thin film for coating surfaces, for which transparency and appearance are substantial, is related to a nanocomposite coating increasing the coating's holding capacity on the surface that it is applied and allowing to a superhydrophobic surface thanks to its bidirectional wetting feature.

Usage and Market Opportunities

It can be used in various fields requiring water/liquid repellent features, including aviation (plane coating), marine (ship, boat coating), automotive (hood, glass coating), construction (facade paint and coating), ceramic (washbasin, vitrified, tile etc.), mirror/glass industry, healthcare (at hospital and laboratories), food (inner surfaces of honey, jam, ketchup like food containers), packaging/paper (non-wettable labels, orrugated board boxes), and textile (military clothing, shoes etc.) industries.

Even these superhydrophobic nanocomposite materials get their places in all the industries listed above, each industry requires a specific work. The studied invention is of TRL4 level, and upon practices on plane coating and packaging industry, good results are acquired.

Advantages

- **Bidirectional wetting feature**
- **Application as a thin film**
- **Transparent and high surface quality**
- **High adhesion rate**
- **Long life**

IP Protection

All rights related to this method realized by Erciyes University academics have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this invention.

Representative Picture

NEW GENERATION CARBON-BASED ELECTRODE

The purpose of this invention is to realize a carbon based electrode and its production method, with a resistance higher than conventional applications, allowing to detect substantially tiny amounts of biologics.

Capability of Stronger and More Precise Sensing

In the prior art of the technique, electrochemical electrode production is commonly realized using organic molecules bound to graphene oxide. However these electrodes do not have an adequately strong structure, and this fails to sense the biologics (in tiny amounts).

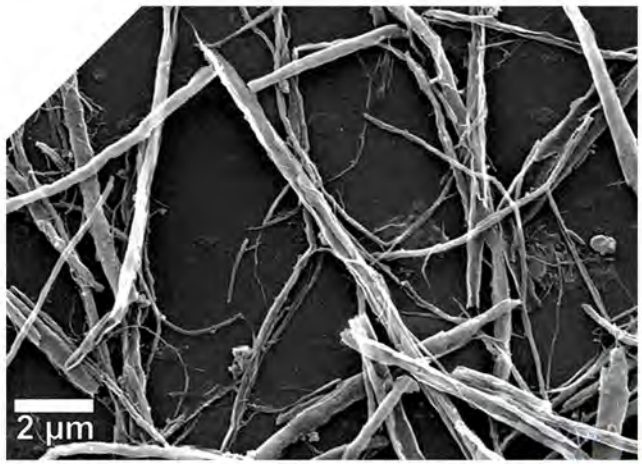
With this method, the new generation carbon-based electrode, acquired by binding coal tar to Graphene Nanoribbons (GNR) materials, has a sensing capability stronger and more precise than conventional applications.

Advantages

- Higher resistance than conventional applications, more precise sensing capacity
- Sensing the biologics with tiny amounts
- The purpose is to get a large surface area such as the coal being substantially cheap and porous after production.

IP Protection

All rights related to this invention have been put under protection of a patent by Erciyes University. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this invention.



Representative Picture

HIGH RESISTANCE BASE MECHANISM

This invention is related to a truss mechanism reinforced with supporting parts to help moving the upper chassis for opening and closing bases. It is more resistant than common base mechanisms and provides a price advantage.

High Resistance, Low Cost, with the Independent Supporting Part

Common base mechanisms comprise of a brace connected to the upper case of the base, a shock absorber with it one ends connected to the brace to allow upper case moving on the lower case, a large mirror and a small mirror, and a scissors mechanism containing the supporting part on the lower case to which the shock absorber is connected. As the bases are frequently used, these supporting profiles, to which mirrors and shock absorber are connected within the scissors mechanism, may be bent over time. Resistance is increased by adding profiles to the lower case to eliminate these bending possibilities. However this situation increases profile raw material consumption and production costs.

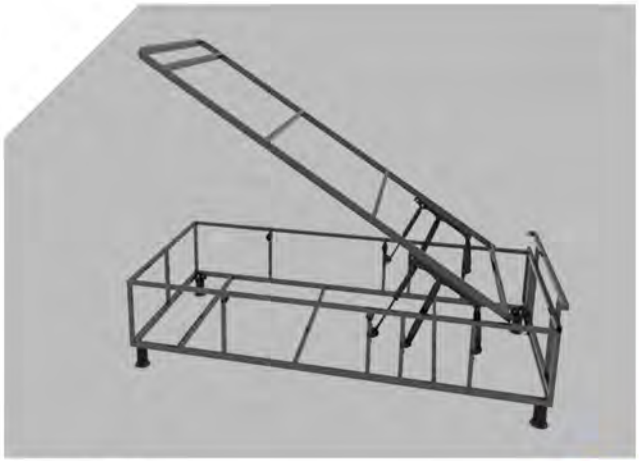
Removing the conventional supporting profile with the invention, the said shock absorber is located to other ends of the large mirror and small mirror, using supporting parts connected to studs on the lower case, any bending is possibly eliminated, and a price advantage is introduced with higher resistance and lower cost.

Advantages

- High resistance
- Low cost
- Long life

IP Protection

All rights related to this invention have been put under protection by Erciyes University. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this invention.



Representative Picture

A METHOD TO GENERATE POLYMERIC HYDROGEL TO BE USED IN DRUG RELEASE

This invention is related to polymeric hydrogels with composite structure and their production method, used for controlled drug release in biomedical because of its water-swellable properties.

Easy and Low Cost Production

Also the polymeric structure, where the active ingredient is adsorbed, undertaking the task to transport the active ingredient is as substantial as the active ingredient in drug release. Because this polymeric structure is required to transport the active ingredient without any damage under optimum conditions to the target area. Furthermore the synthesized polymeric structure should not interact with the active ingredient, be biocompatible and biodegradable and easy and affordable to manufacture. Thus a special polymeric structure bearer is synthesized to each active ingredient, and drug-polymer interactions are analyzed. Water-swellable reticulated substances are called as hydrogels. Polymeric hydrogels are used in biomedicine applications, particularly controlled drug release, as they respond to pH, temperature, and ion concentration, quickly swell thanks to its macro pores, and control the diffusion of drug molecules..

Today various diseases threatening human health can be treated via controlled drug release technique. In this direction, different active ingredients are developed for treatment of different diseases, and different polymeric structures are developed to release these active ingredients. Swelling capacity and mechanical stability of hydrogels are still under development.

With this invention, while realizing a polymeric hydrogel production method, allowing release for various durations of numerous drugs, a polymeric hydrogel production method is realized, using N-isoprophylacrilamide (nipam), acrylamide, maleic acid, and monomers such as N,N'- methylenebisacrylamide, and a polymeric hydrogel production method is realized with a composite structure improved in terms of swelling capability and thermal and mechanical stability through clay addition.

Advantages

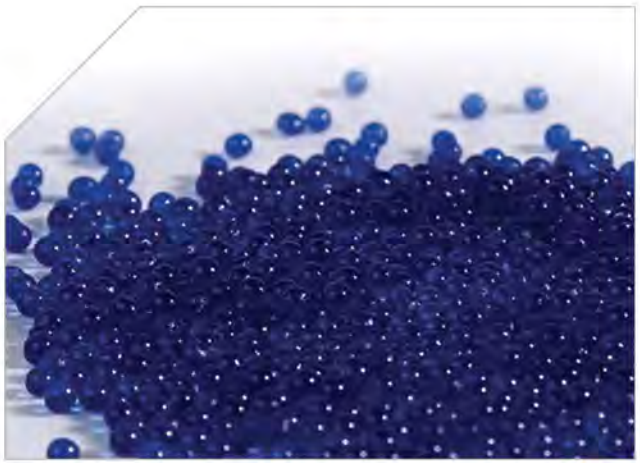
- **Controlled drug release**
- **Quick reaction**
- **Low cost**
- **Swelling capacity thanks to the clay addition**
- **Thermal and mechanical stability**

Advantages

- Transporting the active ingredient with any damage under optimum conditions to the target area.
- Realizing a polymeric hydrogel production method allowing a number of drugs to be released in different durations.

IP Protection

All rights related to this recently developed invention have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this invention.



Representative Picture

REDUCED CALORIE BREAKFAST CREAM

Dietary fiber is separately added to this product for reducing high cholesterol value and calorie to create the prebiotic reduced calorie breakfast cream.

Healthy and More Affordable Consumption

Generally in Turkey, the conventional methods are used to manufacture cream. Such cream has a high cholesterol content and calorie values.

"Low Calorie Cream" has been developed by the Food Engineering Department of Erciyes University as an alternative product for consumers particularly avoiding high calories. This product having a softer structure thanks to its low fat and rich protein content has been manufactured by adding the fat from natural dietary fibers in order to functionalize the butter and cream (at least 15%), and the cream calories have been reduced.

This product, which may stimulate the consumers coping with heart and vascular diseases that we frequently encounter in Turkey and the region in general, offers all its consumers a healthy consumption opportunity. Some of the advantages offered to users by the product are as follows:

Advantages

- **Lower calorie rate (337-382 kcal/100 g)**
- **Longer shelf life**
- **More affordable**
- **Softer structure**
- **Healthy consumption with prebiotic features**
- **Allow consumption by high blood pressure and cholesterol patients,**
- **Making a low prebiotic calorie product.**

IP Protection

All rights related to this recently developed product have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

REDUCED CALORIE BUTTER

Dietary fiber is separately added to this product for reducing high cholesterol value and calorie to create the prebiotic reduced calorie butter.

Healthy and More Affordable Consumption

Generally in Turkey, the conventional methods are used to manufacture butter. Along with its anticarcinogenic and antimicrobial characteristics, such butter has high cholesterol content and calorie values.

"Low Calorie Butter" has been developed by the Food Engineering Department of Erciyes University as an alternative product for consumers particularly avoiding high calories. This product having a softer structure thanks to its low fat and rich protein content has been manufactured by adding the fat from natural dietary fibers in order to functionalize the butter and cream (at least 15%), and the butter calories have been reduced at a rate of 50%.

This product, which may stimulate the consumers coping with heart and vascular diseases that we frequently encounter in Turkey and the region in general, offers all its consumers a healthy consumption opportunity. Some of the advantages offered to users by the product are as follows:

Advantages

- 50% lower calorie rate
- Anticarcinogenic and antimicrobial
- Longer shelf life
- More affordable
- Softer structure

National References

This technique has succeeded the test courses at Erciyes University and Erciyes Technopark.

IP Protection

All rights related to this recently developed product have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

WIND EROSION METER SYSTEM (BEST)

Quick and easy BEST Wind Erosion meter systems with a high precision rate are measurement systems to be used for determining and mitigating negative effects resulted from the wind erosion in the world in terms of economical, agricultural, and social aspects,

Quick, Easy and High Precision Rate

These measurement settings developed at the Agriculture Department of Erciyes University play the key role in calculating the sediment amount transported by the wind. A number of equipment have been developed to support particularly these researches, however until now, the precision rate of dust ejectors has been 55% but with this setting the precision rate is increased to 99%. Thanks to its being easy to install and use, special construction, and wings and system, which may rotate 360°, the setting, which separate the wind and the sediment and collect dust particles in its designated chamber, can be used to quantify the particles moved by wind erosion at the measurement area with the collected particles in studies intended for mitigating the issues which may be encountered due to wind erosion at the area in future. Most substantial advantages to this method offering its users:

Advantages

- **Precision rate up to 99%**
- **Long lifetime**
- **Easy to install and use**
- **Polymate material construction against UV rays**

National and International References

This method has been tested and enabled at various national and international universities. Universities using BEST Wind Erosion Meter Systems are as follows:

- **Ankara University Department of Soil Science**
- **Trier University Germany**
- **Directorate General of Combating Desertification and Erosion**
- **Cankiri University Forest Engineering**
- **Tokat School of Agriculture**
- **Sutcu Imam University Biosystem Engineering**

IP Protection

All rights related to this recently developed product have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

WIND EROSION MONITORING SYSTEM

This invention is related to instant monitoring and modeling the wind erosion at watersheds affected by this very wind erosion.

Quick, Easy and High Precision Rate

Measurement and monitoring of wind erosion are of significant importance in terms of engineering precautions to be taken. There are a number of surface, soil, and topographical parameters affecting transportation with wind erosion. Although direct measurements provide reliable results with passive baits, craftsmanship, time, installation and research costs being high, as in water erosion, physical and mathematical models, which can estimate even parcel size and watershed scale, has been drawing attention.

Wind Erosion Monitoring System developed at Erciyes University School of Agriculture has been developed to monitor and model the wind erosion at the watershed size thanks to its aerodynamic structure and technical characteristics, and it does not require soil, climate, vegetation, and surface parameter measurements for wind erosion measurement, modeling, and monitoring. Upon the system being installed at the watershed, as an online data stream would be ensured, the wind erosion can be monitored and evaluated over any computer with the software on it at the office or from the land. Sediment quantity passing through a unit area is measured using piezoelectric sensors, and it is transferred to the online computer via GPRS technology, then it is automatically calculated over a computer software, and finally they are transferred to ArcView software to generate Kriging maps within the geostatistical interface. The system can instantly or cumulatively map the wind erosion situation per watershed via Geographical Information Systems and Geostatistical methods.

Advantages

- Measurement using piezoelectric sensors
- Communication via GPRS technology
- Instant and cumulative mapping using geographical information systems and geostatistical methods
- Instant follow-up from a computer

Advantages

- Attenuating problems including bait costs, craftsmanship, and duration, which limit the researches,
- Acquiring results without needing soil, climate, vegetation, and surface parameters.

System Operation

The invention is a system measuring, monitoring, and modeling the wind erosion amount, measuring the frequency or voltage generated by piezoelectric sensors and logging via data logger, then these recorded data is transferred online through GPRS system, and by being converted to a sediment flow amount after being automatically calculated and mathematically modeled via the software in the computer that they have been transferred, it allows the wind erosion to be instantly and cumulatively mapped by processing any data modeled into geographical information systems.

IP Protection

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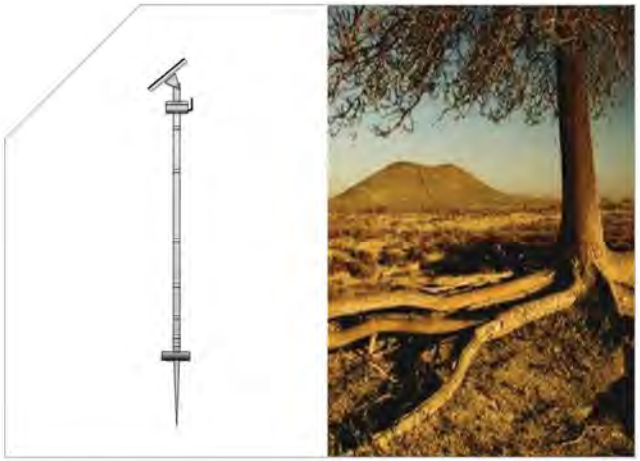


Representative Picture

ORTHODONTIC ANCHOR SCREW

This invention relates to anchor screws comprising of a longitudinal advancement body proceeding into the bone and a fixing head connected to an end of the fastener, extending from the said advancement body, and remained outside the bone, in order to support a tooth by force transmission via a fastener in-between.

Easy to Apply, Short Operation Duration

Orthodontic department is interested in teeth properly positioning on dentins and diagnosis and treatment of face irregularities. Brackets are put on teeth, and these brackets are bound to each other, using wire and rubber like fasteners to apply tensile strength to each other, and allow teeth to move over dentins. In some cases teeth may require to be moved using different forces as per their array direction. In current technique, as the anchor point used to generate these forces, the anchor screws are used.

In current technique, when putting a wire from palatal to the anchor screws, a cover is applied or it is secured by applying an acryl block. These result in mouth health deterioration, time loss, and extra costs and are durable only against a limited force.

In current technique, the wires are secured using force elements over the vestibule, and an adhesive is used to prevent the wire to sting the mouth. When activating the force elements, these adhesives are hard to remove. Also this substance may displace over time. These problems related to the invention are eliminated

Advantages

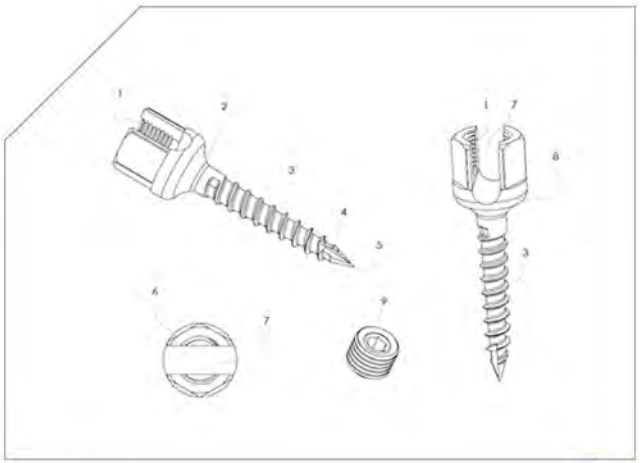
- Easy to apply
- Short operation duration
- Low cost

Advantages

- Preventing the wire to sting the mouth,
- Avoiding health hygiene deterioration,
- Improving patient satisfaction,
- Declining the duration and number of appointments,
- Foreign brands are in the market, therefore ensuring the high prices to be lowered in foreign currency.

IP Protection

All rights related to this invention have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this invention.



Representative Picture

VOLTAGE IMPACT PROTECTOR SALVECTOR®

This device developed against voltage impacts resulting in shorter electrical device lifetime and even breakdowns to protect all your electronic devices plugged in various sockets by plugging the device in a single socket.

Easy to Assemble and Use

High voltage impacts occur for short time of periods when a transformer explosions, strokes of lightning, or power outages are encountered, and these impacts damage the electronic devices as well as result in fires.

Various techniques are developed to address this problem; however these devices either protect the only socket that they are connected or turn out to be limited with devices requiring a professional connection to high cost fuse boards.

This device, developed at Erciyes University, without requiring professional help during assembly and use, by just only plugging in a socket, ensures protection of all electronic devices connected to other sockets as well. Moreover the device can be started to use directly plugging in a socket without the need to cut the power down for a short time of period to connect the device.

Advantages

- **No energy consumption during voage**
- **100% security for electronic devices and during the fire**
- **Easy and fast installation without any help**
- **Lower cost up to 75%**
- **High saving on device replacement costs**
- **Apply on all electric appliances with small size**

Usage and Market Opportunities

Damaging or burning ratio of electronic device and cards due to voltage impacts is approximately 85% in Turkey. The utmost damage all over the world to devices arises from voltage. Therefore thanks to the accessibility and low cost that this device offers as distinct from its equivalents, it has a great export potential for regions including Middle East, Africa, Asia, and South America.

Consequent to the data received from insurance companies as well as fire department reports data, voltage impact protective devices will be mandatory to use in all old and new apartments. Please find below some of the industries using voltage impact protectors.

- **Industrial plants and factories**
- **Apartments, detached building and schools**
- **In hospitals and health centers**
- **In the safety chermical and nuclear installations**
- **Satellite and telephone systems**

IP Protection

All rights related to this product have been put under protection of national and international patents. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

ACRYLAMIDE DERIVATIVE GALL COMPOSITE POLYMER PRODUCTION

Biodegradable acrylamide derivative gall composite polymer production to use in immobilizing invertase enzyme.

Enzymes are protein molecules accelerating biochemical reactions in live cells. As all the other catalysts, the enzymes as well accelerates the reaction by lowering the reaction activation energy. Enzymes are dramatically specific and thus do not participate in all chemical reactions, cannot be changed during the reaction, and operate quickly. As they are intra- and extra-cellularly active, the vast majority of enzymes can be detached from the cell and used in various environments. These characteristics of enzymes allow them to be used in a number of chemical and industrial procedures.

Advantages

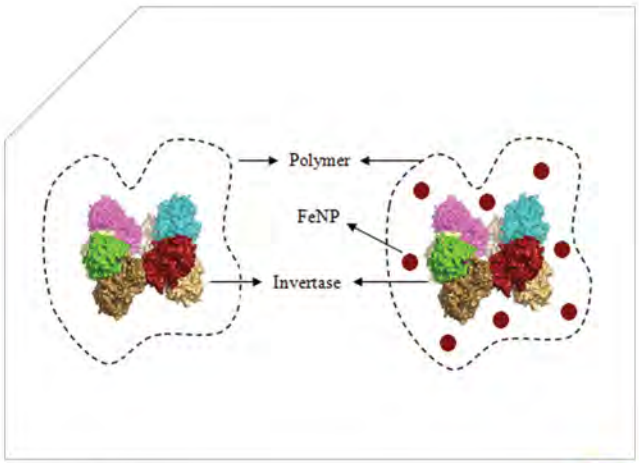
- Biologic detergents, milk industry, medicine, pharmacy etc. usage
- Making polymers biodegradable
- Recurrent use when comparing to other polymers manufactured
- Lowering production costs

National References

This technique has succeeded the test courses at Erciyes University and Erciyes Technopark.

IP Protection

All rights related to this recently developed product have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.



Representative Picture

NEW GENERATION MICROORGANISM IDENTIFICATION KIT

It relates to a system and a method intended for identifying and taxonomic classification/realization of microorganisms at their level.

Accurate, Quick, Efficient Identification

Phenotypic and genotypic methods are widely used in microorganism identification. Phenotypic methods are based on morphologic, physiologic, and biochemical characteristics. Techniques based on phenotypic methods are based on conventional tests used for routine identification, microscopic examination, assimilation of different carbon sources, vitamin requirements, development in different temperature environments and high concentration sugar or salt environments, resistance against antibiotics, and characteristics of hydrolyzing various substrates.

This invention aims to reveal a microorganism identification system and method providing accurate, quick, efficient, and reproducible results for classification and identification at strain/type/sort/family etc. levels of an unknown microorganism insulated from any environment.

Advantages

· In phenotypic identification methods, in order to provide an identification at type level, a number of tests require to be applied, varying in general between 60 and 90.

· When these analyses are not made, accuracy levels of identifications remain way lower (50-80%). Improving this accuracy level,

· Developing a microorganism identification system with a highly wide identification spectrum.

IP Protection

All rights related to this invention have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this invention.

Representative Picture

NEW GENERATION LEAKAGE CURRENT PROTECTION

This invention relates to residual current protection devices, which cut the current to the load off in case there occur a residual current in the said load incorporating a first line and a second line to connect the load to a power supply.

Leakage current devices allow to cut the current headed to the load off by sensing any imbalance between currents going to the load and returning from the load.

Reaction time of mechanical leakage current relays available is approximately 20 ms when there occur a leakage current. 220 V voltage exposes during this time period, which is the alternative current effective value. Depending on the person's condition, the shock value may climb up to 400 mA. As these current levels are too high, the current value has been designated for human life to be 30 mA. Considering potential shock situations, human exposure durations to high currents can be as low as 10 microseconds.

The purpose of this product developed at Erciyes University is to lower the enabling duration of current relays and protect vital values during any potentially harmful situation.

Advantages

- Shortening the time of period the current relays to enable
- Participating in the circuit in a moment without being exposed to the current

National References

This technique has succeeded the test courses at Erciyes University and Erciyes Technopark.

IP Protection

All rights related to this recently developed product have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

RHOMBOHEDRAL STRUCTURE SILICON CARBIDE SYNTHESIS WITH DIFFERENT CHEMICALS

It relates to rhombohedral structure silicon carbide production in argon environment at 1,000 to 12,000°C using Si powder and polycyclic hydrocarbon.

Lower Temperature, Lower Cost

Rigidity, low thermal expansion coefficient, high thermal conductivity as well as its resistance against corrosion make the silicon carbide an irreplaceable material for the industry and trade. As it is a strong semiconductor on the other hand, it is useful also in electronics world. Researchers have been trying various methods to manufacture and synthesize this valuable chemical. The purpose is to manufacture rhombohedral structure silicon carbide without requiring any production device, which may affect the SiC formation.

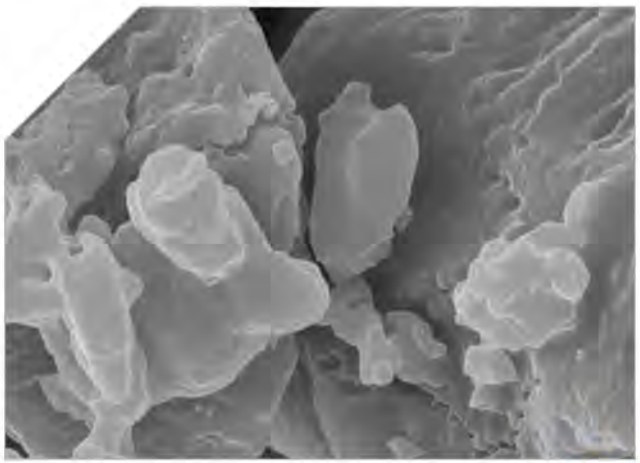
When comparing to the SiC manufactured over the current technique, with the production of rhombohedral crystal structure SiC in argon environment at 1,000 to 12,000°C from polihydrocarbon and Si powder, the purpose is to manufacture SiC at a lower cost without requiring any production device, which may affect the SiC formation, at a lower temperature

Advantages

- Decreasing costs as substantially high temperatures accessibility.
- Reducing the pollution arising from natural silicon oxidization when the heating process is started before it becomes adequately inert.

IP Protection

All rights related to this invention have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this invention.



Representative Picture

XANTHATE OR ALCOHOLATE WITH HIGH CONDUCTIVITY AND CAPACITANCE PROPERTIES

It relates to a xanthat or alcoholate containing silicon, selenium, or tellurium and a method to acquire the said xanthat or alcoholates.

High Conductivity and Capacitance

Xanthats (dithiocarbonates occur by adding alcohols to carbon sulfide in alkaline environments Alkaline xanthat salts are yellow colored stable compounds; they are called as xanthat as they are yellow in color. Xanthats are widely used in the industry. Some xanthats are used also as insecticides.

Xanthats are easy to synthesize.Carbon disulfide is a product resulting from the reaction between alcohol and alkalies. It occurs by combining the said three reactants stoichiometrically in 1:1:1 and extracting water afterwards. When acquiring xanthat, purification of xanthats and inadequate productivity result in problems.

During researches conducted at Erciyes University, due to the current negations and the inadequacy of the existing solutions regarding the subject, an improvement has been deemed to require in the relevant technical field.

Advantages

- Ensuring to acquire xanthat or alcoholate with higher conductivity and capacitance,
- Aiming to acquire xanthat or alcoholate containing silicon, selenium, and tellurium,
- Ensuring to acquire xanthat or alcoholate containing silicon sulfure, selenium sulfure, or iron containing tellurium,
- It is aimed with alcoholate or xanthats containing semiconductive and Group 4-6a element sulfures or iron added ones to store electricity in semi-conductive and photoelectric effect capacitors.

IP Protection

All rights related to this invention have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this invention.

Representative Picture

SYNTHESIS AND PRODUCTION OF BENZANILIDE MOLYBDATE

It relates to the supercapacitor characteristics of the mixture made by crystallizing the benzanilide with metal oxides and metal oxyhydroxides.

Shorter Production Period, Flexible Capacitor

Supercapacitors are devices storing vast amounts of electricity. They are expected to replace alkaline batteries soon. Although they can store much more energy than batteries, their slower charging periods prevent supercapacitors to be used commercially. Notwithstanding that RuO_2, MnO_2, and V_2O_5 are the most famous supercapacitors with highest charging capacity, they are still problematic for daily use due to their long charging-discharging problems. Still there is the possibility to encounter quickly charging supercapacitors to store lower amounts of charging. Researches are focusing in capacitors, which can store more charge than today's batteries with quick charging-discharging characteristics.

This invention developed at Erciyes University relates to a brand new super-capacitor production, which can store 6-70 F/g charge in 120 seconds. On the other hand, this invention relates to a more affordable capacitor production as it does not require high temperature production such as other metal oxides, with a shorter production period, which can be easily brought with flexibility by means of plasticizer and binder polymers unlike metal oxides.

Advantages

- Low production cost.
- Flexible and bending capacitors can be manufactured by adding plasticizers.
- Shorter production period.
- The cost gets lower as it is manufactured at low temperatures and it does not require high-tech devices for production.

Advantages

- Improving their draining time and commercializing supercapacitors,
- Lowering high costs in the production,
- Production of flexible capacitors, which can be shaped upon plasticizer addition as well.
- Long production periods for supercapacitors and problematic mass production thereof.

IP Protection

All rights related to this invention have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this invention.

Representative Picture

BONE AGE CALCULATION METHOD FROM PEDIATRIC WRIST RADIOGRAPHIES

It relates to a method allowing bone age calculation from pediatric wrist radiographies for use in anthropology, forensics, pediatrics, and orthopedics.

Quick and More Precise Bone Age Assay

The most common methods used to bone age assay in children are Greulich-Pyle Atlas (GPA) and Tanner-Whitehouse. However the bone age assays through these methods take too much time. Thus, recently, studies are conducted to automatically determine the bone age .

The main purpose of this invention developed at Erciyes University is to calculate bone age in children over hand radiographies.

Advantages

- Quickly determining the bone age with a high accuracy by using elbow and forearm bone ends and the epiphyses thereof,
- Revealing the relationship between the transversal and longitudinal development of epiphyses with an analysis,
- Determining the age by observing the width and length of epiphyses.

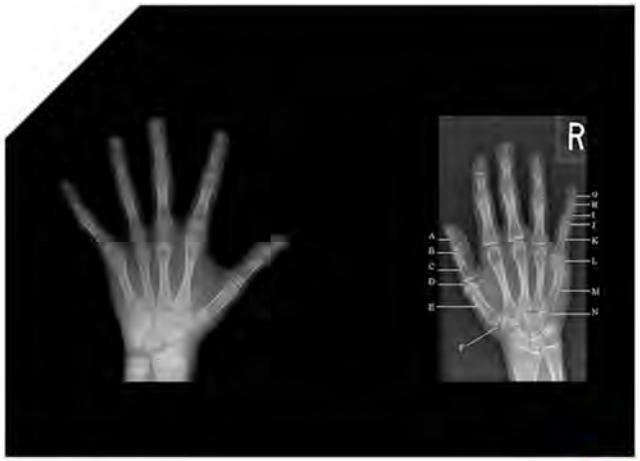
Advantages

The main purpose of the invention is to calculate bone age in children by means of hand radiographies. Other purposes of this invention are as follows:

- Determining the bone ages in a short time of period,
- Improving the bone age accuracy rate in certain age ranges (11-15, 5-8),
- Indicating that the development of epiphysies is more directly related to the age than elbow and forearm bone ends, where they locate, and the bone age can be well determined with the said developments.
- Preventing bone age calculations to be affected by a low quality or wrong distance or angle wrist image.
- Using method specific measurement and functions, allowing manual or automatic calculation of the bone age by an expert/physician.

IP Protection

All rights related to this invention have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this invention.



Representative Picture

DIAMOND POWDER PRODUCTION METHOD

It is a diamond powder production method with nano dimensional and high quality crystallization.

Diamond Powder Production Method

There is a recent trend in studies on artificial diamonds. Due to its low electrical conductivity, high thermal conductivity, rigid structure, and chemical inertness, the diamond is available for various fields from metal coating, cooking pot, enamel, heat insulation, and automobile pistons.

In analyses on diamond power after being finished through production steps of the former technique, it has been revealed that diamond powder with the desired quality cannot be acquired and the existing solutions are insufficient. This method developed at Erciyes University aims to resolve the existing problems.

Advantages

- Acquiring diamond powder with high crystallization rate,
- Acquiring diamond powder with smaller particle size,
- Acquiring product with lower costs

National References

This technique has succeeded the test courses at Erciyes University and Erciyes Technopark.

IP Protection

All rights related to this recently developed product have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

WING WITH A FLEXIBLE SECTION

This invention prevents early detaching and detaching bubble formation at low speeds in wind turbines and micro air vehicles with the wing with a flexible section and relates to improving wing aerodynamic performance.

Due to viscosity effects at low speeds in wind turbine and micro air vehicle wing, early detaching or detaching bubbles may form on the wing. These detaching bubbles result in vibration and instability on the wing, thus in declining the wing productivity, which means aerodynamic performance. In order to solve this performance decrease, the swirl generators formed by sticking additional items on the wing is used today as a flow control mechanism in spite of the sweep increase. The flow on the wing is turbulenced using flow swirl generators to increase the kinetic energy, the flow is hold on the wing and contribute in the lifting force. However while increasing the kinetic energy flow via swirl generators, the wing sweeping coefficient also gets bigger.

With our recently designed wing, detaching bubbles and swirling formed on the wing are damped, the stability on the wing is ensured, lifting is improved as well as sweeping is lowered by using flexible material in certain areas of the wing. Therefore the aerodynamic performance of the wing gets improved. Besides the wing weight is also decreased by using flexible materials. Thus the wind turbine productivity with more lightweight and stable wings and the performance of the micro air vehicle would be able to get improved. Advantages of the wing with a flexible section;

Advantages

- **Damping swirling resulted from a bubble by flexibility**
- **Increasing the lifting coefficient up to 2 times**
- **Decreasing the sweeping coefficient up to 25%**
- **Improving the wing L/D ratio up to 2.62 times**
- **Lowering wing weight**

Advantages

- Decreasing the vibration, instability, and sweeping resulted from the swirling on the wing,
- Allowing to improve the productivity of the wind turbine and short distance takeoff and bigger ammunition transportation capacity for the micro air vehicle,
- Lowering the fuel consumption by declining the sweeping coefficient up to 25%
- Ensuring material saving
- Starting to generate energy at low speeds
- Requiring less engine power use in micro air vehicles.

Wind turbine and micro air vehicle manufacturers and aerodynamicists have been working in recent years on wing designs increasing performance at low speed flows. Especially in Turkey, purchasing wing technologies from Europe, China, and USA, this recently developed wing is obviously expected to have a huge market potential.

IP Protection

All rights related to this recently developed product have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

QUICK SEMANTIC ARTIFICIAL BEE COLONY PROGRAMMING METHOD

Quick semantic artificial bee colony programming (qsABCP), which is a recent method in artificial intelligence, system modeling, and automated programming fields, is based on food searching patterns of honeybees. It is one of those methods deemed as invention machine, which can be used to manufacture new commercial inventions.

qsABCP, using function and constants defined by the user over system inlet and outlet values, is an automated programming technique based on evolutionary calculation which allows to determine the system model generating designated outlet values against system inputs. It does not create a system model by adjusting parameters over a rough model from an analyzer foresight unlike conventional methods, it ensured all the modeling operation, including the core structure of the model, without having even a rough foresight from an analyzer, to be automatically conducted.

When comparing to other methods in its field, a more controlled and semantic information sharing mechanism is used for qsABCP researching. Besides this method is based on the quick artificial bee colony (qABC) model proceeding the research at the observer bee stage over minimum regional solutions.

Main advantages of this brand new automated programming method are as follows:

· This method being based on qABC model, which is a high convergence rate approach.

· Using an information sharing mechanism ensuring a higher regionalism, which is quite essential in these methods, allowing a healthier research and more qualified solutions over an artificial bee colony based on an automated programming technique.

Usage and Market Opportunities

qsABCP, an evolution based system modeling and automated programming method for general purposes, is considered with a large application area.

National References

This technique has succeeded the test courses at Erciyes University and Erciyes Technopark.

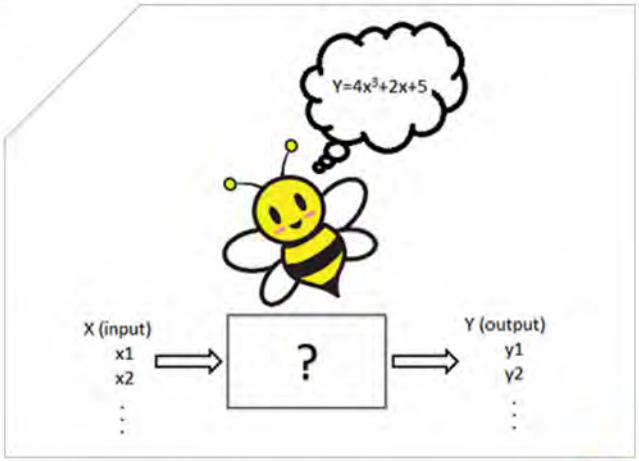
Advantages

Some of the problems suitable for this method are as follows:

· System modeling
· Symbolic regression
· Circuit design (e.g. multiplexer design, two full adder circuit design etc.)
· Curve adaptation problems
· Time series estimation problems
· Optimum control
· Planning
· Automated programming
· Developing game strategies
· Robotic planning
· Programmatic image compression,
· Experimental exploration and estimation
· Exploring mathematical identities,
· Induction of decision trees
· Symbolic integration
· Symbolic differentiation
· Differential equations
· Integral equations,
· Inverse functions
· General functional equations,
· Finding numerical roots of equations
· Quadratic equation solution
· Finding a Fourier series indicating a given periodical function
· Experimental exploration of the known laws
· Designing an artificial nerve net.

IP Protection

All rights related to this recently developed product have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.



Representative Picture

METHOD FOR SEWING A SINGLE-CUT DOUBLE-TAPE FLAP FILETTO POCKET FOR UNLINED CLOTHING

This invention relates to make single or double tape flap split pockets from a single piece unlined clothing

Easy Technology, Easy Production and Low Cost

Pockets, one of the essential elements of our clothing, are made by mounting several pieces together. This invention allows to mitigate the cutting and sewing operations in flap split pocket making for unlined clothing and meeting all the required processes in an easy, highly productive, and low costing manner. The method allowing to manufacture flap split pockets designed in most different styles is simple and available for automation

Advantages

- Lowering the cutting time, energy, and craftsmanship costs by using a single piece rather than several pieces
- It does not demand high qualification from the operator as it is a quite simple and easily realizable method
- High accuracy thanks to its simplicity and convenience
- Pocket flap is possible to manufacture in different ways

Application Areas

The method can be applied for any unlined clothing manufacture from any kind of fabric.
As small pieces are not needed to be cut, it would be even easier to apply in clothing production from knit fabrics.

IP Protection

All rights related to this recently developed product have been put under protection of a patent. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

ERCIYES TECHNOLOGY TRANSFER OFFICE

TECHNOLOGY PORTFOLIO

DRIVING SYSTEM FROM WHEELS BASED ON SWITCHED RELUCTANCE MOTOR FOR ELECTRIC AND HYBRID VEHICLES

Switched reluctance motors are affordable, highly productive, energy saving, simple, and easy to manufacture. Its rotor is made by using an insulated place package and does not contain any bobbin or magnet. It is suitable for any area requiring variable moving and speed applications.

High Productivity and Energy Saving

The Reluctance Motor Based driving system developed at the Electronic Engineering Department of Erciyes University offers a number of advantages to its users when comparing to other driving systems (brush DC motor, line motors, no brush DC motor etc.)

This driving system, which can be used in all systems requiring movement (Automotive-Hybrid and Electric Vehicles, Train, Bicycle etc.) is able to be designed as a direct driver in all systems.

Magnet or maintenance expenses in other driving systems are not encountered with the Reluctance Motor Based driving systems. Therefore it offers to its users several advantages including low cost and maintenance ease. We can sort its advantages in general.

- **Low production cost**
- **Low maintenance and repair costs**
- **High productivity: Energy productivity between 85% and 95%**
- **Energy saving**
- **Ease of use**
- **Long lifetime**

Usage and Market Opportunities

Use area of the switched reluctance motors (ARM) is widening by means of its simple structure, low moment of inertia, affordable production, and high speed operation characteristics. ARMs are of a simpler structure than asynchronous motor or classic DA motor. Mechanical as well as electric-electronic components of the driving system have been solely designed by the project team. Thus this is the first native switched reluctance motor based driving system from wheels.

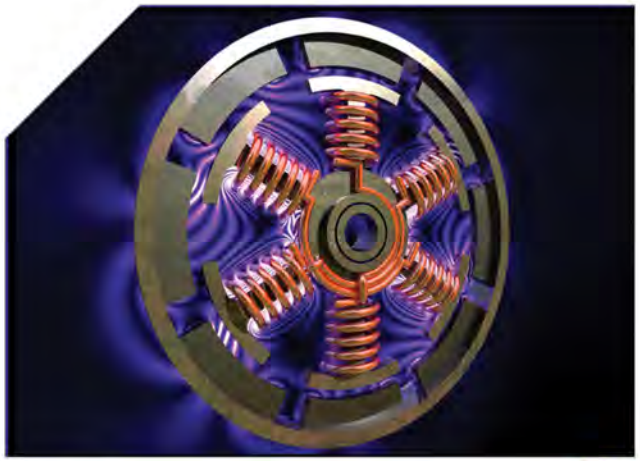
Today ARM's are used in space industry, mining, nuclear facilities, industrial washer and dishwashers, electric vehicles, and office tools.

Several use areas are defined below.

- **Automotive industry**
- **Hybrid and electric vehicles**
- **Tram and trains**
- **Elevators**

IP Protection

All rights of this developed product are protected by patents. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.



Representative Picture

ULTRASONIC AMPLITUDE MODULATOR

Ultrasonic Amplitude Modulator (UGM) method not damaging human and environmental health, ensuring identification of the desired material content or numerically quantify the desired characteristics of these materials, allows to conduct these operations without damaging the target material.

Human and Eco-friendly Test Courses

Any undesired condition including damaged areas, fractures, pores, cracks, discontinuities, and foreign substances can be determined via UGM technique. Thus the target material structure/composition can be defined and any undesired conditions can be dimensioned and scaled.

Volume errors expected in metallic and non-metallic materials and crack type can be used for determining surface errors.

A method has been developed at the Electronic Engineering Department of the Erciyes University to allow the processed signal data with frequency compounds lost to be reproduced at the desired frequency values by protecting their amplitude information. Sensitivity and accuracy advantages offered by the available ultrasonic device and hardware and logarithmic amplifiers have been met with this technique, and thanks to this hardware, for any signal requiring logarithmic amplification, no matter what type the receiver is, logarithmic signal output is ensured to be read. As the logarithmic amplifiers efface the frequency components in signs, almost for each ultrasonic device, AC signs could be monitored but DC signs could not be detected, since they are blocked, once, and with this technique, logarithmic amplified signs are made available to be used with current ultrasonic hardware.

Some of the advantages offered by this recently developed technique are as follows:

- **High speed and precise measurement values**
- **More than 50% saving in test expenses**
- **Healthy and safe testing opportunity**
- **Capacity to determine any error of the material in 3D**
- **Exceeding beyond the measurement fields of the existing equivalent systems**
- **Preventing time losses in possible system integrations**

Usage and Market Opportunities

This method can be used not only in the industry, but also in healthcare, science, and engineering fields as well as product and service industries. Some of the application areas and examination types of the ultrasonic Amplitude Modulator technique developed as one of the Non-destructive Testing (NDT) are as follows.

Examination: Thickness measurement and corrosion check, surface and subsurface error checks, error detection and dimensioning

Application Areas

- **Plane and aviation industry**
- **Automotive industry**
- **Power plants**
- **Oil refinery and gas pipelines**
- **Railways**
- **Iron and steel construction**
- **Casting industry**

IP Protection

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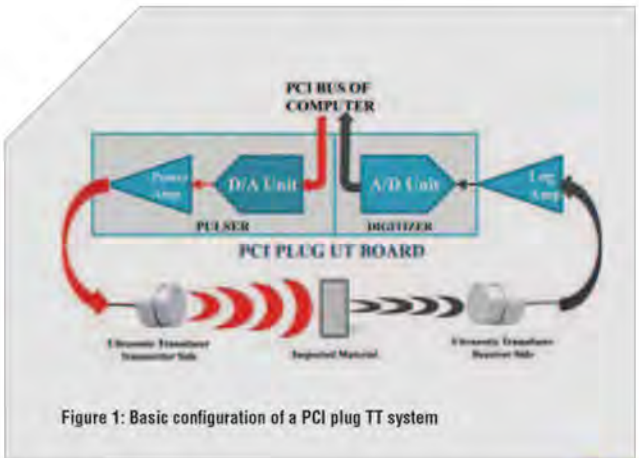

Figure 1: Basic configuration of a PCI plug TT system

Representative Picture

ADVANCED HEARING AID AND MONITORING SYSTEM

New Generation Hearing Aid developed at the Electronic Engineering Department of Erciyes University, as well as detecting dangerous falling actions, by meeting all Blue-tooth headset and hearing aid functions over a single device, has offered a solution meeting users' needs with minimum accessories rather than structures comprising of a number of components.

New Generation Multifunctional Hearing Aid

Falling occurs in connection with mainly age, neurological disorders, imbalance and visual impairments, individual factors such as multiple medication use or slippery grounds, and external factors such as bad lighting. Falling problem interesting a wide risk group is as dangerous as cardiac and diabetic diseases among elderly. In a study conducted in elderly in USA, medical expenses of a once fallen elderly are 29% higher than the one never fallen. This value increases up to 79% considering two or three time fallers.

As falling related blackouts or blackout related fallings are frequently occur, falling sensing process requires to be automatically sensed and reported. With the product developed at the Electronic Engineering Department of Erciyes University, falls are determined with over 95% precision through the sensor group located at a single area of the body, and this sensor group is located on a hearing aid within the ear. Thus it can be used as a hearing aid and a fall sensor. Some of the advantages offering the new generation hearing aid to its users are as follows:

- **Near hundred percent precision rate**
- **High saving from healthcare expenses**
- **Precise hearing function**
- **Healthier, safer, and happier life opportunity**
- **Long lifetime and ease of use**
- **Multifunctional use utility**
- **Free movement possibility**

National and International References

This recently developed hearing aid has succeeded test courses at the Electronic Engineering Department of Erciyes University and Erciyes Technopark.

Issues Addressed by the Invention

- Near hundred percent precision rate
- High saving from healthcare expenses
- Precise hearing function
- Healthier, safer, and happier life opportunity
- Long lifetime and ease of use
- Multifunctional use utility
- Free movement possibility

IP Protection

All rights of this developed product are protected by patents.
We, as the Erciyes Technology Transfer Office,
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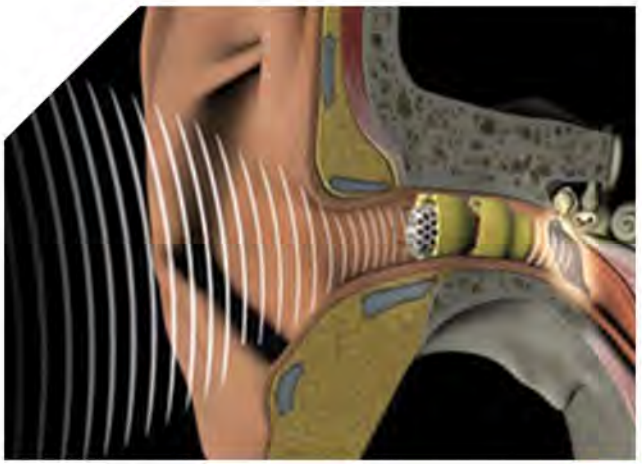


Representative Picture

PNEUMATIC INVAGINATION REDUCTION DEVICE

This product providing an exact and easy solution to particularly pediatric intestinal obstruction cases through quick, easy, and efficient use without needing any surgery also offers psychological advantage to patients and relatives to prevent any possible inner negations which may arise after the surgery.

Quick Recovery Course through Quick, Easy and Efficient Use

Treating pediatric invagination cases is of vital importance. The course within this treatment comprising of controlled unblocking the interlocked and obstructed bowel through the anus of the patient via compressed air. If it is not unblocked, the surgery would be unavoidable as the bowel flushing becomes deteriorated. Since the surgery increases the risk of particularly mortality and morbidity as well as the hospitality period and the expenses, it is not a desired situation. This method is substantially advantageous as it solves the problem without requiring any surgery or even hospitalization for the child.

Air application into the bowel is based on the physician's physical performance in manual devices. Since the achievement of required pressure values, keeping them stable or not focusing problematic bowel areas when realizing these, and long operation durations indicate the manual devices to be not productive. Therefore an electric driven, precise flow rate control, and silent device is required. We can sort its advantages this way in general:

- **Solving the problem without requiring a surgery**
- **Quick, easy, and efficient use**
- **Decreased perforation risk in patient**
- **Safe and precise pressure adjustment**
- **Decreased treatment costs**
- **Quick recovery**
- **Preventing inner negations which may arise in patients after the surgery**
- **Long lifetime**

Usage and Market Opportunities

There is no similar product in Turkey regarding this subject in this field. An equivalent of this device is mentioned in huge hospitals with a number of these kind of cases abroad (especially in China); however there is no commercial provision thereof. Even it is desired, there is no commercial company to provide this product. Thus this is a high potential product to be commercialized and marketed in Turkey and abroad.

It is particularly suitable for invagination cases in Healthcare Industry (hospitals, community clinics, health centers etc.)

IP Protection

All rights of this developed product are protected by petty patents.
We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Representative Picture

PCR METHOD DEVELOPED TO DETECT DIFFERENT ANIMAL MEATS

This quickly resulting, simple, suitable for routine uses, highly sensitive and reliable method has been developed to detect different animal meats using specific PCR technique.

Increase in Consumer Health Safety

Detection of different type of meats mixed with meat and meat products for cheating purposes is of significant importance to protect the consumer, apply label details legislation for foods, and prevent unfair competition. Therefore when detecting the type of animals used to manufacture meat and meat products, quickly resulting, simple, suitable for routine uses, highly sensitive and reliable methods are needed.

This technique detecting different animal tissues in meat and meat products, developed at the Food Engineering Department of Erciyes University, can detect the gene desired to be detected, among 8 different type of animal tissues (bovine, sheep, horse, donkey, pig, turkey, chicken, and seagull), to some extent with 0.001% (1/100,000) precision thanks to their raised fluorescent signals in food mixtures or heat-processed meat products or mixtures for cheating purposes. Main advantages that it offers to its uses are as follows:

- **Preventing cheating labeling**
- **Decreased testing expenses**
- **Increased consumer health safety**
- **Reliance against the industry again**
- **Practical and quick use possibility**

Usage and Market Opportunities

In order to protect consumers and prevent unfair competition, as the meat and meat products require constant and regular controls, this specific PCR technique developed to detect any meat from different type of animals within this study is concluded to possibly become a routine control method meeting the need of food control labs in Turkey in this field.

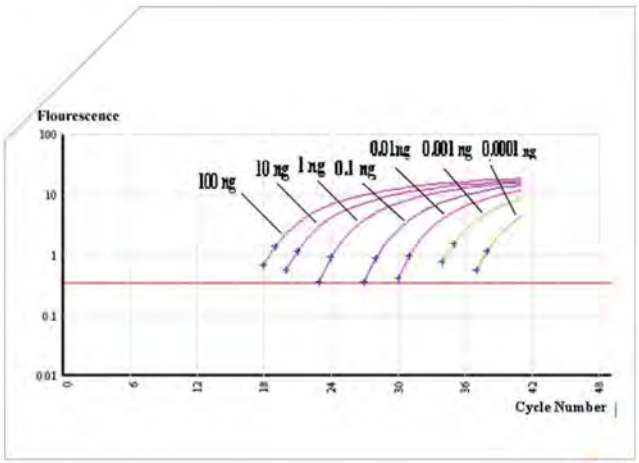
- **Each and every private or official institution requiring quality control.**
- **Food and Health industry**
- **All enterprises manufacturing with regard to meat**
- **Infectious disease diagnosis**
- **Molecular and Microbiology / Gen Analysis**

National References

In this research, a specific PCR method for precisely and quickly diagnosis of meats from different type of animals in fresh and processed meat products has been developed, and in order to check its suitability for practice, by detecting the type of meats in uncooked mince, sausage, and roasting available in Kayseri and Erzurum markets, the eligibility checks of these products to their labels have been successfully completed and made ready to use.

IP Protection

All rights of this developed product are protected by petty patents. We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.



Representative Picture

CAPACITIVE HYGROMETER

This hygrometer system, saving from energy, time, and production costs, developed at a high sensitivity (ppb) level is suitable for use in various fields from agriculture to security systems.

High Sensitivity and Short Process Time

Proper measurement and adjustment of humidity in industrial applications is a substantial factor in terms of competition and product quality. This device developed at Erciyes University School of Science is an innovative product measuring humidity with higher precision than its peers along with its ease to use. As the measurement duration of the device, which can be used on desktop as well, is as short as 6 seconds and precise at ppb level, it offers huge advantages in laboratory studies.

In this device allowing to adjust a measurement duration with a desired frequency thanks to the extremely short measurement duration, the results can be monitored over the panel, and the humidity also can be constantly monitored by moving it to the central control room.

- **Quick measurement results (6 sec)**
- **High sensitivity (ppb level)**
- **Increased product quality**
- **Saving from energy and time**
- **Saving from production costs**
- **Long lifetime**
- **Wide usage**
- **Low measurement cost**

Usage and Market Opportunities

Our device developed for crystal sugar and cube sugar in industrial processes will be suitable for various fields through short term R&D studies to be conducted. Some of its use areas are as follows:

- **Food and textile industry**
- **Metal detector in cotton stacks in textile factories**
- **Online pollution detector in unused water or waste water**
- **Non-contact conductivity detector in pure water production lines in pharmaceutical plants**
- **Online quality control of pure solvents**
- **Health and furniture industry**
- **Soil humidity measurements in agriculture industry**
- **Security systems**
- **Metal detector booths in airports or malls**
- **Non-contact liquid level sensor**

National References

This product with R&D stages completed within the collaboration of Erciyes University and Kayseri Sugar Factory has been successfully tested and made ready to mass production at the production laboratories of Kayseri Sugar Factory.

IP Protection

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Measument Method	**The measurement of crystal sugar moisture can be done online and laboratories.**
Accuracy	±0.002 % ile ±0.02 %
Repeatable	% 0.002
Stability	% 0.001
Measument Time	0-6 sn.
Calibration	**Two point calibration**
Measument Rotage	% 0.000-% 0.300

Representative Picture

COLOR ANALYSIS DEVICE

This product, giving color details of an area/surface and color change analyses to its users in a time of period as short as three seconds, is for use in industrial and domestic areas with its ergonomic nature and low costs.

High Resolution, Quick and Precise Analysis

Color details are considered as an irreplaceable dimension for daily routine as well as industrial applications. Automated color identification systems can meet this complex process thanks to its analogy to the working principles of seeing and color identification organs of living creatures. This product developed at Erciyes University ensures color details to be measured on surfaces lightened in turn, based on reflection from main three colors (RGB) with movements.
Each surface has a different set of color reflection characteristics, and an object saw in red is observed to absorb the mostly reflected RGB as well. This product measures the reflection intensity of each color and analyses the surface in terms of color composition.

Advantages of this product offering its users are as follows:

- **Easy to move (in size of a pen)**
- **High resolution**
- **Quick and precise analysis results**
- **Versatile usage**
- **Low production and testing costs**
- **Long lifetime**

Usage and Market Opportunities

Studies intended for identification of color and color sensing characteristics comprises of a course starting from 15th century until today. Color sensors are commonly used in a highly differentiating and wide area covering architecture, dye industry, automotive, and textile.

This product can be used in testing fabric dyes for textile industry, food industry, for instance in uses such as mounting in ovens to determine whether the food is ready therein, tracking the stages of fruits growing mature, grown in agriculture, color quality of painted surfaces in construction, to sum up, in anything with reactions to change some color, for quality control purposes.

National and International References

A number of paper and letters published in various domestic and foreign journals regarding this recently developed product have been published by the product developer.

IP Protection

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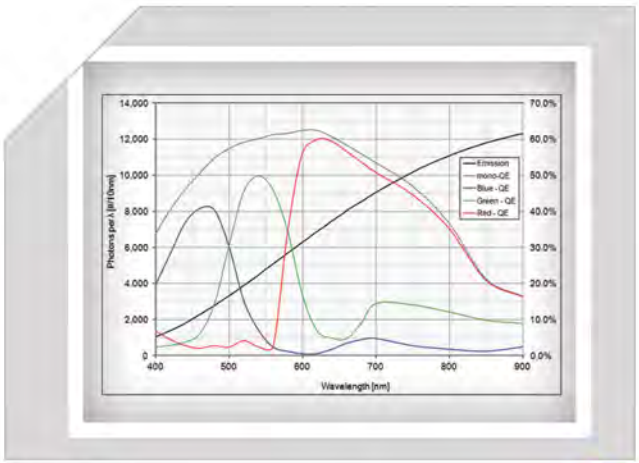

Representative Picture

ONLINE MOBILE BLOOD PRESSURE METER AND LOGGER

This product developed to allow the patient to monitor blood pressure details for round-the-clock, to be monitored remotely by expert physicians, and accurately diagnose the disease prevents the time and manpower loss for hospitals.

Quick, Easy and Efficient Use

This online mobile blood pressure meter and logger device developed at Erciyes University Healthcare Services Vocational School measures at certain intervals via oscillometric methods, records, and monitors the blood pressure as mounted to the patient's arm, and instantly transfers these data to a central server.

Blood pressure of the patient would be measured at certain intervals, monitored, recorded and transferable to the central server online with this product. Thus automatically measured blood pressure details while the patient lives their life or sleeping can be monitored by the expert staff.

The vast majority of issues encountered with regard to the hypertension can be solved by carefully measuring blood pressure values. Damages resulting from this disease with a high morbidity and mortality rate may be decreased by performing adequately frequent measurements. The device can be programmed to measure at certain intervals, and without any intervention even by the patient, even while sleeping, all measurements will be automatically performed.

Advantages of this product offering its users are as follows:

- **Allowing the patient to monitor blood pressure details for 24 hours, remote follow-up by expert physicians, and accurately diagnosing the disease.**
- **Preventing the time and manpower loss for hospitals**
- **Expert physicians safely and instantly reaching the patient details from anywhere over any communication device**
- **Quick, easy, and efficient use**
- **Retrospective patient detail archival**
- **More affordable and functional than available products**

Usage and Market Opportunities

The vast majority of issues encountered with regard to the hypertension can be solved by carefully measuring blood pressure values. It is suitable for use in hospitals, health institutions, and all areas needed by humans thanks to its online data transferring capabilities. It offers different marketing opportunities to the investors with blood pressure measurement stations at areas particularly with dense pedestrian traffic, to which people would readily reach.

IP Protection

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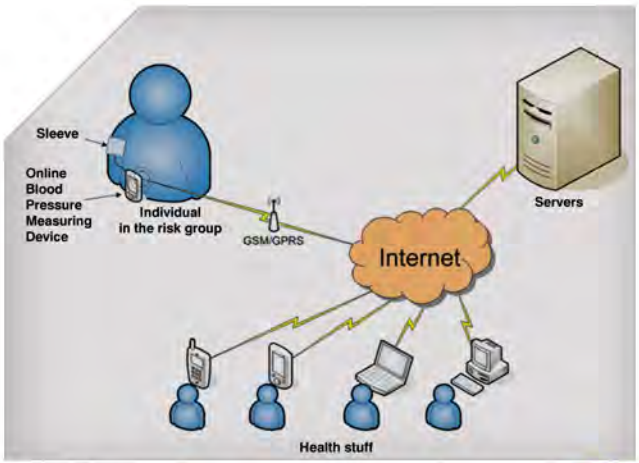

Representative Picture

ACCURATE DECISION MAKING SOFTWARE (EOD SOFTWARE)

EOD Software, the most supportive helper of yours to bring your company forward over unbiased, quick, up-to-date, and accurate decisions, will extremely support you with your decisions in commercial and administrative areas through its ease to use and apparent interface that it offers its users.

Unbiased, Quick and Accurate

This software developed at Erciyes University may help your decisions to be based on a ground to save time and manpower. You will be preventing your personal relationships causing results against your company in your decisions thanks to its objective nature.

Managers make their decisions by taking multiple parameters into account for certain resolutions; this software helps you out with accurate decisions by offering multiple parameter selection without moving away from the reality. Besides with the decision archiving property, it facilitates post-decision follow-up mechanism. Please find below some advantages that it would offer to its users:

- **High accuracy rate (near 100%)**
- **Unbiased decision mechanism**
- **Easy to install and use**
- **High time saving**
- **Qualitative and quantitative data use**
- **Up-do-date and flexible nature**

Usage and Market Opportunities

A number of companies in the industry are shut down or have encountered huge material and non-material damages as a result of their wrong decisions. This software intended to terminate these results that we have encountered for numerous times in our industry offer a wide usage area from stock exchange transactions to human resources selection. Please find some of the special usage areas below:

- **Machinery selection**
- **Provider selection**
- **Material selection**
- **Project selection**
- **Staff selection**
- **All fields requiring a decision or a selection**

National and International References

This recently developed software has been used for some companies and legal entities, and successful results have been acquired.

IP Protection

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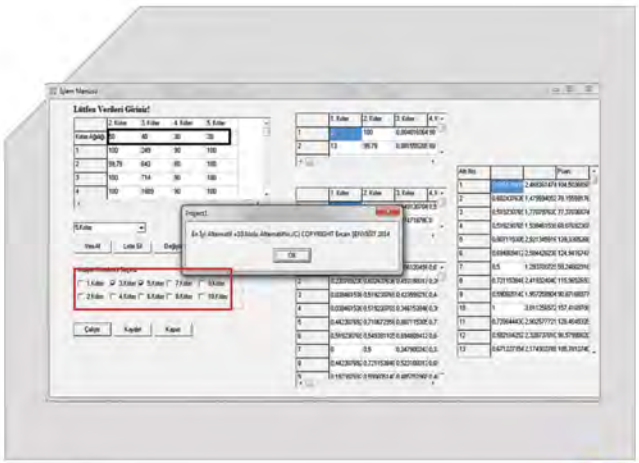

Representative Picture

POWDER AND TABLET TOMATO PASTE

Powder and tablet tomato paste with two times longer lifetime and more affordable prices indicates that tomato paste, one of the most commonly used foodstuff in the World food culture, would enter to our kitchens in an extraordinary way.

Two Times Longer Lifetime and Affordable Prices

Food industry is a field in which there are higher expectations including maximum shelf life, attractive product presentation, ease of use, and consumer trust. This recently developed product has been designed to meet all the expectations.

No microbial deterioration resulting from water encountered in other type of tomato pastes are seen in Powder and Tablet Tomato Paste developed at the Food Engineering Department of Erciyes University. Shelf life of this tomato paste in Powder & Tablet form, which can be converted to normal tomato paste by adding water, is two times higher than conventional tomato pastes, and it offers to its users the possibility to use pure tomato paste.

Some of the advantages of this recently developed product against its equivalents are as follows:

- **Two times longer lifetime**
- **Easy to move thanks to it powder & Tablet nature**
- **Easy to use**
- **More affordable**
- **Higher export potential**
- **Packaging as per the cousumer needs**
- **Versatile use possibility, like spices**
- **More economical**

Usage and Market Opportunities

Turkish tomato pastes are proven in world markets in terms of quality as well as price. Tomato paste usage areas are constantly enlarging with increasing non-domestic consumption and widening fast food and catering industry.

Monitoring the continuous selling trend of pulp, sauce, and ketchup sales in retail and catering channels increases the future tomato paste industry widening and growth expectations.

As this product, suitable for domestic or industrial use, can be used like a spice apart from the conventional tomato paste use, its consumption rate is way higher than the conventional tomato paste.

IP Protection

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Representative Picture

TEPID MINT TEA, TEPID SAGE, TEPID LINDEN TEA

Tepid teas, with 1 year of shelf life, not containing any additive, natural aroma mint tea, sage, and linden tea, generally address all the intended consumer population.

In this context, two different type of mints (medical mint and spice mint), sage, and linden tea have been extracted, and these extracts have been dried using the bearer component maltodextrine. The acquired dried extracted tepid tea has been used as an input in tea production. Thus 4 different type of tepid teas have been manufactured by using water, saccharose, citric acid, and herbal extract. The acquired tepid teas do not contain any additive and not require any flavor addition afterwards. It has been pasteurized with a shelf life of 1 year. There is no tepid mint, sage, and linden tea available in the market.

Usage and Market Opportunities

The product has mostly intended for all consumer populations. However the tepid tea consumption is particularly more common among young people. On the other hand some consumers are more sensitive to medical and aromatic herbs, heading such products. Therefore these products are intended for the consumption of a wide consumer group. Besides some consumer groups have an edge with black tea consumption due to the caffeine sensitivity. These products of ours are offering an attractive alternative for these consumer groups.

National References

It has been tested for sensory evaluation, in which trained evaluators have participated, at the Food Engineering Department. Furthermore physical and chemical analyses are performed as well.

IP Protection

The products can be patented. However we have not applied for a patent.

Representative Picture

PROPOLIS PREPARATION FOR FISHES

Consequent to the researches, a natural, versatile and low costing propolis preparation for fishes of antimicrobial, antioxidant, and immune system strengthening characteristics, protecting itself as it is manufactured without the need for any protector, being used for nutrition and disease treatment.

Natural and Low Costing Nutrition and Treatment Preparation

Propolis is a resinous mixture collected from plant and tree leafs and shoots by honeybees. Honeybees use the propolis to make combs and repair any cracks on the hive walls by mixing it with beeswax, and this resinous substance provides protection against bacteria, fungi, and virus infection in bee population.

As of its antimicrobial, immune-enhancing, and antioxidant characteristics, propolis fish preparation can be used to treat various fish diseases by adding in fishfeed. It can be safely used to eliminate any pathogen microorganisms, intending for disinfection of fish pool, tool, and equipment. Please find below some advantages that propolis preparation offers to fish breeders.

- **Natural product with charming odor**
- **Antimicrobial, antioxidant, and immune-enhancing**
- **Low cost treatment and care possibility**
- **Natural alternative to expensive medication**
- **Easy and quick preparation production without requiring any state-of-the-art technology tools**

Usage and Market Opportunities

Turkey, as a peninsula, ranks as the third among Mediterranean countries in water products. There are 312 enterprises breeding in sea net cages in our country, and as the water product breeding meets 35% of the total water product production, its value in our annual fish export has exceeded 200 million dollar. In case this recently developed preparation is manufactured, it would be densely used in Asian countries of dense culture fishing, coping with fish diseases along with Mediterranean countries.

Fish nutrition and protection against diseases should be of utmost importance in order to improve culture fishing, production, consumption, and export, with ecologic methods. Propolis which had a limited usage in Turkey until now will form its own economy and market with the recently developed preparation.

This recently developed product is needed by all enterprises dealing with any kind of fish breeding.

National and International References

This recently developed product has been successfully tested in Erciyes University research facilities, ant its production course and conditions of use have been stabilized in detail.

IP Protection

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Representative Picture

DOGATECH STABLE 21 NITRIFICATION INHIBITOR NITROGEN MANURE

The first native nitrification inhibitor nitrogen manure in Turkey, Dogatech Stable 21 TE, increasing the productivity and quality of agricultural products and lowering the costs, based on nitrogen protection, will be in lead among new generation manures to be used in agricultural production.

Dogatech Stable 21+TE manure is a nitrification inhibitor manure containing boron and iron salt, manufactured via MPB technology. This manure particularly applied with drip irrigation, mitigating nitrogen loss at fruit and vegetable farming areas, has provided maximum recovery with the given nitrogen manure. Besides use of this nitrogen protective manure would lower the contamination risk of ground waters and mitigate any damage which may arise in products due to zinc deficiency. Some of the advantages of this manure offering to its users are as follows:

- **High productivity and qualified product**
- **Increasing productivity and quality based on nitrogen protection**
- **Decreasing the pollution of soil and ground waters and protection thereof**
- **Decreased production costs**
- **Saving from manpower due to missing usage**
- **It provide an approximate 40% nitrogen protection in sandy soils**
- **It meets 35% of the boron need of the plant.**
- **It meets 25% to 50% of the iron need of the plant**

New Generation, Eco-friendly

Nitrogen manures are leading the commercial manures used in agricultural production. Nitrogen manures are mostly produced in ammonium, nitrate, and amine form. Nitrogen basis in ammonium or amine form are quickly converted to nitrate form by some nitrification bacteria depending on soil conditions. Besides, at rainy regions and irrigated farming areas, as the nitrate is quickly flushed, there occur a nitrogen loss at plant root part, and the plants cannot benefit from the Nitrogen as they need for product quality and productivity. The flushed nitrate causes contamination of the ground waters.

Usage and Market Opportunities

The company, within the Erciyes Technopark, is able to offer products that could be benefited in all agricultural activities, with different manure combination packages, by users.

Dogatech Stable 21 TE nitrification inhibitor nitrogen manure offers a wide range usage are to its users in order to increase the productivity of lands designated for the agricultural activity.

- **All agricultural activities (beet, apple, pear, berry, peach, cotton, tobacco etc.)**
- **Grain sowing (wheat, barley, corn, oat, rye, lentil, chickpea etc.)**
- **Vegetable sowing (lettuce, celery, broccoli, cabbage, spinach, parsley etc.)**
- **Fruit fertilizing (fertilizing apple, pear, berry, orange, olive, lemon, peach, apricot etc. fruit trees and gardening products including tomato, cucumber, melon, and watermelon)**

IP Protection

All rights of this developed product are protected by petty patents and licensed We, as the Erciyes Technology Transfer Office, are looking forward to hearing from those wishing to have more information about this product.

Total N	%21
Ammonium Nitrogen	%21
Nitrate Nitrogen	-
Urea Nitrogen	-
Sulfur Trioxide	%60
Water - Soluble Iron	30 mg/kg
Water - Soluble Boron	130 mg/kg

***: Fe EDDHA with chewed**

Representative Picture