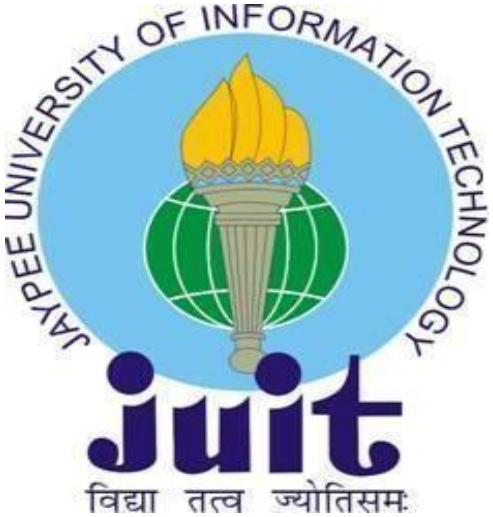
“INTERNSHIP ON PATENT SEARCHING AND ANALYSIS”

Project report submitted in partial fulfillment of the requirement for the degree of
Bachelor of Technology
in
ELECTRONICS AND COMMUNICATION



20 May, 2021

By

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Under the enlightenment of

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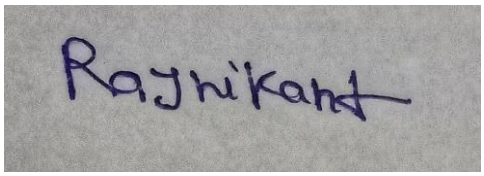
DECLARATION

I thusly announce that the work titled **"Internship on Patent Searching and analysis"** is submitted as a Project Work has been completed by me at **Talwar and Talwar Consultants and Services Pvt. Ltd., Mohali** under the direction of Mr. Aashish Sharma. Any further augmentation, continuation or utilization of this training must be attempted with earlier express composed assent from the Supervisor, **Talwar and Talwar Consultants and Services Pvt. Ltd., Mohali.**

For my 7th Semester project, titled **Sentiment Analysis** was carried out under the supervision of **Dr. Emjee Puthooran.**

I further declare that the training work or any part thereof has not been previously submitted for any degree or diploma in any university.

Signature:



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I am also thankful to all other faculty members for their constant motivation and helping us to bring improvements in this project.

Finally, I would like to thank my family and friends for their constant support. Without their contribution it would have been impossible to complete our work.

Thank you very much!

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This is to certify that Rajnikant Yadav is working with "Talwar and Talwar Consultants and Services Pvt.Ltd." His designation is Intern - PRW. His ongoing internship started from Feb 8, 2021. During his tenure in the organization, his performance is satisfactory.

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Chapter - 1

COMPANY OUTLINE

TT(Talwar and Talwar) consultants and services (ISO 27001 and ISO 9001: 2008 confirmed) is resolved as the fundamental suppliers of top - score material having a place and Innovative Services, serving to clients to value the odds and address troubles. With time, TT Consultants and services has worked with its customers to give chief patent patent legitimate continuing help like Patent Drafting, searches related to Patentability, Invalidation, Freedom to operate and so on and patent prosecution services.

TT Consultants have a worldwide nearness through 5 workplaces worldwide in India, USA and Taiwan, and have shown their skill to customers in excess of 30 significant topographies.

TT Consultants and services gives a novel mix and relationship of the world, patent request association and a world patent examination association containing the best specialists over earth. TT Consultants and services is among the prime logical control partnerships in Asian countries, offering patents types of assistance throughout the previous thirteen years to a developing rundown of glad customers wherever the world. In its steady interest to start, it's been prepared to with progress accept the various frameworks, tools and services pointed towards giving utmost quality answers for its customers.

CHAPTER – 2

INTRODUCTION TO THE ALLOCATED TASK

2.1 Intellectual Property

Any intangible manifestations of human mind is known as Intellectual property.

2.2 IPR (Intellectual Property Rights)

Intellectual property rights (IPR) is characterized as thoughts, innovations, and articulations dependent on which there is open readiness to present the present status of properties. IPR gives certain exclusive regulations and rights to the innovator or developers of the property, giving them power to receive business rewards and reputation, result of their imaginative efforts.

2.2.1 Types of IPR

Patent: A patent is a privilege allowed to an inventor that allows the inventor to reject others from making, selling or using the creation for a timeframe. The patent framework is intended to support innovations that are novel and valuable to society and is valid for 20 years.

Trademark: A trademark is a sign, word, phrase, symbol, design or its combination capable of determining the merchandise or administrators of each endeavor from those of different undertakings.

Geographical Indications: GI can be a name or a sign which is used on goods having a peculiar geographical origination and is possessing traits or characteristics or prominence that are necessarily to that place of origination.

Copyright: Exclusive rights given to the creator of an imaginative work, for example, music, books, films, figures and so forth. The proprietor can utilize the work himself or can offer consent to another person. Copyrights ensured work can't be used without the approval of the proprietor of the rights. Validity of copyrights is for the lifetime of the creator and at least for the next fifty years after his demise.

Trade Secret: Trade secret is any procedure, recipe, practice, plan, instrument or data which is commonly not known to people in general by which a business determines a financial bit of leeway. Such insider facts are classified data for the most part not known to people in general so its mystery must be kept up.

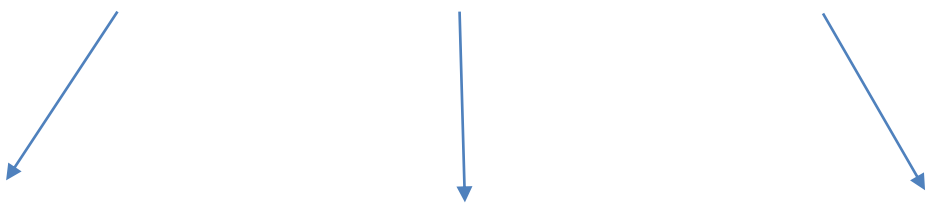
2.3 Patents

Exclusive rights granted for an innovation which is any new and useful procedure, machine or arrangement of matter, or any new and helpful enhancements. For being patentable, an invention must satisfy every single other prerequisite of patentability. Its legitimacy is for the next twenty years from the date of grant. It is the patent proprietor who is having an advantage and decides who can or cannot use the patented innovation. Patent proprietors can give consent or permit or can also sell the rights of the invention to someone else who will at that point become the new proprietor of the patent. After the patent terminates, its protection ends and the innovation comes in the open space. Proprietor will have no exclusive rights to the development which presently becomes for business abuse by others.

2.3.1 What are the Patent Types

- Utility patents,
- Design Patents,
- Plant Patent

- **Utility patents:** A utility patent, ensures the manner in which an article is utilized and works. It is the most widely recognized kind of patent that individuals look for. This sort of patent spreads procedure, compositions of matter , machines, and manufactures that are new and helpful. Processes allude to any demonstrations or techniques for accomplishing something, for the most part including modern or specialized processes. Compositions of matter are essentially substance compositions, which can incorporate a blend of fixings or new synthetic mixes.A utility patent legitimacy is for 20 years from the date of filing.



General utility- Requirement of functionality

Specific utility- Invention actually performs the function

Moral utility- Invention should not harm anyone ethics

- **Design Patents:** As far as getting a design patent, a design is characterized as the "surface ornamentation" of an item, which can incorporate the shape or setup of an article. So as to acquire this sort of patent assurance, the design must be indistinguishable from the item. While the article and its design must be indistinguishable, a design patent will just secure the item's appearance. You can implement your design patent for just 14 years after it is issued.

- **Plant Patent:** Plant patent can be acquired to secure new and particular plants. A couple of prerequisites to acquire this sort of patent are that the plant isn't a tuber engendered plant (for example an Irish potato), the plant isn't found in an uncultivated state, and the plant can be asexually duplicated. Asexual reproduction implies that as opposed to being imitated with seed, the plant is replicated by joining or cutting the plant. Plant licenses require asexual reproduction since it's evidence that the patent candidate can recreate the plant. Its legitimacy is for 20 years from the date of filling.

Advantages.:

- It keep other out of the market
- Rivals are restricted
- Generates incomes from permit or sale
- Validity to the product is given

Disadvantages :

- Increase overall price
- Accountability

2.4 Things which cannot be Patented:

- Nature laws

- Ideas of the abstract
- Mental process
- Matter which is printed
- Computer programs
- Means of doing business

2.5 Benchmark for Patentability

- **Novelty**: Novelty could be a patentability request. Partner innovation isn't new thus not patentable in the event that it totally was certifiable to the overall population before the date of filing of the application, or before its date of need if the need of partner prior application is asserted.

  The point of the novelty request is to thwart the previous art from being restrictive again. The innovation should be new and won't be seen previously.

- **Inventive step and non-obviousness:** The innovative advance and non-obviousness duplicate an equivalent general patentability request blessing in most patent laws, in accordance with that partner degree development should be adequately inventive i.e., non-self-evident — to be exclusive.

- **Utility:** The innovation ought to have some modern utility. It must fulfill a few necessities of the people.

2.6 Portions of Application

- Title at the top.
- Abstract contains brief of the invention.
- Domain and subdomain of the invention belongs to the field of the invention.
- Background represents the domain and prior art, has is being added. What are the problems in the prior art for which the creator is providing solution in the invention.
- List of all the possible embodiments of the invention is mentioned in the summary.
- Drawings brief description.
- Drawings detailed description.

- The scope of the invention is defined by the claims. One actually gets rights on the basis of claims.
- Drawings which has to be compulsory in United States.

II.7 Citations

When document is mentioning another document by having some related content.

Backward : Previous art references which are found in patents.

Forward : After the patent has been issued, references related to innovationcarried out in that field.

II.8 Salient dates in Application of Patent:

- **Date of invention**: It is the date on which there was completion of innovation.
- **Date of filing:** Date on which the patent was first filed in the patent office with whole information.
- **Date of priority:** Initial filing anywhere across the world.
- **Date of issue:** Also known as Grant date of the patent. On this date the patent is
- **Date of expiration:** It is the date when the creator of the invention has no protection. Now the patent is free to be used in public domain.
- **Date of publication:** When the information of the patent is fully disclosed to the public and it is eighteen months after the date of priority.

CHAPTER - 3

MODULAR ELUCIDATION

3.1 Kinds of Searching

3.1.1 Novelty search: To know if the innovation is patentable or non- patentable. The search is not limit by date. Patents till present are searched and given to the creator.

3.1.2 Invalidity search : Claims are concerned in invalidity search. It is done before the date of the priority of the subject patent which the client has given to us or may be a date. So the claims are the basis of rejection if someone came up with his innovation before the filing of questioned patent. Date of priority plays a crucial role.

3.1.3 Infringement search: At the point when somebody is utilizing or selling or making item with authorization of the innovator.Within at least one cases the encroaching party's item falls. So in this we discover the organization's items which are encroaching the subject patent cases.

3.1.4 FTO search: It is pivotal to direct FTO search before the commercialization of the item to guarantee that the ideal item can be securely propelled in a particular market without disregarding or encroaching others licensed innovation directly inside that specific jurisdiction.

3.1.5 State of the art search: Allows a client to learn which technology right now being created in the field is looked.It also tells about the trending technologies and what can be their drawbacks or wha are the requirements that the client has to work upon in order to make his innovation more advantageous to the society.

3.2. Types of Patent Application

3.2.1 Ordinary Application: The first application for patent recorded in the Patent Office without claiming priority from any application or with no reference to some other application under procedure in the Patent office is called a standard application

3.2.2 Convention Application: At the point when a candidate files a patent application, guaranteeing a priority date dependent on the equivalent or generously comparative application recorded in one or more of the convention nations, it is known as a convention application. To get a convention status, a candidate should document the application before

any of the patent offices within 12 months from the date of first application in the convention nation.

3.2.3 PCT-International Application: For filing patent application Patent Cooperation Treaty or PCT is an international agreement. Be that as it may, there is nothing called as a 'world patent'. The PCT application doesn't accommodate the grant of a worldwide patent, it basically gives a smooth out procedure to the patent application process in numerous nations simultaneously.

3.2.4 PCT-National Phase Application: The PCT-national phase must follow the international phase. The applicant should separately 'go into the national phase'. For example, file a National phase application in every region he wishes to enter. The applicant can enter the national phase in up to 138 nations inside 30-31 months (relies upon the laws of the assigned nations) from the international filing date or priority date (whichever is prior). In the event that the applicant doesn't enter the national phase inside the recommended time limit, the International Application loses its impact in the assigned or chosen States.

3.2.5 Patent of addition Application: Patent of addition application has been made for a patent in regard of any improvement or change of an innovation depicted or uncovered in the total specification previous applied for or has a patent. So as to be patentable, an improvement must be something in excess of a minor workshop improvement and ought to freely fulfill the test of invention. The significant advantage is the exception of renewal fee in as much as the primary patent is restored. A patent of addition slips with the suspension of the fundamental patent.

3.2.6 Divisional Application: Divisional application permits a maker to sever an application into at least two utilizations of patent. This can be on the grounds that the first application was endeavoring to guarantee for various inventios simulatenously. There ought to be single application which should guarantee single development.

3.3 Claims

It is the degree of the security given by a patent or the insurance needed in a very application. It characterizes the extent of security allowed by the patent. it's extra important to get claims that encapsulate the peripheral arrangement of confinements that separate partner invention over what preceded. Less limitations will build dismissal on account of absence of curiosity.

3.3.1 Kinds of Claims

- **Independent claims:** A claim that explains the invention, covers the multiple features of the innovation and is always broader.
- **Dependent claims:** A claim which is dependent on the parent claim which can add features to the claim parent but cannot eliminate any feature from the parent claim. e.g.
- **Multiple dependent claim**: Any dependent claim which is referring to more than one claims.

3.4. Basic kind of Patents laws:

- **III.4. 1:** 35 USC 101- Innovation should be useful.
- **III.4. 2:** 35 USC 102- Innovation should be novel.
- **III.4. 3:** 35 USC 101- Innovation should be non-obvious.
- **III.4. 4:** 35 USC 112- There must be fully disclosure of the invention.

CHAPTER - 4

COMPREHENSIVE ELUCIDATION

4.1 Diverse forms of Claims

4.1.1 Jepson Claims: It is partner improvement of partner existing invention. the turn of events, the invention being improved and furthermore the parts that are changed territory unit referenced. it's not used in household application anyway is acknowledged in USPTO. It helps in clarifying the novelty basically "where inside the improvement includes" is for the most part there in Jepson claims.

4.1.2 Reach Through Claims: Claims try to ensure things which have not been found by an inventor, yet may be found later on by utilizing their innovation.

4.1.3 Markush Claims: Claims which are utilized in science. Claims which are utilized to choose an articular component of the development wherein the component might be chosen from a gathering of components in which all sharing some regular qualities.

Scheme: “selected from the cluster consisting of A, B and C”.

4.1.4 Product by Process Claims: claims an item characterized as far as procedure of assembling uniquely in concoction and pharmaceutical enterprises.

“Product obtained by a process comprises of XYZ”

4.1.5 Omnibus Claims: Allude to the portrayal or the drawings which are giving any expressing explicitary includes or giving a particular restriction.

4.1.6 Swiss Claims: Proposed to cover the principal, second and ensuing therapeutic utilization of a known substance. For instance: a medication was initially showcased to lessen cerebral pains. It was along these lines found likewise to profit those experiencing heart maladies.

IV.2 Patent Cooperation Treaty:

Ways for dealing with universal protection of patent:

- By applying in every nation independently where patent is looked for. Cost gets

exceptionally elevated, examination of documents and so forth.

- Apply according to the "Paris Convention". It gives a year delay, priority date and so on are fundamental highlights.
- By filing a PCT application it gives an inventor a thirty/thirty one months delay, primer examination alternative choice and searching report of earlier art depending upon the creators wish in which he is looking for to obtain a patent.

IV.2.1 PCT

Universal law of patent which gives a blend methodology to file patent applications and to ensure manifestations in all of its contracting states. Under PCT, patent application which gets recorded is known as PCT application.

Steps:

A single filing of a PCT application is made with RO (Receiving Office) in one language. Search is performed by International Searching Authority (ISA) in addition to composed conclusion in regards to the patentability of the creation which is the subject of the application. Preliminary examination is finished by International Preliminary Examination Authority (IPEA) yet it is discretionary. After this the national regional authorities look at the application Then the last issuance of application.

The states which are gatherings to the PCT establish the International Patent Cooperation Union regional patent office like EPO and ARIPO (African Regional IP Office). These offices award regional patents.

Any occupant or national of a contracting condition of the PCT may document a PCT application. Under this framework, patent protection is given in assigned states contained in the PCT application.

IV.2.2 WIPO part in PCT

WIPO sees the recording of global application under the PCT. It is liable for distributing PCT applications. It gets and stores PCT applications alongside their related documents of patent pursuit and examination.The deserts in the PCT applications are distinguished during International stage and can be redressed before the application arrives at the national patent office and enters the national period of patent assessment.

IV.2.3 Choices and steps under PCT filing:

Alternative 1

First documenting a PCT application by following PCT custom necessities. Charges is paid One of the trend-setter ought to be the inhabitant of PCT contracting state. It very well may be documented in two different ways: either at the getting office or with WIPO legitimately. There is a period limit for the accommodation of document. That time limit is given on site of WIPO and accommodation of archives should happen inside that time limit.From the date of the need time limit is estimated**.**

Alternative 2

National application is filed first and then a PCT application inside a year. When there is filing of PCT application, the creator has upto year and a half to settle on which nations he needs to apply for patent. He can additionally defer it by first applying for national application and then inside a year apply for PCT application. During a year time frame following the filing of the priority application, the candidate can decide to document at least one extra national application, as new refinements or encapsulations of the invention are created. PCT application can consolidate the revelations of, and claiming priority to, all the national applications that were filed during the prior twelve months related to that innovation.PCT applications can likewise incorporate new revelations relating to the invention or new claims that were not gone ahead in any of the past priority applications. Nonetheless, to acquire advantage of prior priority date, the new claim must be upheld by prior priority application.

All out deferral = (twelve+ year and a half)

1. National application (priority date claim)
2. PCT application is filed in a year.
3. Upto thirty months after the date of the priority or eighteen months after the filing of PCT, application enters the national stage of selected PCT selected countries.

IV.3 Patent Classification System

An approach for the arrangement of documents in a patent office to identify that from which field of technology the patent is related and to facilitate its searching and easy reclamation.

WIPO is managing International Patent Classification (IPC)

USPTO is managing USPC (US patent classification)

European Patent Office (EPO) is managing ECLA (European Classification)

IV.3.1 Searching based on Classification

IV.3.1.1 Advantages:

- Does not include grammatical language.
- Changes in phrasing is not required
- Ideas searching
- Available for patent reports where no full content of claims/description is accessible.

IV.3.1.2 Disadvantages:

- Structure of classifications is very complex.
- Classification rules learnig is required.

IV.3.2 Different kinds of classification

- **International patent Classification (IPC):** It is a progressive patent order framework utilized in more than 100 nations to group the substance of patents in a uniform way. It was made under Strasbourg understanding (1971), one of various arrangements directed by WIPO. It is refreshed all the time by a board of trustees of specialists. Center characterizations are to be updated each 3years from issue and advance orders are to be modified after an interval of three months.
- **European patent Classification (ECLA):** It is managed by EPO and is an extension of IPC. IPC and ECLA both are divided into 8 segments which are additionally isolated into classes, sections, sub-classes, groups and sub groups.

Features:

1. Extremely gifted work force: ECLA classes are just relegated by the EPO analyzing corps for example a little assemblage of profoundly prepared people keeps up the importance of the framework.
2. Narrow class definition: The sub groups are additionally further classifications.
3. Accelerated modification plans: It is amended even before 5 years time of update of International patent classification .
4. NPL classification: In the sub group non patent literature is also included.

Disadvantages:

ECLA classes are given a while after grouping. It can't be utilized to recover recently issuing/publishing documents.

- **Cooperative Patent Classification (CPC):** A juncture association among US Patent and Trademark office and EPO to coordinate toward a typical characterization framework. It is generally founded on ECLA and is changed to guarantee consistency with the IPC controlled by WIPO. CPC is a push to bring the accepted procedures of USPTO and EPO together and to make patent research universally perfect.

Objectives to launch CPC

1. Improves exploring of patents.
2. Resources distribution.

CPC to a greater extent is founded on the past European order framework (ECLA), which itself was a progressively explicit and point by point variant of the International Patent Classification framework.

- **US Patent Classification:**
- It is only applicable to the documents of patents of United States. US classification is divided into class and subclass. Class is three digit number and subclassis a six digit number in which last three digits are decimal places. Classes and subclasses are separated by a slash.
- For instance: bbb/NNN.nnn

Advantages:

There is more exact arrangement of patents of US than it is finished with IPC. USPC can without much of a stretch adjust to the advances which are changing since it is overhauled all the more oftenly incomparison to IPC.

CHAPTER - 5

PROJECT TACKLED

5.1 Patentability Searching

Patentability searching incorporates searching of the earlier art, which consolidates patent applications which are published, patents which are issued, and some other distributed archives, with the purpose of choosing if filing your patent application looks good. In case you find prior art that delineates your innovation absolutely or show it plainly obvious, probably you shouldn't take a stab at endeavoring to patent your advancement. It is at times called a prior art search or basically only a patent search.

It is favorable to play out a primer patentability search prior to documenting an application, Doing so will give a thought of the nearest related prior art, and permit the patent professors to be drafted "around" this past art, with the goal that the curiosity of the innovation will be increasingly evident to the examiner.

A patentability search can also help in preparation of the application.

5.1.1 Searching patent documents

A patentability search will typically include searching of significant patent assortments - United states, European , Japanese , patent cooperation treaty assortments. Albeit any prior published record can be utilized against a patent application, most patent examiners from significant patent workplaces will go directly to these assortments, so it bodes well to remember them for any patentability search, regardless of how superficial. The patent search instrument ought to be chosen in order to increase fundamental essential inclusion, however valuing is typically a limitation with shorter patentability examinations.

5.1.2 How Non-Patent literature searching is done

A patentability search will likewise incorporate searching of non-patent literature. Crucial sources of non-patent literature incorporating numerous specialized branches of knowledge incorporate, yet are not constrained to:

Engineering village (membership), google, Scopus(membership),Google scholar

5.1.3 Specific Search Strategies

These search systems are instances of explicit accepted procedures that can be applied over

the span of a patentability search. These are steps to be taken notwithstanding acknowledged search rehearses that apply to all searches.

- There should always be a discussion with the client to know that if there is a need to find documents that can describe alternative embodiments or is it a easy search demanding only the results which are relevant.
- The person who is performing the search should discuss with client that whether the search has to be carried on all the claims just like as the examiner will be doing after receiving the application.
- There should always be a search on innovator name to know about the field of research of interest of the innovator.

5.1.4 Case study (Patentability Search)

At extremely starting stage, our customer will give us just smidgen data with respect to their development. They never unveil their complete innovation, yet they manage us to accomplish the relevant citation while searching through different databases.

Presently let us assume, the client has given us this much data with respect to their invention.

A remote control flying vehicle that include selectable obstacle-avoidance technology. More specifically, an embodiment disclosed herein comprises a selectable training mode that, when activated, monitors the environment around the flying vehicle and overrides user flight control inputs to avoid obstacles when needed. In some embodiments, the flying vehicle is a remote control drone or quadcopter. The techniques disclosed herein, however, may be used with any suitable remote control flying vehicle, including helicopters, multirotor aircraft commonly known as drones, and/or the like. Further, the techniques disclosed herein may be used with smaller "toy" sized flying vehicles, such as small quadcopters, or larger "commercial" sized flying vehicles, such as professional camera drones.

In some embodiments, a remote control flying vehicle as disclosed herein comprises a plurality of infrared (IR) transmitters that transmit infrared light away from the vehicle in a plurality of directions. The infrared light may in some embodiments be infrared laser light. The remote control flying vehicle further comprises one or more IR receivers that are positioned to detect reflections of the infrared light transmitted by the IR transmitters when, for example, the flying vehicle approaches an obstacle, such as a wall, ceiling, or other obstacle. When the selectable training mode is activated, and the flying vehicle's IR receiver detects such an infrared light reflection, the control system of the flying vehicle can be configured to override any user flight control inputs that would cause the flying vehicle to fly closer to such obstacle. In some embodiments, in addition to just stopping the vehicle from moving further toward such object, the control system may be configured to operate the

flying vehicle to fly the vehicle in the opposite direction and fly it further away from the obstacle.

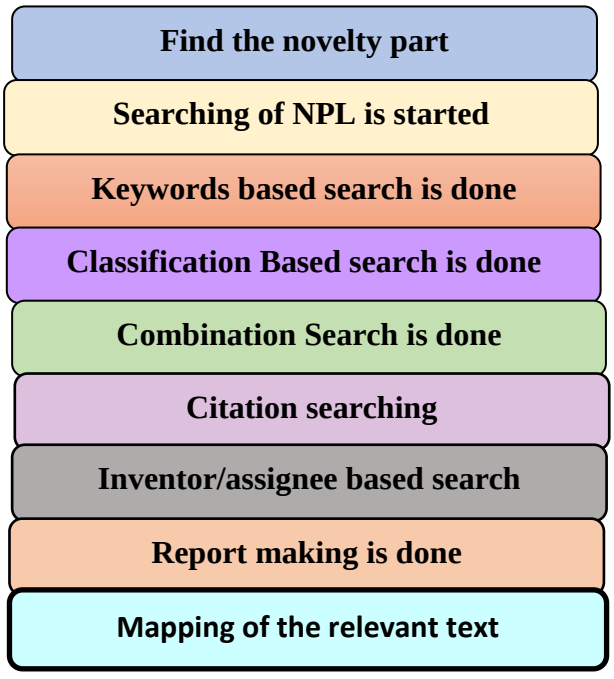
In some embodiments, the flying vehicle comprises a plurality of IR transmitters, but only one IR receiver. In such an embodiment, the IR receiver can desirably still determine which IR signal is being reflected, however, because each transmitted IR signal is desirably encoded differently, enabling the IR receiver to determine which IR signal or signals are being reflected. In some embodiments, on the other hand, the flying vehicle may comprise a plurality of IR transmitter/receiver pairs, with each transmitter being configured to transmit IR light in a particular direction, and each receiver being configured to detect light reflected from that direction. In such an embodiment, the transmitted IR light from each of the plurality of IR transmitters may not necessarily need to be encoded differently, although there may still be benefits to having each IR signal be encoded differently.

Search begins:

The search starts with understanding the novelty of the exposure. Patent analyst needs to comprehend the novelty by perusing the background and description of the exposure. In the event that he/she can't get it, at that point he/she should examine the novelty with the innovator in any case the search won't be toward the path where the creator needs it to be. So understanding of the disclosure is must. After this the genuine search starts.

As indicated by our divulgence the novelty part is that the client sends the retransmission solicitation to the framework and the error in the message is additionally featured which as per the inventor was absent in the prior art.

5.1.5 Steps of Searching:



NOTE: By and large we break the client data into key features, with the goal that it will assist us with breaking the entire innovation into parts. The parting of divulgence make innovation much moreclear to comprehend.

Key Features of the Invention Based on Information

Sr. No.	Key Features
KF1	**A remote-control drone or flying vehicle that has a selectable obstacle-avoidance training mode.**
KF2	**When the selectable training mode is activated, and the flying vehicle's IR receiver detects such an infrared light reflection, the control system of the flying vehicle can be configured to override any user flight control inputs that would cause the flying vehicle to fly closer to such obstacle.**
KF3	**The selectable training mode is selectable via a user input device on the body of the drone.**

Relevant Citations: US10421543B2 (Mapped according to key features)

Patent Citation Number	US10421543B2
Title	Context-Based Flight Mode Selection
Assignee	Sz Dji Technology Co Ltd
Inventor(s)	Liu Ang | Hu Xiao | Zhou Guyue | Pan Xuyang
Family Member(s)	Link
Abstract	
A system for controlling an unmanned aerial vehicle (UAV) includes one or more processors configured to receive sensor data from one or more sensors carried by the UAV. The sensor data is indicative of at least a state of the UAV. The one or more processors are further configured to select a flight mode from a plurality of different flight modes based at least in part on the sensor data and effect operation of the UAV in accordance with a set of operating rules associated with the selected flight mode.	
Relevant Section(s)	

Searcher's Comment: *The mapped citation discloses systems and methods for controlling an unmanned aerial vehicle (UAV) which includes one or more processors configured to receive sensor data from one or more sensors carried by the UAV. The method comprises a processors which is configured to select a flight mode from a plurality of different flight modes, for example, manual mode, a semi-autonomous mode, or fully autonomous mode (herein referred to as "selectable obstacle-avoidance training mode") wherein user can select the different flight modes by providing input commands through a remote controller or mobile device. Depending on the specific flight mode and obstacle strategy, the UAV respond to a detected obstacle by hovering in place, flying around the obstacle, flying away from the obstacle, maintaining a specified distance from the obstacle. The method comprises an automated anti-collision mechanisms when the user is currently providing input commands to the unmanned aerial vehicle. If the user provides commands that would result in a collision the UAV can override the user commands and automatically perform evasive maneuvers (e.g., hover in place, maintain a specified distance from the obstacle, move away from the obstacle, fly around the obstacle) to prevent the collision.*

Relevant Excerpts

A system for controlling an unmanned aerial vehicle (UAV) includes one or more processors configured to receive sensor data from one or more sensors carried by the UAV. The sensor data is indicative of at least a state of the UAV. The one or more processors are further configured to select a flight mode from a plurality of different flight modes based at least in part on the sensor data and effect operation of the UAV in accordance with a set of operating rules associated with the selected flight mode.

(Abstract)

some control schemes may rely upon the user's own judgment to determine optimal operating parameters for the unmanned aerial vehicle, which may be difficult for inexperienced users or in situations where the user cannot accurately perceive the environment surrounding the unmanned aerial vehicle. Additionally, some control schemes may not provide safety mechanisms for automatically detecting and/or predicting collisions with obstacles, sensor malfunctions, or other error situations that may be encountered during operation of the unmanned aerial vehicle.

(Paragraph No. 1, Line No.30)

Improved control schemes for operating unmanned aerial vehicles are needed. The embodiments disclosed herein permit an unmanned aerial vehicle to be controlled according to a determined flight mode. A flight mode may be associated with a set of operating rules for controlling the unmanned aerial vehicle**. In some embodiments, the flight mode is automatically selected based on data (e.g., environmental information, state information for the unmanned aerial vehicle) obtained by one or more sensors on the unmanned aerial vehicle. Each flight mode may provide different control schemes for operating the unmanned aerial vehicle, such as different obstacle avoidance strategies, thereby enhancing adaptability, safety, and ease of use.**

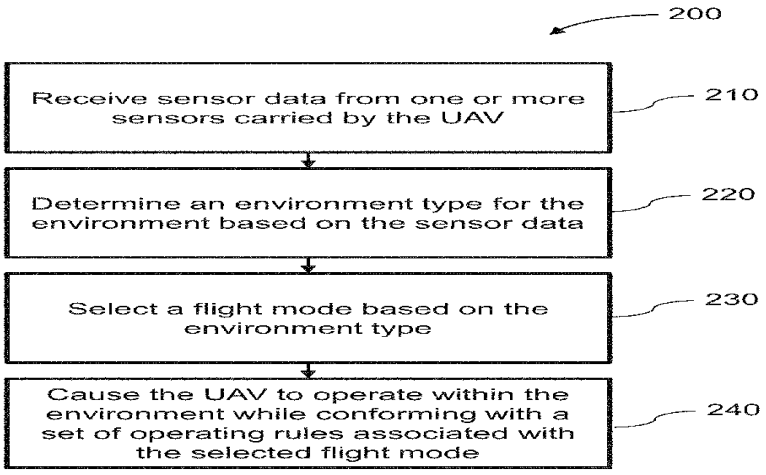


FIG. 2

FIG. 6 illustrates a method 600 for avoiding a collision with one or more obstacles, in accordance with embodiments. One or more steps of the method 600 can be performed by any embodiment of the systems and devices provided herein, such as by one or more processors.

(Paragraph No. 19, Line No.14)

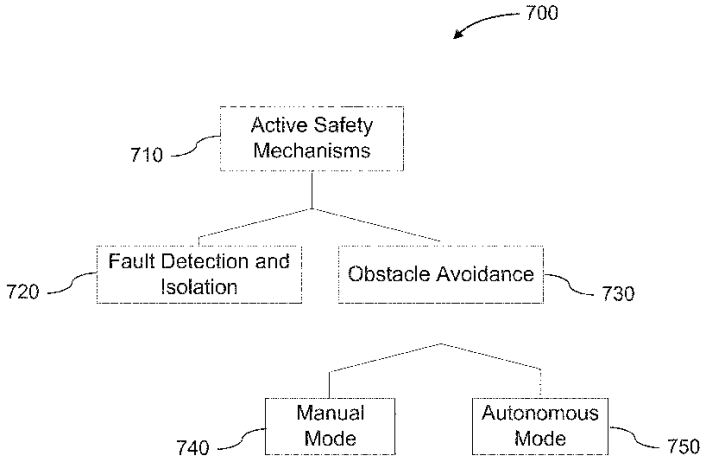


FIG. 7

FIG. 9 illustrates a remote controller 900 for a UAV, in accordance with many embodiments. The remote controller 900 can include one or more input mechanisms mounted on a controller body 902, such as one or more joysticks 904, one or more knobs 906, and/or one or more slide switches 908. The joysticks 904 can be used to input commands for controlling the position, orientation, and/or motion of the UAV. In some embodiments, the knobs 906 and/or slide switches 908 can be manipulated by a user to select a desired flight mode for operating the UAV, such as one or more of the flight modes described herein. For example, the user can turn the knobs 906 to a plurality of different positions in order to select one of a plurality of different available flight modes. As

another example, the position of the slide switch 908 can also be used to indicate a user-selected flight mode.

(Paragraph No. 22, Line No.14)

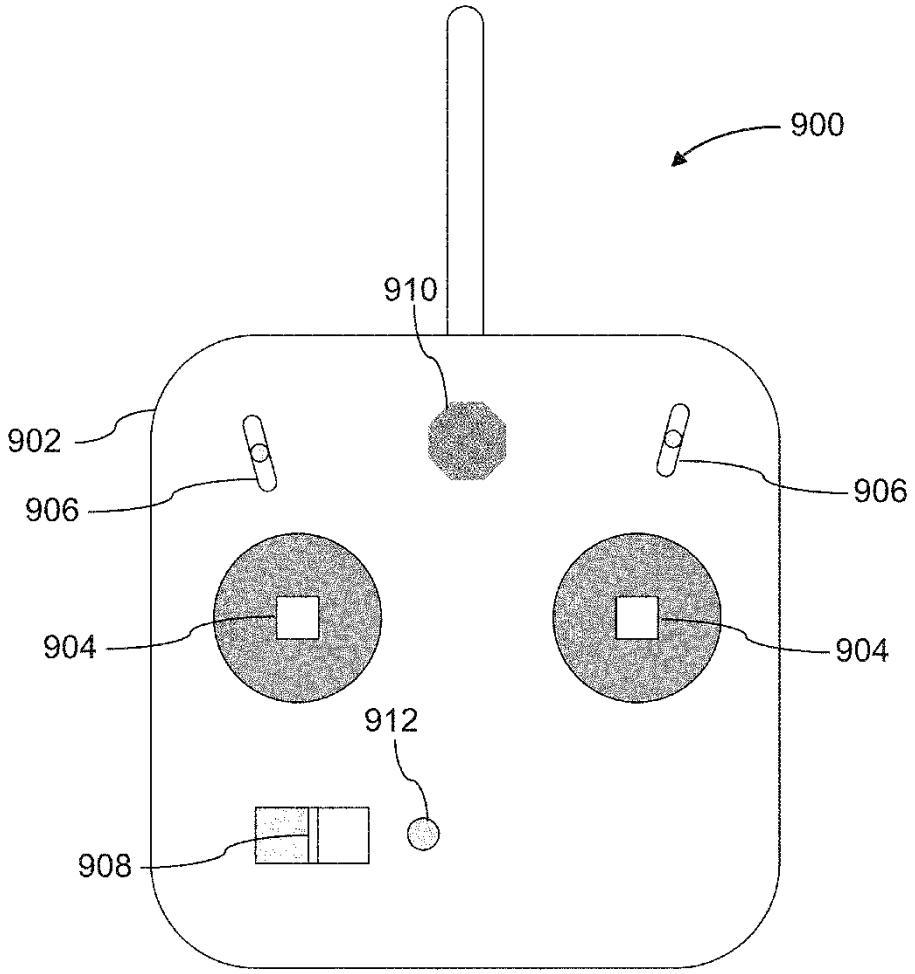


FIG. 9

Queries

Search Logic No.	Key Strings	Search scope	Number of Hits
Orbit Search Strings			
L1	(((DRONE?? OR UNMANNED_AERIAL_VEHICLE?? OR UAV? OR REMOTELY_PILOTED_AERIAL_SYSTEM?? OR RPAS OR QUAD_COPTER?? OR UNMANNED_AIRCRAFT_SYSTEM?? OR UAS?) 9D REMOTE??)/TI/AB/TX AND ((OVER_RID???? OR OVER_RUL???? OR NULLIF???? OR DIS_ALLOW???? OR REVOK????) 9D (CONTROL OR USER OR OPERATE OR OPERATOR OR COMMAND?? OR INSTRUCTION?? OR REQUEST?? OR INPUT?? OR ORDER??))/TI/AB/TX AND ((AVOID???? OR PREVENT???? OR PROTECT???? OR NEGLECT??? OR RESTRAIN?? OR AVERT??) 4D (CLASH??? OR COLLISION?? OR CRASH??? OR ACCIDENT?? OR SURFACE?? OR OBJECT?? OR OBSTACLE?? OR WALL??))/TI/AB/TX)	**Databases:** FAMPAT	322
L2	(((SELECT???? OR CHANGEABLE?? OR ADJUSTABLE?? OR SWITCH????) 6D (MODE?? OR PHASE?? OR TRAINING_MODE??))/TI/AB/TX AND ((DRONE?? OR UNMANNED_AERIAL_VEHICLE?? OR UAV? OR REMOTELY_PILOTED_AERIAL_SYSTEM?? OR RPAS OR QUAD_COPTER?? OR UNMANNED_AIRCRAFT_SYSTEM?? OR UAS?))/TI/AB/CLMS AND (((OVER_RID???? OR OVER_RUL???? REVOK???? OR SWITCH???) 6D	**Databases:** FAMPAT	134

	((TELE_OPERAT??? OR JOYSTICK?? OR REMOTE OR USER?? OR OPERATOR??) 6D (COMMAND?? OR INSTRUCTION?? OR REQUEST?? OR INPUT?? OR ORDER?? OR INFRARED_EMISSION?? OR INFRARED_LIGHT?? OR INFRARED_RADIATION??))))/TI/AB/TX AND ((AVOID???? OR PREVENT???? OR PROTECT???? OR NEGLECT??? OR RESTRAIN?? OR AVERT??) 4D (CLASH??? OR COLLISION?? OR CRASH??? OR ACCIDENT?? OR OBJECT?? OR OBSTACLE??))/TI/AB/TX)		
L3	(((SELECT???? OR CHANGEABLE?? OR ADJUSTABLE?? OR SWITCH????) 6D (MODE?? OR PHASE?? OR TRAINING_MODE??))/TI/AB/TX AND ((DRONE?? OR UNMANNED_AERIAL_VEHICLE?? OR UAV? OR REMOTELY_PILOTED_AERIAL_SYSTEM?? OR RPAS OR QUAD_COPTER?? OR UNMANNED_AIRCRAFT_SYSTEM?? OR UAS?))/TI/AB/CLMS AND (((OVER_RID???? OR OVER_RUL???? REVOK???? OR SWITCH???) 6D ((TELE_OPERAT??? OR JOYSTICK?? OR REMOTE OR USER?? OR OPERATOR??) 6D (COMMAND?? OR INSTRUCTION?? OR REQUEST?? OR INPUT?? OR ORDER?? OR INFRARED_EMISSION?? OR INFRARED_LIGHT?? OR INFRARED_RADIATION??))))/TI/AB/TX AND ((AVOID???? OR PREVENT???? OR PROTECT???? OR NEGLECT??? OR RESTRAIN?? OR AVERT??) 4D (CLASH??? OR COLLISION?? OR CRASH??? OR ACCIDENT?? OR OBJECT?? OR OBSTACLE??))/TI/AB/TX)	**Databases:** FAMPAT	153
Derwent Innovation Search Strings			
L4	ALL=((SELECT*4 OR CHANGEABLE*2 OR ADJUSTABLE*2 OR SWITCH*4) NEAR6 (MODE*2 OR PHASE*2 OR TRAINING_MODE*2)) AND ALL=((DRONE*2 OR UNMANNED_AERIAL_VEHICLE*2 OR UAV*1 OR REMOTELY_PILOTED_AERIAL_SYSTEM*2 OR	**149**	

	RPAS OR QUAD_COPTER*2 OR UNMANNED_AIRCRAFT_SYSTEM*2 OR UAS*1)) AND ALL=(((OVER_RID*4 OR OVER_RUL*4 ADJ REVOK*4 OR SWITCH*3) NEAR6 ((TELE_OPERAT*3 OR JOYSTICK*2 OR REMOTE*1 OR USER*1 OR OPERATOR*2) NEAR6 (COMMAND*2 OR INSTRUCTION*2 OR REQUEST*2 OR INPUT*2 OR ORDER*2 OR INFRARED_EMISSION*2 OR INFRARED_LIGHT*2 OR INFRARED_RADIATION*2)))) AND ALL=((AVOID*4 OR PREVENT*4 OR PROTECT*4 OR NEGLECT*4 OR RESTRAIN*2 OR AVERT*2) NEAR6 (CLASH*2 OR COLLISION*2 OR CRASH*2 OR ACCIDENT*2 OR OBJECT*2 OR OBSTACLE*2));	
L5	ALL=(((TELE_OPERAT*3 OR JOYSTICK*2 OR REMOTE*1 OR USER*1 OR OPERATOR*2 OR WIRELESS*4 OR RADIO_TRANSMITTER*2) NEAR10 ((COMMAND*2 OR INSTRUCTION*2 OR REQUEST*2 OR INPUT*2 OR ORDER*2) NEAR10 (OVER_RID???? OR OVER_RUL???? OR REVOK???? OR SWITCH???)))) AND ALL=((COLLISION?? OR CRASH?? OR ACCIDENT?? OR SURFACE*1 OR OBJECT*1 OR OBSTACLE*1 OR WALL*1 OR CLASH*2) NEAR10 (AVOID???? OR PREVENT???? OR PROTECT???? OR NEGLECT??? OR RESTRAIN?? OR AVERT??)) AND ALL=((DRONE*2 OR UNMANNED_AERIAL_VEHICLE*2 OR UAV*1 OR REMOTELY_PILOTED_AERIAL_SYSTEM*2 OR RPAS OR QUAD_COPTER*2 OR UNMANNED_AIRCRAFT_SYSTEM*2 OR UAS*1 OR FLYING_VEHICLE*2));	**27**

Queries of the NPL

Search Logic No.	Key Strings/Keywords
NPL1	(DRONE OR "UNMANNED AERIAL VEHICLE" OR QUADCOPTER) (OVERRIDE OR OVERRULE) (REMOTE

	OR TELE-OPERATED) (CONTROL OR USER OR OPERATOR) (AVOID OR PREVENT OR PROTECT) (COLLISION OR CRASH OR ACCIDENT OR OBJECT)
NPL2	(SELECTABLE OR SWITCHABLE) (MODE OR “TRAINING MODE”) (DRONE OR “UNMANNED AERIAL VEHICLE” OR “QUAD COPTER”) (OVERRIDE OR SWITCH) (“TELE OPERATE” OR JOYSTICK OR REMOTE)(COMMAND OR INSTRUCTION OR INPUT) (AVOID OR PREVENT) (COLLISION OR CRASH OR OBSTACLE)

Keywords

Aerial	Collision	Rpas
Unmanned	Operator	Prevent
Remote	Obstacle	Piloted
Drone	Vehicle	Quadcopter
Control	Uav	Accident
Avoid	Protect	Crash
Aircraft	Neglect	Remotely
Copter	Input	Surface
Revok	Command	Tele
Restrain	Instruction	Vehicle"
Avert	Request	Nullify
Switch	Uas	Wall
Operate	Select	Override
Quad	Phase	Overrule
Oder	Operator	Adjustable
Joystick	Systems	"Unmanned

Mode	Order	Disallow
Changeable	Clash	Gesture
wireless	systems	operating
Helicopter	"flying	selectable
Aircrafts	selecting	operated
Airplane	Monitoring	Remotely

CHAPTER-6

PRACTICAL APPLICATION

- A patent gives the designer the alternative of preventing somebody else from assembling, duplicating, selling or bringing in the patented merchandise without consent of the patent holder.
- The patent bearer is having exclusive business rights to utilize the invention.
- The patent bearer can easily make use of invention for his/her own motivation.
- The patent bearer older can permit the patent to others for us. Licensing provides revenue to business by collecting royalties from the users.
- The patent holder has a right to sell the patent any value they accept to be reasonable.
- The patent gives assurance to a foreordained period of twenty years keeping your rivals under control.
- Patents are in part answerable for headways in clinical science, biotechnology, sedate science, PCs and so forth.
- A patent prize inventor with the previously mentioned favorable circumstances and thus, makes greater and better revelations.

CHAPTER-7

CONCLUSION

In the wake of finishing the preparation we come to think about the significance of the patents in the innovative world. A ton of cash is spent by the organizations everywhere throughout the world in the protected innovation. It is the main way which is utilized to ensure the privileges of the individuals' protected innovation. To get a patent you require a solid thought which which should be new, never seen before, non-obvious and be of some use to the humans without harming or hurting any individual notions. A person gets the patent protections on the beasis of the claims. One can stop others from using your innovation on the basis of what you have mentioned in the claims. Date models play a crucial role for the reasercher as it kees on changing with the change in the type of search. Npl and patents are provided in case of search related to patentability. Npl and patents prior to the date of priority is given in case of search related to invalidation. In refutation we give NPL and patents before the priority or successful filing date of subject patent. If there should arise an occurrence of infringement we give the items which are presented in the market after the date of priority of subject patent. If the customers requests patents are also provided in that case.

During the preparation I went over a great deal of new innovations. I did Nanobiotechnology as well as mechanical projects.

References

1. www.intellogist.com
2. Thomson innovation training manual
3. Orbit user guide