

INTERNSHIP ON PATENT SEARCHING AND ANALYSIS

*Project report submitted in partial fulfilment of the requirement for the degree
Of*

BACHELOR OF TECHNOLOGY

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

By

Priyank Srivastava (181001)

UNDER THE GUIDANCE OF

Ms. Shelza Gupta (Team Manager)

&

Lt. Pragya Gupta (Supervisor)



**JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
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DECLARATION

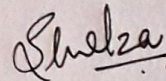
I hereby declare that the work reported in B.Tech Project Report entitled "Internship On Patent Searching And Analysis" submitted at Jaypee University Of Information Technology, Waknaghat, India is an authentic record of our work carried out under the supervision of Ms. Shelza Gupta and Lt. Pragya Gupta. We have not submitted this work elsewhere for any other degree or diploma.

Priyank Srivastava (181001)

This is to certify that the above statement made by the candidates is correct to the best of my knowledge.

Lt. Pragya Gupta (Supervisor)

Date: 31/05/2022



Ms. Shelza Gupta (Team Manager)

Head of the Department/Project Coordinator

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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!

Signature:

Name: Priyank Srivastava

Date: 30th May,2022

ABSTRACT

Grey-B Research PVT. 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, Grey-B Research PVT. has worked with its customers to give chief patent legitimate continuing help like Patent Drafting, searches related to Patentability, Invalidation, Freedom to operate and so on and patent prosecution services. Intellectual property rights (IPR) are the legal rights granted to the inventor or creator to safeguard his or her invention or production for a set length of time. Types of IPR are Patent, Copyright, Trademark and Trade Secret. There are several types of patent searches like Patentability Search, Freedom to operate, Validity / Invalidity Search, State of Art search. Steps involves in invalidation search are Patent understanding like understanding the working of invention and going through its prosecution history. Secondly, Locating the prior art by use strings and logic wahich are made by essential keywords of the claims and lastly showing the result, how they are mapping with the subject patent's claim.

CHAPTER-1

COMPANY OUTLINE

Grey-B Research PVT. 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, Grey-B Research PVT. has worked with its customers to give chief patent legitimate continuing help like Patent Drafting, searches related to Patentability, Invalidation, Freedom to operate and so on and patent prosecution services.

Grey-B Research PVT. have a worldwide nearness through 3 workplaces worldwide in India, USA and Singapore, and have shown their skill to customers in excess of 30 significant topographies. Grey-B Research PVT. 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.

Grey-B Research PVT. 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.



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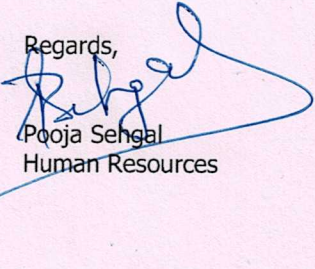
This is to certify that Priyank Srivastava is working with our organization from Feb 9th, 2022 to till date as a Trainee – Research Analyst.

During his internship, he has been working on various project for Research Services.

Due to confidentiality concerns we are not be able to disclose the project details.

This document is confirming his internship with us.

Regards,


Pooja Sehgal
Human Resources

GreyB Research Pvt. Ltd.

Quark Atrium, A-45, GF, Zone A, Industrial Area, Phase 8B, Mohali, Punjab 160059

✉ info@greyb.com

🌐 www.greyb.com

☎ 8427102546

CHAPTER-2

INTRODUCTION TO IPR

2.1 Intellectual Property Rights (IPR)

When you see the term 'property,' you already know what it implies; property is something that you 'own.' But is it really that simple? Let us examine the notion of ownership in further detail. Assume you own a home. As a result, it is now your property. That suggests you may do whatever you want with it:

- a) live in it (use it yourself),
- b) rent it out (lease it) to someone, or
- c) sell it to fund the basics.

But what gives you the right to wield such sway over this house? You might argue you bought it or constructed it, but those aren't the true reasons why the bad people aren't taking over your house and throwing you out. If you keep thinking about it, you'll eventually forget about it: you have a registration certificate for it, which implies the government acknowledges your ownership of it (and will back you up if need arises). That is the crucial point we are approaching: anything becomes your (lawful) property only if and only if the government grants it to you. In many aspects, intellectual property (IP) is akin to physical property - exactly like your house: the government is the ultimate institution that entitles you to it, and

- (a) you can use it (practice it),
- (b) lease it (license it out), or
- (c) sell it

The essential and fundamental distinction between intellectual and physical property is that intellectual property is 'intangible,' which means it cannot be 'touched.' Let's take an example: imagine you created a fantastic poem and read it to a buddy who, like you, is a poet. Your buddy enjoyed your poetry so much that he incorporated it in his next book without asking permission or giving you credit.

What are your thoughts on this?

Most people would assume that the poetry was your property and that your buddy stole it. To be more specific, the poem was your intellectual property because it was the result of your brain! Most countries believe that this form of thievery is a genuine worry, even if it looks relatively innocent in our poetry example. As a result, most nations have intellectual property laws in place to protect their citizens in such circumstances of theft. All artistic creations, including your poetry, are covered by a type of intellectual property protection known as "copyrights." However, they are not the only types of intellectual property. There are more sorts, which we shall discuss in the following chapter, but first, let us ask another question: what is the objective of intellectual property? Beyond the common-sense assumption that a creator is the legitimate owner of his inventions, the major objective of intellectual property legislation is to encourage creators to generate more intellectual commodities. Consider this: if you are an author and you know that others would steal your work without paying you or giving you credit, would you be inspired to write? Perhaps, but most people will not. To keep artists inspired, nourished, and supported, intellectual property law grants creator's rights to the information and creative goods they generate — for a limited time. This provides an economic incentive for their innovations since it allows them to benefit from them. These earnings are projected to foster innovation, which will contribute to the country's cultural and technical advancement. However, the intangible nature of intellectual property has its own set of characteristics and issues. Unlike traditional property, intellectual property is "indivisible" — an intellectual good may be "consumed" by an infinite number of individuals without being exhausted. Furthermore, investments in intellectual goods face appropriation issues — whereas a landowner can protect their land with a fence and/or hire armed guards, a producer of information or an intellectual good can usually do very little to prevent their first buyer from replicating it and selling it at a lower price. Intellectual property laws attempt to balance rights such that they are strong enough to attract inventors but not so powerful that they preclude widespread public use of the inventions.

2.2 Intellectual Property Types

2.2.1 Copyrights: A copyright grants the creator of an original work exclusive rights to it for a certain period of time. Original in this context implies not plagiarized from someone else's work. Copyright can be applied to a broad variety of creative, intellectual, or aesthetic forms, or "works." Books, movies, music, poetry, paintings, and websites, for example, are all susceptible to copyright protection. The form or manner in which ideas and information are represented is not protected by copyright; only the form or manner in which they are expressed is. That is, you may create another

poetry based on the same concepts as someone else, but the choice of words and/or their arrangement (the 'expression') must be uniquely yours.

2.2.2 Patents: A patent is a piece of intellectual property that is issued to the originator of a technical discovery. The inventor has the right to prevent others from creating, using, or selling an invention for a set length of time, which is usually 20 years in most nations. To get a patent, the inventor must submit the details of his invention to the government (patent office of a nation). This information is then made public by the patent office (e.g., by publishing it on its website or through public libraries). It is important to note that the term "innovation" has a special connotation in this context. An innovation is a technological solution to a specific problem. The innovation might be a technique, a product, or a process, and it must typically meet three primary requirements: it must be innovative, it must be non-obvious, and it must have industrial use. These needs will be covered in greater detail in a subsequent chapter.

2.2.3 Design Patent: A design patent protects the aesthetic design of non-utilitarian goods. In certain ways, they safeguard a product's 'style' or 'look and feel.' Consider the outside design of a car, the appearance of your phone, or an elegant vase. Design patents cover the invention of designs, patterns, or color combinations that have aesthetic value. In general, it is what makes a thing seem desirable and, as a result, raises the economic worth of commodities.

2.2.4 Trademark: Consider the emblem of your favorite brand. That logo is a trademark, which is a type of intellectual property. You can understand why Nike would not want (or allow) any other shoe maker to use the 'swoosh' emblem! In more formal terms, a trademark is a distinctive symbol, design, or expression that differentiates a company's products or services from those of other firms. This is to guarantee that a client does not mix one brand with another - this helps enterprises to establish a distinct market reputation.

2.2.5 Trade Secret: These are 'recipes' that firms keep secret. It might be a formula, technique, procedure, design, instrument, pattern, or knowledge that is not widely known and allows a company to gain a competitive or consumer advantage. There is no explicit government protection for a trade secret; each corporation must take efforts to safeguard its own trade secrets (for example, Coca-soft Cola's drink formula is a trade secret; KFC's batter is also a secret). Furthermore, trade secrets are only beneficial when a product or service is not susceptible to reverse engineering. If reverse engineering could be used to establish the particular chemicals in Coca-Cola drinks, the trade secret would be useless!

2.3 Patents

Exclusive rights are provided for each new and beneficial technique, machine, or arrangement of matter, as well as any new and valuable upgrades. An invention must meet every other requirement of patentability in order to be patentable. It is valid for the following twenty years, beginning with the date of award. The patent holder has the benefit of deciding who may and cannot utilize the patented idea. Patent owners can provide approval or permission, or they can sell the rights to their innovation to someone else, who will then become the new patent owner. When a patent expires, its protection ceases, and the innovation enters the free market. The proprietor will not have exclusive rights to the development, which is now being used for commercial purposes by others.

2.3.1 Patent Types

Any new invention or idea is patented in the following three categories-

1. Utility Patents
2. Design Patents
3. Plant Patents

2.3.1.1 Utility Patents

A utility patent protects the way an object is used and functions. It is the most well-known type of patent that people hunt for. This type of patent spreads new and useful technique compositions of materials, machines, and manufactures. Processes refer to any demonstrations or procedures for completing anything, most of which are contemporary or specialized. Matter compositions are simply material compositions that might include a mixture of fixes or new synthetic mixes. The validity period of a utility patent is 20 years from the date of filing.

2.3.1.2 Design Patents

In terms of obtaining a design patent, a design is defined as the "surface ornamentation" of an object, which might include the shape or arrangement of an article. To be eligible for this type of patent protection, the design must be distinct from the thing. While the object and its design must be indistinguishable, a design patent will only protect the look of the thing. You can use your design patent for only 14 years after it is granted.

2.3.1.3 Plant Patents

A plant patent can be obtained to protect novel and unique plants. A few conditions for obtaining this type of patent are that the plant isn't a tuber-generated plant (such as an Irish potato), that the plant isn't discovered in an uncultivated state, and that the plant can be asexually replicated. Asexual

reproduction means that, rather of being duplicated by seed, the plant is replicated by connecting or cutting it. Asexual reproduction is required for plant licenses since it demonstrates that the patent candidate can replicate the plant. It is valid for 20 years from the date of filing.

2.4 Advantages of IPR

Motive to provide these rights is to promote research & development, creativity, curiosity and encourage people to produce new inventions. Apart from these there are several other advantages like-

1. To keep other out of market
2. Competition is reduced
3. Helps to generate income by selling or licensing it
4. Validity to a product or invention is given

2.5 Conditions of Patentability

In order to get a patent for any idea or invention, one must pass all the three conditions of patentability. The three conditions are given as follows-

1. **Novelty:** The term "novelty" might be used to request patentability. Patent invention isn't novel, thus it's not patentable if it was completely certifiable to the general population before the date of application filing, or before the date of necessity if the requirement of patent previous application is established. The purpose of the novelty request is to prevent the preceding art from becoming restricted again. The innovation should be novel and unheard of before.
2. **Non-Obvious step:** In most patent laws, the creative advancement and non-obviousness duplicate an analogous general patentability request blessing, implying that patent degree development should be enough imaginative — i.e., non-self-evident — to be unique.
3. **Industrial Applicability:** The invention should be useful in today's world. It must meet a few of the people's basic needs.

2.6 Ideas that cannot be patented

1. Natural Laws
2. Means of doing business
3. Computer programs

4. Mathematical formula

2.7 Parts of patent application

1. Title- Name or title of the invention.
2. Abstract- Contains short introduction of invention.
3. Drawing- Diagrammatic representation of the invention.
4. Background- Contains work done in past in the field of invention and what problem(s) this introduced invention is solving.
5. Summary- It emphasizes on the working and advantages of the invention.
6. Description- Brief description give details of drawings associated with the invention whereas detailed description describes about the full working or method of the invention.
7. Claims- Tells about the boundary of invention meaning what part of invention is being protected.

2.8 Patent citations

Patent citations are references identifying technology that is already known in patents or other scientific publications on which the current patent is based or on which it is based. They are pretty much like citations in a research article. When a new patent is filed in the patent system, the inventor refers to the known prior art and explains how the new invention is superior to this known previous art. In some circumstances, the new innovation offers a practicable advance over current technology, and in others, the invention may be an entirely novel application of a scientific finding. Citations have come to be recognized as a noisy but relevant tool for assessing knowledge spillovers and researching creativity in general. Patent citation analysis may be used to gain insight into the evolution of technology as well as to assess the quality of patents.

There are two types of citations: backward citation and forward citation. A backward citation is a reference in a patent to previous art, whereas a forward citation is a reference to the same patent by another patent.

Citation analysis is based on the idea that the amount and character of forward and backward citations are indications of patent value; more forward citations imply more value. Backward patent citations can be analysed to get insight into the origins of technology and its evolution over time. The significance of a patent and its forward citation are inextricably linked. Patent citations can be self-

citations, which occur when an invention is cited by patents applied for by the same inventor who generated the original patent or by the same corporation that applied for the original patent.

The majority of patent citations refer to patents assigned to the same assignee as the referring patent. These are referred to as "self citations." One possibility is that they appear simply because the parties are familiar with the same company's patents, or because an inventor wishes to acknowledge colleagues. If this is the case, self-citations should be less economically significant than other citations. Companies mentioning their own patents, on the other hand, may be a result of the cumulative nature of invention and the "growing returns" aspect of knowledge accumulation, particularly within a confined area or technological trajectory. Self-citations may imply that the firm has a strong competitive position in that technology. This implies that the company's costs will be reduced since there will be less need to obtain technology from others. The presence of self-citations may therefore suggest effective appropriation of cumulative impacts by the firm, whereas citations by others may indicate cumulative impacts that are leaking over to other companies. If this is the case, then self-citations should have a higher private value than other citations.

2.9 Dates in patent application

1. Filing Date- The date on which the patent was originally submitted with complete information at the patent office.
2. Priority Date- The first filing might take place anywhere in the world.
3. Publication Date- When the patent's material is fully revealed to the public and it is eighteen months following the priority date.
4. Issue Date- The patent is awarded to the applicant on this date, which is also known as the Grant date of the invention.
5. Expiration Date- It is the day on which the inventor loses all legal protection. The patent is now free to use in the public domain.

CHAPTER-3

MODERN ANALYSIS

3.1 Types of searching

Intellectual property, particularly patents, is one of the most significant intangible assets of a firm, particularly one that relies heavily on developing and innovating. Given that developing any type of innovation takes a significant amount of time and money, it only makes sense to secure the inventions by protecting/patenting them.

Obtaining a patent for your creation assures that no one else claims your innovation as their own. Even if someone does this – by selling a replica of your patented idea or making a product that infringes on your patent - they may be stopped from doing so using cease and desist letters, and legal action can be taken to prevent others from benefitting from your patented creation.

Given that a patent grants its assignee the benefit of excluding anyone from infringing on their invention for an extremely lengthy period of time (20 years from the date of filing in the United States), it stands to reason that patent are not given to every idea that is ever conceived. As a result, patents are only awarded for inventions that fulfil specific requirements.

It is not simple to turn a concept into a patent. A patent is evaluated on a variety of criteria to verify that it is unique, obvious, and not identical to another person's invention/concept prior to the date of filing. A patent is awarded by the patent office of the particular nation only when all of the qualifying criteria have been met.

In some situations, if a patent is awarded and then reexamined, it is discovered that it does not fit any particular requirement, the rights of the inventor/assignee may be cancelled. We would be speaking more on this later, but it is to be noted that this is one of the most essential techniques utilized by firms to diminish their competition's patent portfolio. But that's the advanced stuff. Taking a step back — There are several types of patent searches. While some are carried out before to the filing of a patent, others are most effective after the patent has been issued. Each of these searches has an own goal and justification for being carried out.

3.1.1 Patentability Search

Patentability search, also known as a novelty search, is carried out prior to filing a patent application to ensure that the invention is original. This search is critical because no one wants to lose all of their

hard-earned money spent on preparing and filing a patent application because the examiner used a comparable concept to your invention as the criterion for rejecting your patent application. The inventor, patent attorney, or patent examiner can determine whether or not someone else has had the same idea by conducting a patentability search for previous art. If the search results show that someone has already worked on a comparable concept, you may save money by not filing the application OR you can change/improve your idea so that it fits the patentability standards. Conducting a Novelty search can assist (but does not guarantee) that your patent will be issued. If a patentability search reveals that your invention is unique and fits all of the conditions for patentability, you may file your patent with confidence that it will be issued. Given the high costs of applying and litigating a patent, it is always a wiser move to do a patentability search prior to filing the patent application.

3.1.2 Freedom to operate

Whenever anyone comes up with a patentable innovation, they frequently overlook patents owned by others. Obtaining a patent for your idea does not provide you the right to operate. How can you sell/manufacture your product/invention without violating the patents of others? This is when the ability to search freely comes in handy. The capacity to sell one's product or service without infringing on the patent claims of another party is referred to as freedom to operate. When you get a patent, you get the right to stop other individuals from exploiting your patented invention. Even if everyone else is barred from infringing on your patent, you must still do a freedom to operate search before releasing your product to the public. If your innovation employs any other type of invention, such as a method, a machine, or a matter composition, your product's freedom to function in the market is called into doubt. You face the danger of infringing on someone else's intellectual property, which has its own set of implications. A person who devised the notion of putting an eraser tip to the end of a pencil, for example, might patent the innovation. However, there may be several patents on erasers, glue, or the procedure of connecting them that hinder your product from freely operating in the market. Your own patent doesn't really protect you. A Freedom to Operate search is a due diligence approach that focuses on identifying any active patents or ongoing patent applications that may impair your ability to operate. A specific search, known as a freedom-to-operate search or FTO Analysis, is required to assess market freedom to operate. This procedure is critical because it provides you with an estimate of the likelihood of your goods becoming involved in a legal dispute in the near future. It also allows you to check on risk analysis for patent infringement. Not only that, but completing an FTO Search

provides you with a clear picture of your licensing requirements and even assists you in moving product development in the appropriate path.

3.1.3 Validity / Invalidity Search

A validity/invalidity search, also known as an enforcement readiness search, is a thorough prior-art examination conducted after a patent is awarded. The goal of this search is to evaluate whether or not a patent issued for an invention is legitimate in contrast to previous art that was published prior to the date of filing of the patent application. The primary goal of this search is to either verify or invalidate one or more patent claims. A patent validity search is when a search is undertaken to validate the claims of a patent. On the other hand, if the search is undertaken to invalidate the claims of a certain invention, it is referred to as a patent invalidity search. The technique for both searches is the same, but the outcome is determined by the objective of the search. Patent invalidity/validity searches are often undertaken during infringement litigation or to mitigate the risk of infringement.

3.1.4 State of Art search

This is the largest sort of patent search among the others, whereas a state-of-the-art search is simply a market survey undertaken to detect the existence of related technologies in the market. This search also yields results about rivals and reflects the technological development in the subject of interest. Furthermore, the cutting-edge search assists innovators in not recreating the wheel by indicating the obstacles that rivals have had and the solutions that they have applied to solve the challenges. Finally, by identifying the trend of current items or processes in the market, cutting-edge search aids in eliminating excessive expenditure of money on inventions with no prospective market.

3.2 Types of patent application

3.2.1 Provisional Application

A Provisional Patent Application is intended to be a low-cost initial invention filing for a utility patent. It includes the innovation's specifics as well as necessary illustrations that illustrate how to build and use your idea. A provisional patent application allows for the submission of a patent application without any formal patent claims or declarations, as well as any information disclosure (prior art) statement. It grants an applicant "patent pending" status for one year. The provisional application is immediately abandoned at the conclusion of the one-year period, with no extensions permitted. A provisional patent application will not result in a patent since no analysis of the application's patentability in light of previous art is done. If filed within this one-year period, a non-provisional application might obtain precedence from the provisional application's filing date.

3.2.2 Non-Provisional Application

Inventions can be protected with a Non-Provisional Patent Application. It establishes the patent application's filing date and initiates the examination procedure. The patent application will be reviewed by the relevant patent office. A non-provisional patent application must primarily consist of:

1. a written document that includes a specification (description and claims) and
2. an oath or declaration;
3. a drawing in circumstances where one is required; and a Declaration and Power of Attorney
4. Filing fee.

A non-provisional patent may or may not result in the issuance of a patent, depending on the results of an examination by the patent office in which it is lodged.

3.2.3 Continuation Application

A Continuation Patent Application is a patent application that adds claims to an existing patent application, known as the parent application. The continuation follows the same specifications as the parent application, claims the parent application's priority date, and at least one of the inventors should be the same as in the parent application. The following requirements must be completed in order for a continuation application to be processed:

1. be submitted while the parent application is pending,
2. share at least one inventor with the parent application, and
3. include claims that are fully supported by the disclosure of the parent application.

Continuation applications are also employed when an applicant realises later that a potentially patentable innovation mentioned in the initial application has not yet been claimed. To safeguard this innovation, a subsequently filed continuation application is submitted. In the continuation application, no additional topic matter may be introduced. The claims in the continuation application must fall within the scope of the previous specifications. Both patents' terms expire at the same time.

3.2.4 Continuation-In-Part Application

A continuation-in-part application (or CIP or CIP application) is one in which the applicant submitted basically the same specification as the parent application but revealed new subject matter that was not included in parent application. Claims to subject matter that was also revealed in the parent application are subject to the parent's priority date in a continuation-in-part application, but claims to new subject matter are only subject to the CIP application's filing date. CIP applications are often

used to assert modifications made after the patent application was submitted. The CIP patent has a term of less than 20 years, beginning with the filing date of the earliest parent application and ending on the expiry date.

3.2.5 Divisional Application

A divisional application is a continuation of an earlier patent application including two or more innovations. The Patent Office issues a Restriction Requirement to applications that reveal two innovations, requiring the applicant to select one of the disclosed inventions for prosecution and withdraw claims relating to the other invention. The applicant may then submit a divisional application at any point while the parent application is still ongoing, resubmitting the claims that were withdrawn from the original application. Divisional applications must claim just the subject matter revealed in the parent application, have the same specification as the parent applications, claim the parent's priority date, but have a distinct set of claims. Both patents' terms expire at the same time.

3.2.6 PCT Application

The PCT, a multilateral treaty sometimes known as a "international patent application," provides a standardized system for submitting patent applications in each of its contracting states to protect inventions. This application can be filed in any language and permits an applicant to submit a patent application in any PCT member country within 30-31 months after the application's priority date. Despite the fact that the PCT system does not allow for the issuance of an international patent, the system:

1. streamlines the process of submitting patent applications,
2. postpones the costs associated with seeking patent protection in other countries and
3. gives the innovator more time to evaluate the commercial potential of his/her idea.

The patent office, or any other entity designated by each Contracting State, is designated as a 'receiving office' for the purpose of receiving patent applications. These applications are subsequently forwarded to the World Intellectual Property Organization (WIPO) for administrative action. The patent application is forwarded to International Searching Authorities by WIPO (ISA). An approved International Searching Authority (ISA) then conducts a search or international search to discover the most relevant prior art publications relating to the claimed subject matter. The search yields an International Search Report (ISR) as well as a written conclusion on patentability. The ISR is generally delivered to the applicant by the ISA 9 months after the application is filed in the case of a first filing and 16 months after the priority date in the case of a subsequent filing (i.e., claiming the

priority of a first filing). To gain protection in each individual country chosen by the inventor, the PCT must be converted (filed) in the national patent offices of the selected nations where the invention will be examined to ensure that it meets the national standards for novelty, obviousness, and so on.

3.3 Patent Claims

A patent typically consists of the specification, drawings, and one or more claims, in addition to basic information such as the inventor's name, issuance data, and assignee contained on the first page. A patent claim is definitely an important, if not the most important, component of a patent. A patent claim concisely specifies what the invention claims and what is to be protected. Simply defined, the patent claims govern the scope of protection afforded by a patent. A patent claim expresses precisely what the invention covers and what it does not cover. A patent claim is often given as a description or statements of technical facts detailing the extent of the invention, usually using legal terminology. The relevance of the patent claim cannot be overstated. A patent claim is the section of a patent that tells third parties what they may and cannot do with the invention once the patent has been issued. The patent claim outlines the exclusive right granted by the grant of a patent. It is obvious how essential patent claims are since they determine the scope of protection afforded by a granted patent. The remaining portions of a patent, like the specification, simply assist in providing a full description of the invention in question. Patent claims, from a legal standpoint, are used to specify the extent of a patent's legal rights once the patent has been issued. Each patent specification must contain one or more patent claims that define the scope of the invention for which protection is sought. Patent claims are analysed in invention infringement proceedings to assess the scope of the patent and if there is any infringement. If a patent is challenged in court, any flaws made when drafting the claim or during prosecution may render the invention useless.

3.3.1 Independent Claims

Independent claims are often known as 'unattached' claims. This implies that they make no reference to or link to any other claim (s). An introduction or prologue, as well as all the components necessary to create and characterise the invention, are included in independent claims. Normally, the first claim is a separate claim that establishes a precedent for the protection sought by the innovation. To dissuade would-be infringers from avoiding the independent claim, independent claims are usually wider than dependent claims. Independent claims are often classified into three types:

1. A demand for something
2. A claim for a method of producing something

3. A claim for a method of doing something

3.3.2 Dependent Claims

Dependent claims restrict their scope by referring to a prior or independent claim. Dependent claims restrict the scope of a preceding claim. Furthermore, dependent claims hone the protection sought for an invention. Furthermore, dependent claims may include additional non-essential traits, as well as insignificant components and optional features that were not stated in the independent claim.

3.4 Patent Laws

- **35 USC 101-** Innovation should be useful.
- **35 USC 102-** Innovation should be novel.
- **35 USC 103-** Innovation should be non-obvious.
- **35 USC 112-** There must be fully disclosure of the invention.

CHAPTER-4

WORLD INTELLECTUAL PROPERTY ORGANISATION

4.1 What is WIPO?

The World Intellectual Property Organization (WIPO) is the global platform for intellectual property (IP) services, policy, information, and collaboration. They are a self-sustaining United Nations institution with 193 member nations. Our purpose is to guide the development of a balanced and effective international intellectual property system that fosters innovation and creativity for the benefit of all. The WIPO Convention, which founded WIPO in 1967, outlines our mandate, governing bodies, and procedures.

WIPO's activities involve hosting forums to discuss and shape international IP rules and policies, providing global services to register and protect IP in different countries, resolving transboundary IP disputes, assisting in the connection of IP systems through uniform standards and infrastructure, and serving as a general reference database on all IP matters, including providing reports and statistics on the state of IP protection or innovation both globally and in specific countries. WIPO also collaborates with governments, nongovernmental organisations (NGOs), and people to use intellectual property (IP) for socioeconomic development. WIPO oversees the administration of 26 international treaties addressing a wide range of intellectual property concerns, from the protection of audiovisual works to the establishment of worldwide patent classification. It is managed by the General Assembly and the Coordination Committee, which work together to develop policy and make major decisions. The General Assembly also elects WIPO's main administrator, the Director General, who is presently Singaporean Daren Tang and will take office on October 1, 2020. WIPO is run by a Secretariat, which assists with day-to-day operations. WIPO maintains "external offices" across the world, including Algiers (Algeria), Rio de Janeiro (Brazil), Beijing (China), Tokyo (Japan), Abuja (Nigeria), Moscow (Russia), and Singapore (Singapore). Unlike most UN agencies, WIPO does not rely substantially on assessed or voluntary contributions from member states; instead, fees connected to its worldwide services account for 95 percent of its budget.

WIPO now includes 193 member nations, comprising 190 UN member states as well as the Cook Islands, the Holy See, and Niue; Palestine is a permanent observer. The Federated States of Micronesia, Palau, and South Sudan are the only non-members among the nations recognised by the UN.

4.2 Patent Cooperation Treaty

One of the first intellectual property treaties was the Paris Convention for the Protection of Industrial Property, which was signed on March 20, 1883, in Paris, France. It created the Union for the Protection of Industrial Property. The Convention is still in effect today. The substantive provisions of the Convention are divided into three groups: national treatment, priority rights, and common regulations. As per Articles 2 and 3 of this treaty, juristic and natural persons who are either nationals of or domiciled in a state party to the Convention shall, in terms of industrial property protection, enjoy the advantages that their respective laws grant to nationals in all other countries of the Union. In other words, when an applicant makes an application for a patent or a trademark in a foreign country that is a member of the Union, the application is treated as if it originated from a person of that country. Furthermore, if the intellectual property right is granted (for example, if the applicant obtains a patent or a registered trademark), the owner enjoys the same legal protections and remedies against infringement as if the owner were a national owner of this right.

Methods for coping with patent global protection:

- By submitting an application in each country where a patent is sought. Costs skyrocket as a result of document scrutiny and so on.
- Apply in accordance with the "Paris Convention." It provides a year delay, priority date, and other key features.
- By filing a PCT application, an inventor gains a thirty/thirty-one-month delay, a primer inspection alternative choice, and a seeking report of prior art, relying on the creator's desire to get a patent.

Patent law that provides a hybrid mechanism for filing patent applications and ensuring manifestations in all of its contracting states. A PCT application is a patent application that is recorded under PCT.

Steps-

A single PCT application is filed with the RO (Receiving Office) in one language. A search is being conducted by the International Searching Authority (ISA) in addition to a written decision on the patentability of the invention at the heart of the application. The International Preliminary Examination Authority (IPEA) completes the preliminary examination, however it is optional. Following that, the application is reviewed by national and regional authorities, followed by the final issuing of the application.

The governments that have signed the PCT form the International Patent Cooperation Union regional patent offices, such as the EPO and ARIPO (African Regional IP Office). These offices are in charge of granting regional patents.

A PCT application may be documented by any tenant or national of a contracting condition of the PCT. Patent protection is granted under this framework in the assigned states specified in the PCT application.

4.3 WIPO in PCT

WIPO is aware of the filing of a global application under the PCT. It is responsible for the distribution of PCT applications. It receives and archives PCT applications, as well as the papers associated with patent pursuit and examination. Deserts in PCT applications are identified at the international stage and can be corrected before the application reaches the national patent office & enters the national phase of patent assessment.

4.4 Process of filing a PCT application

- First, a PCT application must be documented in accordance with PCT requirements. Charges have been paid. One of the trend-setters should be a resident of a PCT contracting state. It is possible that it will be documented in two ways: either at the receiving office or lawfully with WIPO. There is a time restriction for document accommodation. That time restriction is specified on the WIPO website, and archives should be accommodated within that time frame. The time limit is estimated from the date of requirement.
- Within a year, a national application is filed first, followed by a PCT application. When a PCT application is filed, the creator has up to a year and a half to decide which countries he needs to apply for patent in. He can also postpone it by first filing a national application and then filing a PCT application within a year. During the year after the priority application's submission, the candidate may choose to record at least one further national application when new refinements or encapsulations of the invention are made. A PCT application can aggregate the disclosures of, and claim precedence over, all national applications pertaining to that innovation that were filed over the previous twelve months. PCT applications can also include fresh insights about the invention or novel claims that were not pursued in any of the previous priority applications. Nonetheless, in order to benefit from the previous priority date, the new claim must be supported by prior priority. application.

1. National application (priority date claim)
2. In a year, a PCT application is filed.
3. The application reaches the national stage of selected PCT nations up to thirty months after the date of priority or eighteen months after the filing of the PCT.

4.5 Patent Classification System

A patent classification is a method that allows patent office examiners or other individuals to categorise (code) documents, such as published patent applications, based on the technical elements of their content. Patent classifications make it easy to search rapidly for documentation describing prior disclosures comparable to or relevant to the invention for which a patent is applied for, and to follow technical trends in patent applications.

Searches based on patent classifications can locate documents in many languages by utilising the system's codes (classes) rather than words. Patent categorization methods were initially designed to categorise paper records, but they are now used to search patent databases. The International Patent Classification (IPC) is a global standard. The United States Patent and Trademark Office establishes the United States Patent Classification (USPC) (USPTO). An enterprise establishes the Derwent categorization system. The German Patent Office established the German Patent Classification (DPK) (Deutsches Patentamt).

In October 2010, the European Patent Office (EPO) and USPTO launched a joint project to create the Cooperative Patent Classification (CPC) in order to harmonise the patent classifications systems between the two offices. CPC from 2013 replaces the European Classification (ECLA), which was based on the IPC but adapted by the EPO.

4.5.1 Advantages of classification system

1. Grammatical language is not included.
2. No wording changes are necessary.
3. Looking for ideas
4. Available for patent reports where the complete substance of the claims/description is not available.

4.5.2 United States Patent Classification

The US Patent Categorization is an official patent classification system used and maintained by the US Patent and Trademark Office (USPTO). On January 1, 2013, it was mostly superseded by the

Cooperative Patent Classification (CPC). At the USPTO, plant and design patents are still classed only under USPC. Patents at the USPTO are still routed to their respective business and art divisions by their USPC as of December 2018, despite the fact that they are no longer assigned directly to the patents themselves. In the United States Patent Classification System, there are approximately 400 classes, each with a title that describes its subject matter and is recognised by a class number. Each class is then broken into many subclasses. Each subclass is given a descriptive title and is assigned a subclass number. The subclass number might be an integer number, a decimal part, or alpha characters. The class and subclass numbers, as well as any alpha or decimal identifiers, are required for a complete identification of a subclass; for example, 417/161.1A identifies Class 417, Subclass 161.1A.

4.5.3 European Classification System (ECLA)

The European Categorization (ECLA) is a previous patent classification system that is still in use by the European Patent Office (EPO). There are 134 000 subdivisions in the ECLA categorization system. It is primarily an extension of the International Patent Classification system, but its names and regulations are occasionally modified. ECLA is used in conjunction with the ICO indexing system to locate extra information and elements not covered by the ECLA schemes. As of January 1, 2013, ECLA was superseded by the Cooperative Patent Classification (CPC). It is a progressive patent order system that is used in over 100 countries to categorise the substance of patents in a consistent manner. It was formed under the Strasbourg agreement (1971), one of several WIPO-directed arrangements. It is constantly updated by a board of specialised trustees. Center characterizations must be revised every three years from the date of issue, and advance orders must be adjusted every three months.

4.5.4 International Patent Classification (IPC)

The International Patent Categorization (IPC) is a hierarchical patent classification method utilised in over 100 countries to uniformly classify patent material. It was established as part of the Strasbourg Agreement (1971), one of several treaties overseen by the World Intellectual Property Organization (WIPO). A Committee of Experts, comprised of members from the Agreement's Contracting States as well as observers from other organisations such as the European Patent Office, updates the classification on a regular basis.

Patent publications from all Contracting States (and most others) are allocated at least one classification symbol identifying the topic to which the invention relates, and may additionally be assigned additional classification symbols and indexing codes to provide further information about

the contents. Each categorization symbol has the following format: A01B 1/00. (which represents "hand tools"). The first letter symbolises the "part," which is made up of letters ranging from A ("Human Necessities") through H. ("Electricity"). It signifies the "class" when combined with a two-digit number (class A01 represents "Agriculture; forestry; animal husbandry; trapping; fishing"). The "subclass" is formed by the last letter (subclass A01B represents "Soil working in agriculture or forestry; parts, details, or accessories of agricultural machines or implements, in general"). Following the subclass is a one-to-three-digit "group" number, an oblique stroke, and a number of at least two digits signifying a "major group" or "subgroup." In line with classification regulations, a patent examiner gives classification symbols to a patent application or other document.

4.5.5 Cooperative Patent Categorization (CPC)

The Cooperative Patent Categorization (CPC) is a patent classification system established in collaboration between the European Patent Office (EPO) and the United States Patent and Trademark Office (USPTO). The CPC is based in large part on the previous European classification system (ECLA), which was itself a more particular and thorough version of the International Patent Classification (IPC) system. Each patent publication is allocated at least one classification term specifying the subject to which the invention pertains, and may also be assigned other classification and indexing words to provide further information about the contents. There are roughly 250,000 categories in the CPC system. Each categorization phrase is represented by a symbol, such as "A01B33/00" (which represents "tilling implements with rotary driven tools"). The first letter is the "section symbol," which consists of a letter ranging from "A" for "Human Necessities" through "H" for "Electricity" or "Y" for upcoming cross-sectional technologies. This is followed by a two-digit number, resulting in a "class symbol" ("A01" represents "Agriculture; forestry; animal husbandry; trapping; fishing"). The "subclass" is formed by the last letter (A01B represents "Soil working in agriculture or forestry, parts, details, or accessories of agricultural machines or implements, in general"). Following the subclass is a 1- to 3-digit "group" number, an oblique stroke, and a number of at least two digits signifying a "major group" ("00") or "subgroup." A patent examiner classifies a patent application or any other document at the most thorough level appropriate to its contents.

CHAPTER-5

WORK CONDUCTED

5.1 Invalidity Searching

A patent invalidity search is often conducted to validate the claims of a patent or to invalidate the claims of a competitor's patent. When presented with a patent infringement litigation, one of the first procedures is usually to conduct a patent invalidity search. Patent invalidity searches are also performed to aid in determining the strength of a patent while investigating potential licensing opportunities. A patent invalidity search is a thorough prior art search undertaken after the issue of a patent. In order to invalidate a patent, the fundamental purpose of patent invalidation is to find any previous art that the USPTO examiner may have overlooked. A patent invalidity search differs from a traditional prior art search in that the entire concept or innovation is not the focus of the search. A patent invalidity search, on the other hand, focuses on the claim language utilized. With this in mind, it is critical to review any past litigation and post-grant claim construction, and also the prosecution history, to ensure that those claim parts are searched in the context of their likely interpretation and extent. The entire objective of this form of search is to delve deep into the domain in order to uncover substantial prior art that has previously been overlooked by the patent examiner. This search technique can help in either challenging another person's patent or preparing a defense against a patent infringement charge.

5.2 How to Invalidate a Patent

To make your patent invalidation efficient, you must first grasp the invention and know what previous art you are looking for. Get a brief review of the patent and understand its previous art disclosure position before taking any action. Understanding the patent's claims and defining its patent breadth can give you a better idea of where to look for previous art. There are several methods for invalidating a patent; here are some of the most common:

5.2.1 Prosecution History Study

Examining this data enables you to learn more about the patent examiner's claim rejections, the rejection grounds, and the documented prior artwork in the prosecution history & post-grant proceedings. It is critical that you determine the extent to which this patent has been disclosed by comparing the previous art to the target claims. If you can readily identify previous art to reveal the claim, it usually suggests that the patent is weak and has a good possibility of being invalidated. Some

patents are more difficult to disclose and cannot be shown by one prior art reference; instead, numerous prior art references may be required. When you're short on time, it might be even more difficult to do a thorough search.

5.2.2 Locating Prior Art

Prior art 102 and 103 are more relevant to the patentability of a patent claim than prior art pointed to by the patent examiner. Aside from the prosecution history's prior art references, patent family prior art and its second-degree prior art are also excellent sources of powerful prior art. The revealed previous art of the patent family is displayed in the family prior art. Any family-related previous art, particularly citations of those deserted (inactive, non-payment, or expired) family members, may be utilized as invalidation proof. If a patent's family member is abandoned, its citation may be used against the patent as proof of invalidation. Second degree art can be found in the following situations:

- Backward citations' backward citations
- Backward citations' forward citations
- Forward citations' backward citations

5.2.3 Demonstrate the earlier public disclosure

If an invention is proven to have been on sale or publicly available in the United States within the twelve months preceding the date of the patent filing, patented abroad, detailed in a publication, or previously recognized by inventors in the United States prior to the applicant's invention, the patent can be invalidated.

5.3 Understanding of Subject Patent

Patent No.	Title	Inventor	Priority Date	Original Assignee	Claim(s) Focused
US6856818B1	Data store for mobile radio station	Peter Ford	11/02/1997	Orange Personal Communications Services Ltd	18

This invention discloses a data access method from the memory of the SIM or subscriber identity module. An instruction (Access message) is sent to the processor of SIM from the mobile phone processor. The instruction instructs to read or access the memory. But the instruction does not disclose

how the data is selected from the memory. Now to select the data from the memory a user authentication or verification is done. This is called operational condition or PIN mode operation. If the verification is successful data can be selected from the memory.

We thoroughly checked the prosecution history to identify the reason behind the patent getting granted. From the prosecution history it seems that “*The selection being performed on the basis of data identifying a current operational condition of the mobile station and independently of the content of the first memory access message, the identifying data being held in a further data record in the memory means*” is the key feature of the invention. So, the search will be directed to identify this feature.

Claim 18:

A mobile station for use in a mobile communications system, the mobile station complying with a predetermined standard and being adapted, in accordance with the standard, to transmit a first memory access message, identifying a specific data record, in order to access the specific data record on a standard subscriber data storage module complying with the predetermined standard, the mobile station comprising:

a modified subscriber data storage module which includes a processor for performing operations and memory having data records for storing data,

the modified module being responsive to the first memory access message, identifying the specific data record,

wherein the memory holds a plurality of data records corresponding to the specific data record and the processor is arranged to select one data record, from the plurality of data records, to access in response to the first memory access message, *the selection being performed on the basis of data identifying a current operational condition of the mobile station and independently of the content of the first memory access message, the identifying data being held in a further data record in the memory means.*

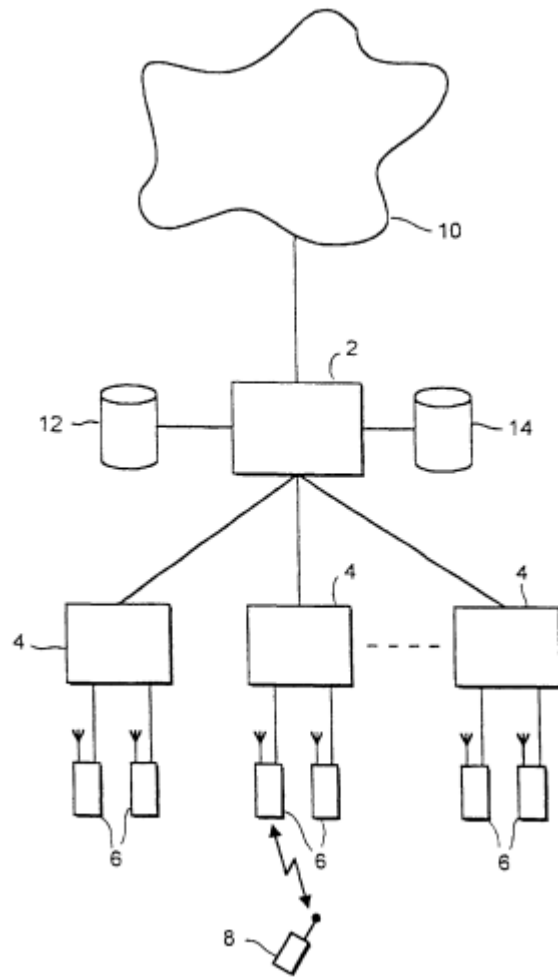


Figure 5.1: A block diagram of a mobile communications network

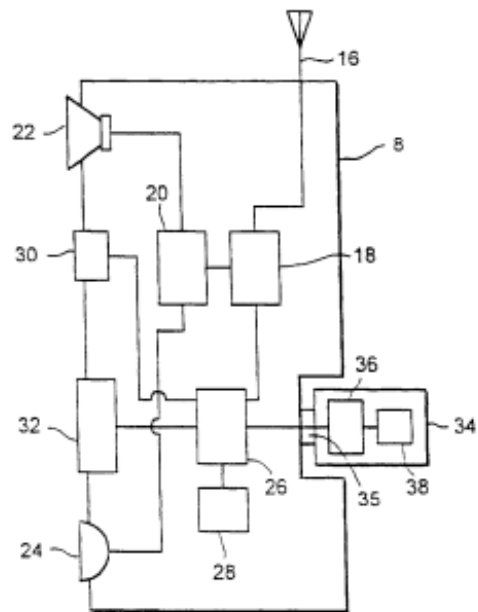


Figure 5.2: A block diagram of a mobile station

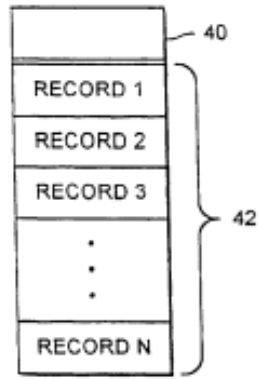


Figure 5.3: the structure of an FDN list file

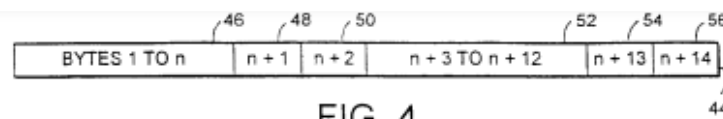


FIG. 4

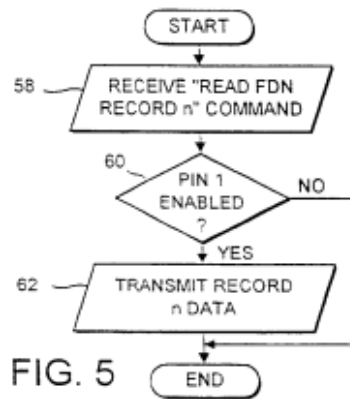


FIG. 5

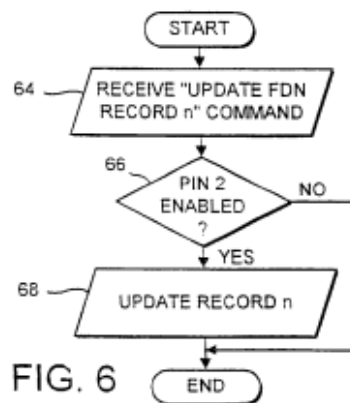


FIG. 6

Figure 5.4: the structure of an FDN data record

Figure 5.5: a flow diagram of steps taken by a conventional SIM when reading an FDN record

Figure 5.6: a flow diagram showing steps taken by a conventional SIM when updating an FDN data record

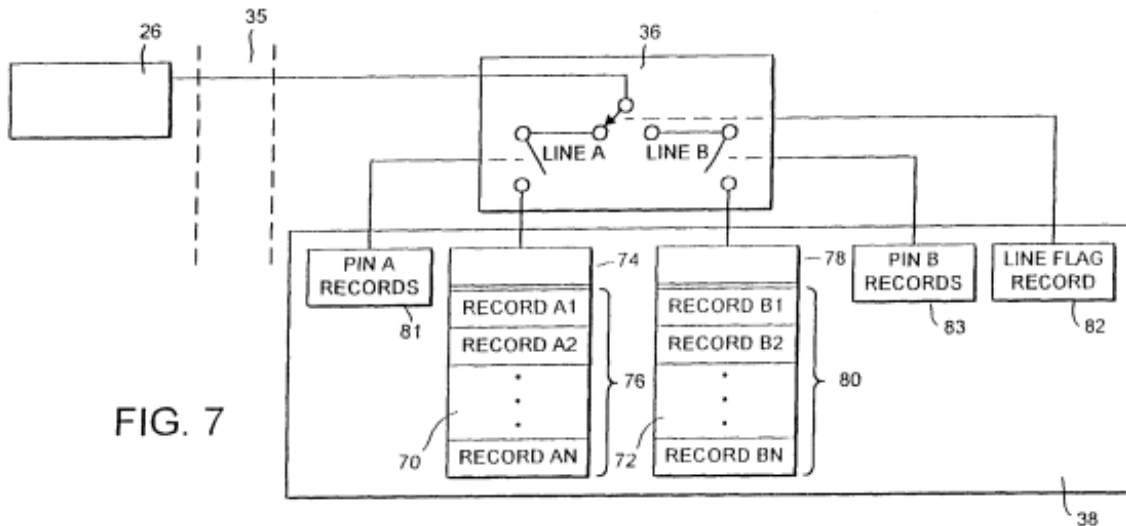


Figure 5.7: A block diagram illustrating a principle of the present invention

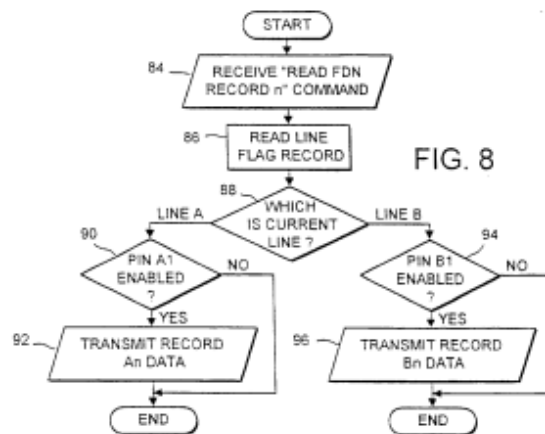


FIG. 8

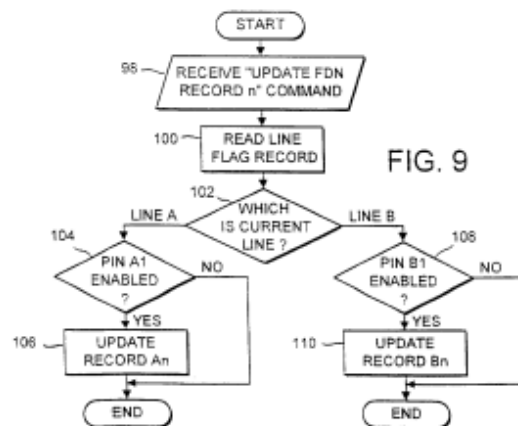


FIG. 9

Figure 5.8: a flow diagram showing steps taken by a SIM according to the present invention when reading an FDN record

Figure 5.9: flow diagram showing steps taken by a SIM according to the present invention when updating an FDN record

5.4 Literature Searching and Analysis

5.4.1 Keywords

#	Synonyms
1.	Mobile Station / Mobile Base / Cellular Telephone / Cellular Phone / Mobile Phone / Communication Equipment / Communication Apparatus / Communication Device
2.	Mobile Communications System / Wireless Communication / Public Network / Network
3.	Memory Access Message / Ordered / Instruct / Instruction / Command / Read / Write / Modify / Edit
4.	Data Record / Data Set / Collection Of Data / Record / Data Package / Information Set / Collection Of Information / Information Package / Data List/ Database / Repository/ Directory
5.	Data Storage Module/ Information Storing Entity/ Information Storing Element/ Information Storing Unit/ Information Storing Component
6.	Processor / Processor Unit / Data Processor / CPU / Central Processor / Processing Unit / Central Processing Unit
7.	Memory / Computer Storage / Store / Storage
8.	Operational Condition / Working State / Functional State / Working Status / Functional Status
9.	SIM / Subscriber Identity Module Card / Subscriber Identification Module / SIM Card / Smart Card / Smart Module / Data Storage Module / IC CARD OR Integrated Circuit Card
10.	Gsm Standard / Predetermined Standard / Gsm / Global System For Mobile Communication
11.	Selection / Choose / Pick
12.	Data Record / Record / Number / Memory / And / Fdn / Fixed Dialing Number / Abbreviated Dialing Number / List / Directory

5.4.2 CPC Classes

#	CPC	Definition
1.	H04W12/08	Access security
2.	H04M1/66	Substation equipment, e.g. for use by subscribers; Analogous equipment at exchanges with means for preventing unauthorised or fraudulent calling
3.	H04W76/10	Connection setup
4.	H04M3/50	Centralised arrangements for answering calls; Centralised arrangements for recording messages for absent or busy subscribers ; Centralised arrangements for recording messages
5.	H04W12/06	Authentication

6.	H04M1/275	Devices whereby a plurality of signals may be stored simultaneously with provision for storing more than one subscriber number at a time, e.g. using toothed disc using static electronic memories, i.e. memories whose operation does not require relative movement between storage means and a transducer, e.g. chips implemented by means of portable electronic directories
7.	G07F7/1008	Active credit-cards provided with means to personalise their use, e.g. with PIN-introduction/comparison system
8.	G06Q20/341	Active cards, i.e. cards including their own processing means, e.g. including an IC or chip
9.	H04W8/18	Processing of user or subscriber data, e.g. subscribed services, user preferences or user profiles; Transfer of user or subscriber data
10.	H04M1/72436	N/A
11.	H04M2250/14	Details of telephonic subscriber devices including a card reading device
12.	H04W8/183	Processing at user equipment or user record carrier
13.	H04M1/724	N/A
14.	H04W12/72	N/A
15.	H04W8/205	Transfer to or from user equipment or user record carrier
1.	H04W88/06	Terminal devices adapted for operation in multiple networks or having at least two operational modes, e.g. multi-mode terminals
2.	H04M2215/2026	Wireless network, e.g. GSM, PCS, TACS

5.4.3 Orbit Search Strings

#	Logic	Key-string	Hits
S1.	Full Text: Mobile+ SIM + plurality near data + GSM	((MOBILE? OR MS OR TERMINAL? OR PHONE? OR TELEPHONE? OR HANDSET? OR MOBILE_DEVICE? OR EQUIPMENT? OR CELLULAR_DEVICE?)/TI/AB/CLMS/OBJ/ADB/TX AND ((SIM OR SUBSCRIBER_IDENTITY_CARD OR SUBSCRIBER_IDENTITY_MODULE OR SMART_CARD OR SMART_MODULE OR DATA_STORAGE_MODULE))/TI/AB/CLMS/TX AND ((PLURALITY OR MULTIPLE OR NUMEROUS OR MANY OR SEVERAL OR GROUP OR COLLECTION OR VARIOUS OR LIST) 3D (DATA OR RECORD+ OR NUMBER+ OR MEMORY OR ADN OR FDN OR FIXED_DIALING_NUMBER? OR ABBREVIATED_DIALING_NUMBER? OR TABLE))/TI/AB/CLMS/TX AND (GSM_STANDARD OR PREDETERMINED_STANDARD OR GSM OR GLOBAL_SYSTEM_FOR_MOBILE_COMMUNICATION)/TI/AB/CLMS/TX) AND PRD <= 1997-02-11	462
S2.	Full Text: Mobile + Sim Near Processor + Data Storage + Gsm Std + Pin Mode	((MOBILE? OR MS? OR TERMINAL? OR PHONE? OR TELEPHONE? OR HANDSET? OR MOBILE_DEVICE? OR EQUIPMENT? OR CELLULAR_DEVICE?)/TI/AB/CLMS/OBJ/ADB/TX AND ((SIM OR SUBSCRIBER_IDENTITY_CARD OR SUBSCRIBER_IDENTITY_MODULE OR SMART_CARD OR SMART_MODULE OR DATA_STORAGE_MODULE) P (PROCESS+ OR CONTROL+))/TI/AB/CLMS/OBJ/ADB/TX AND ((STORAGE OR COLLECT+ OR HOLD+ OR RECORD OR MEMOR+) 4D (DATA+ OR RECORD+ OR NUMBER+ OR MEMORY OR ADN OR FDN OR FIXED_DIALING_NUMBER OR ABBREVIATED_DIALING_NUMBER))/TI/AB/CLMS/OBJ/ADB/TX AND (GSM_STANDARD OR PREDETERMINED_STANDARD OR GSM OR GLOBAL_SYSTEM_FOR_MOBILE_COMMUNICATION)/TI/AB/CLMS/OBJ/ADB/TX AND (OPERATIONAL_CONDITION OR OPERATIONAL_MODE OR PIN_MODE OR PIN OR MODE OR PIN_ENABLE OR PIN_DISABLE))/TI/AB/CLMS/OBJ/ADB/TX) AND PRD <= 1997-02-11	309

S3. **Full Text:** Mobile + ((MOBILE? OR MS? OR TERMINAL? OR PHONE? OR TELEPHONE? 34
SIM Near Processor + OR HANDSET? OR EQUIPMENT? OR
Message Used For CELLULAR_DEVICE?)/TI/AB/CLMS/TX AND ((SIM OR
Data Selection SUBSCRIBER_IDENTITY_CARD OR SUBSCRIBER_IDENTITY_MODULE
OR SMART_CARD OR SMART_MODULE OR
DATA_STORAGE_MODULE) 3D (PROCESS+ OR
CONTROL+))/TI/AB/CLMS/TX AND (GSM_STANDARD OR
PREDETERMINED_STANDARD OR GSM OR
GLOBAL_SYSTEM_FOR_MOBILE_COMMUNICATION)/TI/AB/CLMS/TX
AND ((MESSAG+ OR REQUEST+ OR INDICAT+ OR INSTRUCT+ OR
COMMAND+) 5D ((SELECT+ OR CHOOSE+ OR PICK+ OR FIND+ OR
DETECT+ OR CHOS+) 2D (DATA OR RECORD+ OR NUMBER+ OR
MEMORY OR ADN OR FDN OR FIXED_DIALING_NUMBER? OR
ABBREVIATED_DIALING_NUMBER?))/TI/AB/CLMS/TX) AND PRD <= 1997-02-11

S4. **Full Text:** Mobile ((MOBILE? OR MS? OR TERMINAL? OR PHONE? OR TELEPHONE? OR 25
+SIM Near Processor HANDSET? OR EQUIPMENT? OR
+ Dual Near Line + CELLULAR_DEVICE?)/TI/AB/CLMS/TX AND ((SIM OR
Data + GSM SUBSCRIBER_IDENTITY_CARD OR SUBSCRIBER_IDENTITY_MODULE
OR SMART_CARD OR SMART_MODULE OR
DATA_STORAGE_MODULE) P (PROCESSOR))/TI/AB/CLMS/TX AND
((DUAL OR DOUBLE OR FLAG) 3D (LINE? OR CHANNEL? OR
MODE?))/TI/AB/CLMS/TX AND (DATA+ OR RECORD+ OR NUMBER+
OR MEMORY OR ADN OR FDN OR FIXED_DIALING_NUMBER? OR
ABBREVIATED_DIALING_NUMBER?)/TI/AB/CLMS/TX AND ((PREDETERMINED_STANDARD OR GSM OR
GLOBAL_SYSTEM_FOR_MOBILE_COMMUNICATION)/TI/AB/CLMS/TX) AND PRD <= 1997-02-11

S5.	Full Text: Mobile + SIM Near Processor + Select Data + Operational Condition +User Verification	(MOBILE? OR MS? OR TERMINAL? OR PHONE? OR TELEPHONE? OR HANDSET? OR EQUIPMENT? OR CELLULAR_DEVICE?)/TI/AB/CLMS/TX AND ((SIM OR SUBSCRIBER_IDENTITY_CARD OR SUBSCRIBER_IDENTITY_MODULE OR SMART_CARD OR SMART_MODULE OR DATA_STORAGE_MODULE) P (PROCESS+ OR CONTROL+))/TI/AB/CLMS/TX AND ((SELECT+ OR CHOOSE+ OR PICK+ OR FIND+ OR DETECT+ OR CHOS+) 2D (DATA OR RECORD+ OR NUMBER+ OR MEMORY OR ADN OR FDN OR FIXED_DIALING_NUMBER? OR ABBREVIATED_DIALING_NUMBER?)) AND (OPERATIONAL_CONDITION OR OPERATIONAL_MODE OR PIN_MODE OR PIN OR MODE OR PIN_ENABLE OR PIN_DISABLE OR ((VERIFY+ OR AUTHEN+ OR +VALID+ OR CORRUPT+ FRAUD+) 2D (USER? OR DEVICE? OR SIM OR SUBSCRIBER_IDENTITY_CARD OR SUBSCRIBER_IDENTITY_MODULE))/TI/AB/CLMS/TX) AND PRD <= 1997-02-11	457
S6.	Full Text: Smart Card + Gsm + Memory + List	(H04M2215/2026 OR H04W12/72 OR H04W88/06 OR H04W48/16 OR H04W8/183 OR H04M2250/14 OR H04M1/275 OR H04M1/724 OR H04W8/205 OR H04M1/72436 OR H04W8/18 OR G06Q20/341 OR G07F7/1008 OR H04W12/06 OR H04M3/50 OR H04W76/10 OR H04M1/66 OR H04W12/08)/IPC/CPC AND ((SMART_CARD? OR SMART_MODULE? OR DATA_STORAGE_MODULE? OR IC_CARD? OR INTEGRATED_CIRCUIT_CARD?) AND (GSM_STANDARD OR PREDETERMINED_STANDARD OR GSM OR GLOBAL_SYSTEM_FOR_MOBILE_COMMUNICATION) AND (STORAGE OR COLLECT OR HOLD OR RECORD OR MEMORY) AND (DATA_RECORD? OR RECORD? OR NUMBER OR MEMORY OR ADN OR FDN OR FIXED_DIALING_NUMBER? OR ABBREVIATED_DIALING_NUMBER? OR LIST? OR DIRECTOR+))/TI/AB/CLMS/TX AND PRD<1997-02-11	10
S7.	Full Text: Smart Card + GSM + Memory + List	((SMART_CARD? OR SMART_MODULE? OR DATA_STORAGE_MODULE? OR IC_CARD? OR INTEGRATED_CIRCUIT_CARD? OR SIM?) AND (GSM_STANDARD OR PREDETERMINED_STANDARD OR GSM OR GLOBAL_SYSTEM_FOR_MOBILE_COMMUNICATION) AND (STORAGE OR COLLECT OR HOLD OR RECORD OR MEMORY) AND (DATA_RECORD? OR RECORD? OR NUMBER OR MEMORY OR ADN OR FDN OR FIXED_DIALING_NUMBER? OR ABBREVIATED_DIALING_NUMBER? OR LIST? OR DIRECTOR+) AND (LOCATION OR GEOGRAPH+))/TI/AB/CLMS/TX AND PRD<1997-02-11	751

S8. **Full Text:** SIM + (NOKIA OR AT&T OR ALCATEL OR CELTRACE OR ORANGE OR RPX 401
Access Request + OR VODAFONE OR GEMPLUS OR ERICSSON OR
Memory + List MITSUBISHI)/PA/OPA AND ((SIM OR USIM OR
SUBSCRIBER_IDENTITY_CARD? OR SUBSCRIBER_IDENTITY_MODULE
OR ((SMART_CARD? OR SMART_MODULE? OR
DATA_STORAGE_MODULE? OR IC_CARD? OR
INTEGRATED_CIRCUIT_CARD?) AND (GSM_STANDARD OR
PREDETERMINED_STANDARD OR GSM OR
GLOBAL_SYSTEM_FOR_MOBILE_COMMUNICATION))) AND
(REQUEST+ OR COMMAND+ OR INSTRUCT+ ACCESS_MESSAGE?
OR CONTROL_SIGNAL?) AND (STORAGE OR COLLECT OR HOLD OR
RECORD OR MEMORY) AND (DATA_RECORD? OR RECORD? OR
NUMBER OR MEMORY OR ADN OR FDN OR
FIXED_DIALING_NUMBER? OR ABBREVIATED_DIALING_NUMBER?
OR LIST? OR DIRECTOR+))/TI/AB/CLMS/TX AND PRD<1997-02-11

S9. **Full Text:** SIM+ Access (NOKIA OR AT&T OR ALCATEL OR CELTRACE OR ORANGE OR RPX 16
Request + Memory + OR VODAFONE OR GEMPLUS OR ERICSSON OR
List + Selection MITSUBISHI)/PA/OPA AND ((SIM OR USIM OR
SUBSCRIBER_IDENTITY_CARD? OR SUBSCRIBER_IDENTITY_MODULE
OR ((SMART_CARD? OR SMART_MODULE? OR
DATA_STORAGE_MODULE? OR IC_CARD? OR
INTEGRATED_CIRCUIT_CARD?) AND (GSM_STANDARD OR
PREDETERMINED_STANDARD OR GSM OR
GLOBAL_SYSTEM_FOR_MOBILE_COMMUNICATION))) AND
(REQUEST+ OR COMMAND+ OR INSTRUCT+ ACCESS_MESSAGE?
OR CONTROL_SIGNAL?) AND (STORAGE OR COLLECT OR HOLD OR
RECORD OR MEMORY) AND (DATA_RECORD? OR RECORD? OR
NUMBER OR MEMORY OR ADN OR FDN OR
FIXED_DIALING_NUMBER? OR ABBREVIATED_DIALING_NUMBER?
OR LIST? OR DIRECTOR+) AND (SELECT+ AND CHOOS+ AND
PICK?))/TI/AB/CLMS/TX AND PRD<1997-02-11

S10. **Full Text:** SIM + (RAUTIOLA OR JOKIMIES OR RITTER OR EROLA OR VEHMAS OR 27
 Access Request + List COULIER OR MICHAELS)/IN AND ((SIM OR USIM OR
 SUBSCRIBER_IDENTITY_CARD? OR SUBSCRIBER_IDENTITY_MODULE
 OR ((SMART_CARD? OR SMART_MODULE? OR
 DATA_STORAGE_MODULE? OR IC_CARD? OR
 INTEGRATED_CIRCUIT_CARD?) AND (GSM_STANDARD OR
 PREDETERMINED_STANDARD OR GSM OR
 GLOBAL_SYSTEM_FOR_MOBILE_COMMUNICATION))) AND
 (REQUEST+ OR COMMAND+ OR INSTRUCT+ ACCESS_MESSAGE?
 OR CONTROL_SIGNAL?) AND (DATA_RECORD? OR RECORD? OR
 NUMBER OR MEMORY OR ADN OR FDN OR
 FIXED_DIALING_NUMBER? OR ABBREVIATED_DIALING_NUMBER?
 OR LIST? OR DIRECTOR+))/TI/AB/CLMS/TX AND PRD<1997-02-11

S11. **Full Text:** SIM + (RAUTIOLA OR JOKIMIES OR RITTER OR EROLA OR VEHMAS OR 25
 Access Request + COULIER OR MICHAELS)/IN AND ((SIM OR USIM OR
 Memory + List + SUBSCRIBER_IDENTITY_CARD? OR SUBSCRIBER_IDENTITY_MODULE
 Selection OR ((SMART_CARD? OR SMART_MODULE? OR
 DATA_STORAGE_MODULE? OR IC_CARD? OR
 INTEGRATED_CIRCUIT_CARD?) AND (GSM_STANDARD OR
 PREDETERMINED_STANDARD OR GSM OR
 GLOBAL_SYSTEM_FOR_MOBILE_COMMUNICATION))) AND
 (REQUEST+ OR COMMAND+ OR INSTRUCT+ ACCESS_MESSAGE?
 OR CONTROL_SIGNAL?) AND (DATA_RECORD? OR RECORD? OR
 NUMBER OR MEMORY OR ADN OR FDN OR
 FIXED_DIALING_NUMBER? OR ABBREVIATED_DIALING_NUMBER?
 OR LIST? OR DIRECTOR+) AND (SELECT+ OR PICK+ OR
 CHOOS+))/TI/AB/CLMS/TX AND PRD<1997-02-11

5.4.4 Google Patent Search Strings

#	Search String
1.	((SIM) OR (Subscriber_Identity_Module) OR (GSM)) ((Processor) OR (Microprocessor)) ((Command) OR (Message) OR (Instruction)) Before:Priority:19970211
2.	((SIM) OR (Subscriber_Identity_Module) OR (GSM)) ((Processor) OR (Microprocessor)) ((Arrange) OR (Organize) OR (Organise) OR (Set_Up) OR (Prepare)) Before:Priority:19970211
3.	((SIM) OR (Subscriber_Identity_Module) OR (GSM)) ((Data) OR (Information) OR (Record)) ((Fetch) OR (Access) OR (Retrieve)) Before:Priority:19970211
4.	((SIM) OR (Subscriber_Identity_Module)) ((Processor) OR (Microprocessor)) ((Operation) OR (Function)) Before:Priority:19970211

5.	((SIM) OR (Subscriber_Identity_Module)) ((Processor) OR (Microprocessor)) ((Memory) OR (Storage)) Before:Priority:19970211
6.	((SIM) OR (Subscriber_Identity_Module)) ((Processor) OR (Microprocessor)) ((PIN) OR (Personal_Identification_Number)) Before:Priority:19970211
7.	((SIM) OR (Subscriber_Identity_Module)) ((Instruction) OR (Command) OR (Memory_Access_Message)) ((Memory) OR (Storage) OR (Data_Base)) Before:Priority:19970211
8.	((SIM) OR (Subscriber_Identity_Module)) ((Instruction) OR (Command) OR (Memory_Access_Message) OR (Request)) ((Memory) OR (Storage) OR (Data_Base)) ((List) OR (Register) OR (Directory) OR (Folder)) Before:Priority:19970211
9.	((Instruction) OR (Command) OR (Memory_Access_Message) OR (Request)) ((Memory) OR (Storage) OR (Data_Base)) ((List) OR (Register) OR (Directory) OR (Folder)) ((IC_Card) OR (Smart_Card)) (GSM) Before:Priority:19970211
10.	((Sim) OR (Subscriber_Identity_Module)) ((Command?) OR (Instruction?) OR (Request?) OR (Memory_Access_Message?)) ((Bring) OR (Pick_Up) OR (Retrieve?) OR (Collect?) OR (Get?)) ((List?) OR (Register?) OR (Director*) OR (Folder?)) Before:Priority:19970211
11.	((Smart_Card) OR (Ic_Card)) ((Command?) OR (Instruction?) OR (Request?) OR (Memory_Access_Message?)) ((Bring) OR (Pick_Up) OR (Retrieve?) OR (Collect?) OR (Get?)) ((List?) OR (Register?) OR (Director*) OR (Folder?)) (GSM) Before:Priority:19970211
12.	((Smart_Card) Or (Ic_Card)) (Gsm) ((Memory_Access_Message?) Or (Command?) Or (Instruction?) Or (Request)) ((Memory_Access) Or (Storage_Access)) ((List?) Or (Folder?) Or (Directory)) Before:Priority:19970211
13.	("GSM") OR ("Communication Standard") (("SIM") OR ("Subscriber Identity Module") OR ("Subscriber Intelligent Module")) (("SIM Memory") OR ("SIM Storage") OR (Memory) OR (Storage)) ("Select") ("List Of") Before:Filing:19970211
14.	("GSM") OR ("Communication Standard") (("SIM") OR ("Subscriber Identity Module") OR ("Subscriber Intelligent Module")) (("SIM Memory") OR ("SIM Storage") OR (Memory) OR (Storage)) ("Select") ("List Of") Before:Publication:19970211
15.	("GSM") OR ("Communication Standard") (("SIM") OR ("Subscriber Identity Module") OR ("Subscriber Intelligent Module")) (("SIM Memory") OR ("SIM Storage") OR (Memory) OR (Storage)) ("Select") Before:Priority:19970211
16.	("GSM") OR ("Communication Standard") (("SIM") OR ("Subscriber Identity Module") OR ("Subscriber Intelligent Module")) (("SIM Memory") OR ("SIM Storage")) Before:Priority:19970211

5.4.5 Google / Google Scholar/ Google Books

#	Search String
1.	"Subscriber Identity Module" Memory Access Message PIN
2.	"SIM" "Memory Access" PIN
3.	Telephone "Subscriber Identity Module" Memory

4.	"Subscriber Identity Module" Access Data
5.	"Subscriber Identity Module" Memory Processor Data
6.	"Subscriber Identity Module" PIN "Storage"
7.	"Subscriber Identity Module" Memory Data
8.	GSM Command Processor Memory
9.	GSM "Subscriber Identity Module" PIN Memory
10.	"Subscriber Identity Module" Access Memory Data
11.	"Subscriber Identity Module" Command Instructions Access Memory
12.	"Subscriber Identity Module" Memory Access Command
13.	"Subscriber Identity Module" Processor
14.	"Subscriber Identity Module" "Microprocessor" Instruction Command
15.	"Subscriber Identity Module" "Memory" Instruction Command
16.	"Smart Card" GSM Memory
17.	"Smart Card" "GSM" PIN
18.	"Smart Card" "GSM" Secret Non-Secret Data
19.	"SIM Card" "GSM" Secret Non-Secret Data
20.	"Smart Card" "GSM" Plurality Memory
21.	"Smart Card" "GSM" Multiple Data Storage

5.4.6 IEEE Xplore

#	Search String
1.	("Full Text Only":Smart_Card) AND ("Full Text Only":GSM) AND ("Full Text Only":PIN)
2.	("Full Text Only":Sim) OR ("Full Text Only":Subscriber_Identity_Module) AND ("Full Text Only":PIN)
3.	("Full Text Only":Subscriber_Identity_Module) AND ("Full Text Only":Processor) AND ("Full Text Only":Memory)
4.	("Full Text Only":Sim OR "Full Text Only":Subscriber_Identity_Module) AND ("Full Text Only":Memory OR "Full Text Only":Storage) AND ("Full Text Only":Processor OR "Full Text Only":Microprocessor)
5.	("Full Text & Metadata":Smart_Card) AND ("Full Text & Metadata":GSM OR "Full Text & Metadata":Global_System_For_Mobile_Communication) AND ("Full Text & Metadata":PIN)

5.5 Result

Prior Art - Tier-II (Patent)

Publication Number	Title	Priority Date	Filing Date	Publication Date	Inventor(s)	Assignee(s)
US5920826A	Radio telephone text transmission system	June 05, 1995	June 04, 1996	July 06, 1999	Heikki Metso, Harri Halminen	Nokia Technologies Oy

Prior Art – Tier-II (Non-Patent Literature)

Title	Publication Date	Source	Author(s)
Nokia 2110 User Manual Issue 4	October 23, 1996	https://www.manualsbase.com/manual/60806/cell_phone/nokia/2110/	NOKIA

5.5.1 US5920826A (Metso)

The reference talks about a mobile device (Nokia 2110) that is used for mobile communication operating in a GSM network. The device includes processing elements, internal memory and a SIM card (operating in GSM) that also has SIM memory. The memories (SIM and phone memory) are used to store numbers and other user data. The user is able to connect the mobile device to a Personal computer and access the data stored in the phone and SIM card. The PC is able to provide a virtual window menu on the display to the user (as shown in Fig. 7 and Fig. 8) this enables the user to access the data stored in the phone and SIM memory.

User can select the Icon 702 (see fig. 7) from the virtual menu to select the SIM memory to be accessed (for storing and retrieving info.). User can save a number along with the name and can access the saved name with the help of searching in the memory. The user can search by selecting the Icon 712 and start typing (equivalent to memory access request) the first few letters of a name (for e.g. “j”). All the names starting with the typed letter (a set of records are selected) are displayed to the user on the display and then the user can further choose the desired name and number (operational condition) and can place a call to that number.

Additionally, in the same manner a user can search the message by specifying a senders name or date (message access request) and all the message from the specified sender and date are extracted (specific set of records) and displayed to the user. And the user can click of the desired message (operational condition) to open and read it.

Further, in another embodiment it is shown that the menu includes an option to view the last ten calls. The user can select this option (this would be equivalent to access request), and out of all the stored call information (plurality of data records) the user will be able to see the information of only last ten calls (specific data record). Further, it is shown that the user can make a call by choosing a particular mobile number (operational condition) out of the list of mobile numbers.

However, the reference fails to show that the SIM card includes a processor and the processor is arranged to select a specific data record.

5.5.2 Nokia 2110 User Manual Issue 4 (Nokia)

The documents shows the features present in the Nokia 2110 mobile device. The device is capable of operating in a GSM network and includes a SIM card. The SIM card is capable of storing information such as names and associated mobile numbers of users. The user can access names and their associated numbers by searching for e.g. the user enters the first few characters of the name (equivalent to memory access request) and a list of names (closest to the keyed in characters) and associated mobile numbers are displayed to the user (a selected set of data records is displayed to the user). Further, the user can select the described by additional input (equivalent to operational condition).

However, the reference fails to show that the SIM card includes a processor and the processor is arranged to select a specific data record.

CHAPTER-6

CONCLUSION

After concluding the preparation, we consider the relevance of patents in the inventive world. Organizations all across the world invest a significant amount of money on secure innovation. It is the primary method for ensuring the rights of people' protected invention. To obtain a patent, you must have a solid idea that is fresh, never seen before, non-obvious, and of some utility to humans without damaging or injuring any specific thoughts. A person obtains patent protection based on the claims. On the basis of what you have said in the claims, you can prevent others from adopting your idea. Date models are important for researchers since they change as the type of search changes. In the event of a patentability search, NPL and patents are presented. In the case of an invalidation search, NPL and patents previous to the date of priority are provided. We provide NPL and patents prior to the priority or successful filing date of the relevant patent in rebuttal. If an infringement occurs, we give the things that were introduced into the market after the date of priority of the relevant invention. Patents are also offered if the customer demands them.

I went through a lot of fresh ideas during the training. I studied patents related to Computer Vision as well as Video Encoding.

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