Patent Search For Engineers And Lawyers
Prof. M. Padmavati
Rajiv Gandhi School of Intellectual Property Law
Indian Institute of Technology, Kharagpur

Lecture - 28
Hands on Patent Landscape (Contd.)

Welcome to the Hands on Patent Landscape search and analysis. In the earlier lectures we have dealt with the aspects of looking at the examples from the area of mechanical and then we went about looking at the area of chemical, where we looked at the landscape in relation to a particular molecule. Today we will take an example from the electrical and the electronics area to walk through the aspects of how to conduct a patent landscape search and how to analyze the results that come out of the example.

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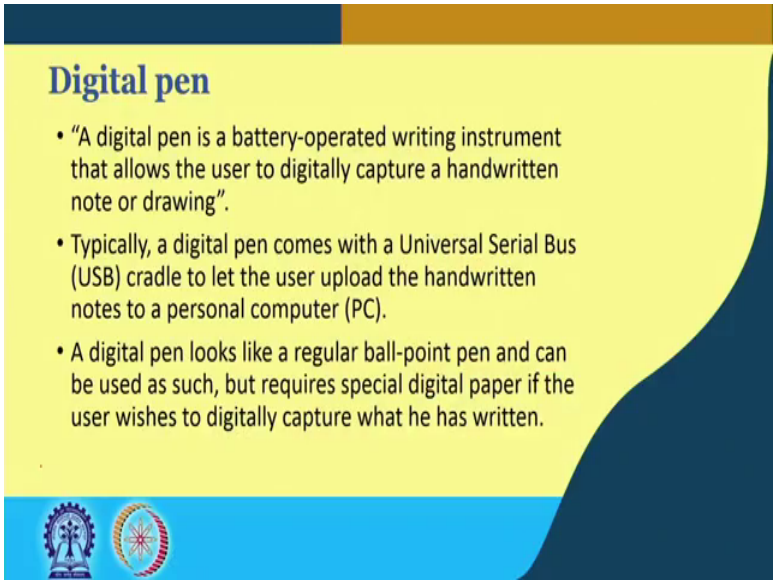

Today we take the example of a digital pen this has become a big revolution in the area of implementation in relation to the ease with which one can write on computers you can write on a mobile and many other places. The revolution with digital pen encompasses a whole lot of areas which involves electronics software manufacturing. So, let us look at what is the definition with respect to what is a digital pen. A simple definition with respect to digital pen would be, a digital pen is a battery operated writing instrument that allows the user to digitally capture a handwritten note or a drawing.

So, typically a digital pen comes with its basic apparatus, which is the writing instrument much similar to a regular ballpoint pen. It comes with an attachment which universal serial bus and also the sensor mechanism. Most often digital pens are used in relation to various different apparatuses, it could be a mobile interface, it could be a personal computer and many other handheld devices.

So, to what extent is a digital pen similar to a regular ballpoint pen? The way the digital pen works is much similar to the way in which we use a ballpoint pen; that is there is a writing surface and then there is an ink. So, to that extent there is some level of commonality; however, a digital pen requires a specific interface either in the form of a special paper, which has patents to recognize the writing based on a sensing mechanism.

So, the developments in relation to digital pen are not only in relation to the basic writing instrument, but a whole lot of innovations are in relation to the sensing mechanism. So, again in the sensing of mechanism one can have different types of optical sensing mechanisms in relation to the implementation in a digital pen.

So, the area of digital pen developments represents a series of technologies which are involved in relation to the interventions with respect to the use of this sort of a pen in different areas.

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Let us understand, what are the different parts of a digital pen and their functions. Our digital pen mainly has a camera, an image processing unit and a receiver of information. Now the developments in relation to digital pen can encompass any of these again it has an ink cartridge, which is the using which one can actually go about with the drawing or the option of writing. So, essentially there is a camera, there is an image processor, there is a memory unit, there is a trans receiver and then there is a ink cartridge. Today the digital pen area represents innovations beyond and so, it is important to keep in mind the current developments in relation to digital pen.

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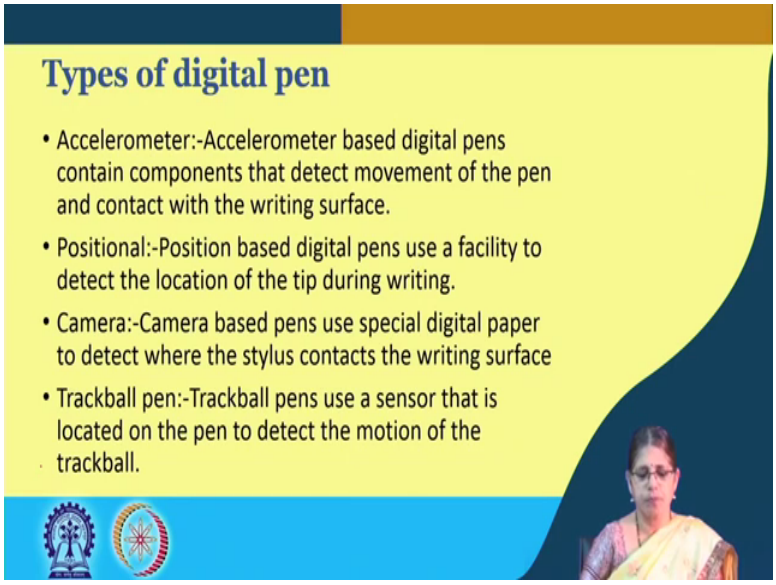

What are the different types of digital pen? There are various changes that have happened in relation to the digital pen based on its use. Some are used for as a general writing instrument some are in relation to specific implementations, then you have the smart pens, you have special purpose pens and then certain some of these are also used in the area of medical area where there are there is also a need for use of these digital pens. So, there are different types one of them is an accelerometer, it contains the components which are involved with respect to the direct movement of the pen and the contact with the writing surface.

Now, there are other types of digital pen which are with respect to positional are developments our relation to positional aspects. So, depending on the location this pen can be utilized in that area of. So, therefore, where the requirements of detecting

locations is involved such kind of pens of general use. A lot of developments are in relation to image capture and so, you have camera based pens which are again used to detect them and then provide the option of use of the digital pen.

Another type of a digital pen is a trackball pen, which uses a sensor which is located in the pen which helps in tracking. So, therefore, it detects the motion of the trackball. So, depending on the use or the functionality, one can have different developments in relation to a digital pen.

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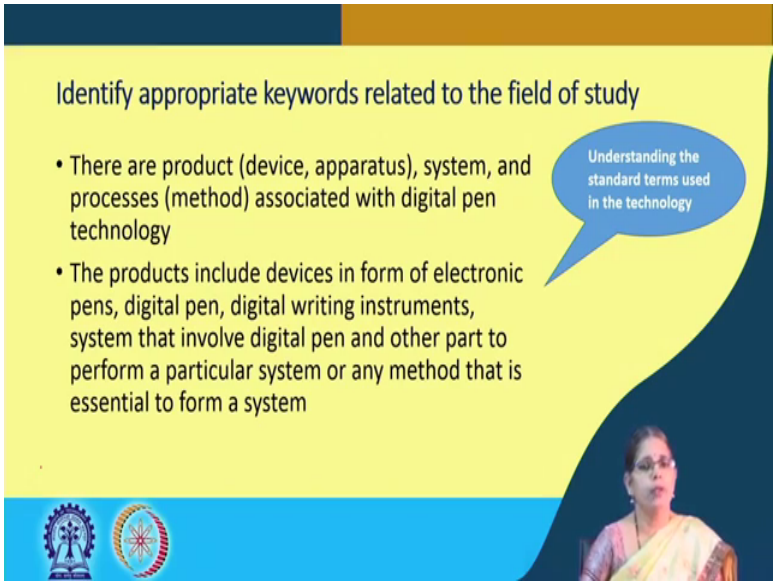

So, if one way to embark on the area of doing a patent landscape in relation to digital pen, understanding the basic aspects of a digital pen are important one from the point of view of what are the parts of a digital pen, what are its functions, how is this technology represented from its subdomains and what are the areas of improvements in relation to digital pen. So, if one looks at the general view of the inventions in the area of digital pen, they are related to both product patents as well as process patents.

The product encompasses the device and the apparatus and processes are the ones with respect to the methods by which the sensing mechanism happens, the capture of the image happens all of these. In many terms the area of digital pen has also inventions in relation to systems.

That is the interface itself is a part of the capture in relation to subject matter in relation to patents, which means that there is an apparatus and there is an environment in which the apparatus is used. So, system claims are also possible in relation to digital pen area. So, there are different forms of products available in relation to digital pen, they are called electronic pens, digital pens generally also as digital writing instruments smart pens. So, one can have actually these different keywords. So, it is not only important to understand the value in relation to the digital pens, it is also important to know what are the standard terms used in this particular technology. So, based on that one can assemble a series of keywords in relation to the digital pen.

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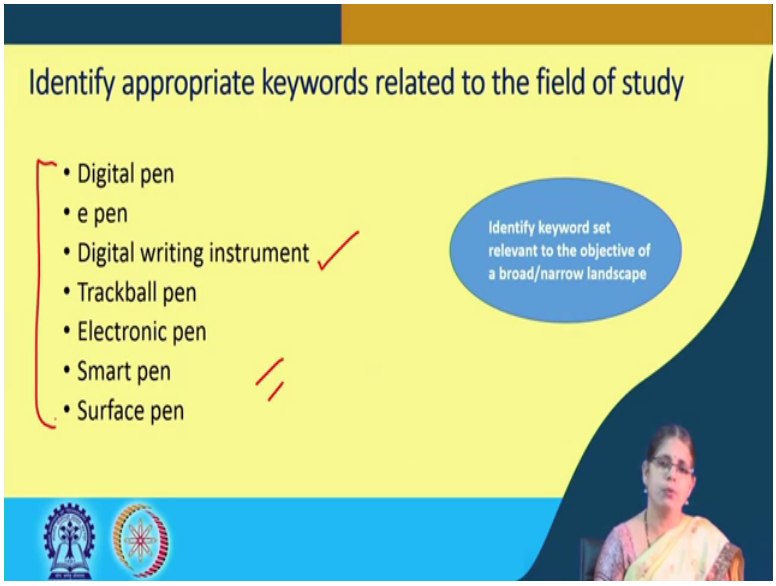

So, some of the keywords that can be used to prepare a keyword index list are digital pen, e pen, digital writing instrument, electronic pen in the expanded form, smart pens as a generic term, surface pen and also trackball pen. So, it actually depends on how you would want to look at the representation in this particular area. So, one can go in for a broader keyword called digital writing instrument. So, it will pull out all the patents in relation to writing instruments specifically which are used in the digital form. Again patents have diverse way in which these keywords can be represented.

So, an ideal thing would be to combine all these keywords and conduct a search. So, depending on the type of landscape one would like to make one can choose either the entire set of keywords or look for specific set of keywords. For instance if one is looking

at smart pens of a specific category in which case one would go for a narrow landscape search. So, as a basic patent searcher it may be interesting to now look at the entire landscape in relation to digital pens in which case we take up the entire set of keywords into one nested string.

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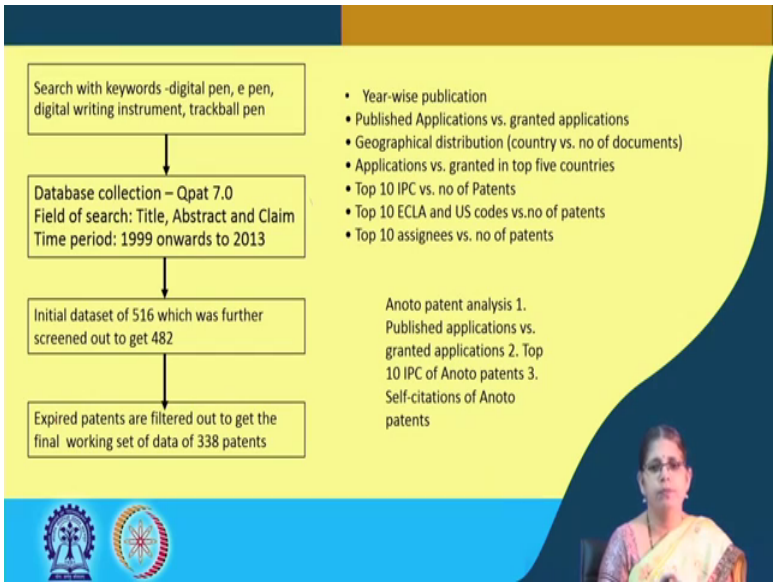

So, when we are looking at all these different search words, we are looking at the world wide collection. So, one can again utilize a subscribe database or a free database and identify the fields of search in which case one can use the title abstract and the claim altogether as the search fields and also set the time period. Now at this time point, it is also important to understand the developments in relation to digital pen started in which year. The introduction of a digital pen by Anoto marked the beginning of the technology in relation to digital pens. So, that was in the year 1999.

So, if one is looking at plotting the developments in relation to digital pen, the start date could be start period of such would be from 1999 to current. So, this data has been done between the period of 1999 to 2013. So, once you set the period of search and then you collect the patent documents. So, in this case the initial data set represented patents which are of the number of 516. One can actually look at that stage an option of downloading the entire information into an excel sheet and then use the option of filtering the patents as per the category that is required. Now in this case those which are

irrelevant to the area of digital pen are screened out and another pool set of 482 patents are obtained out of these 482.

If one is looking at only the area of grants and publications, then that data set can be separately taken out which means those patents which are no longer in force are not counted and then you get the further smaller set of patents, which are about in this case 338 patents. So, once you have them downloaded in the excel sheet we have seen the example in the area of the mechanical arts and then chemical arts there are various columns of data which are available as a download and then one can decide on how to go about with the analysis of the data. So, here we have one the bibliographic data that you can capture in this case from the 338 patents and then one can also capture the technological data in relation to the patent dataset.

So, year wise publications published applications versus granted patents. Geographical distribution with respect to their total number of documents for a given country in the major jurisdictions how is the application verses grant spread of patents one can see that. One can understand again the which are the top into international patent classification codes where the number of patents are represented one can go for country classification system also to look at the in this case the top 10 European classification codes as well as the US classification codes based on the number of patents represented under each code.

One can also find out who are the assignees, who are developing different types of digital pens and who are the top assignees who have the maximum strength of patents in this particular area. Since the Anoto started with the series of patents in this area, it may be good from this landscape to also move into what we call a patent portfolio map which can be created after the preparation of the landscape. So, normally patent landscape searches can go into other types of searches based on the results that are obtained from the patent landscape search.

So, if one way to today look at the patent portfolio of Anoto, it would be interesting to now mark the developments which started with 1999 to today where are the improvements that this company is looking at or has captured them in the patents. And what is the strength of the technology from the point of view of the citations?

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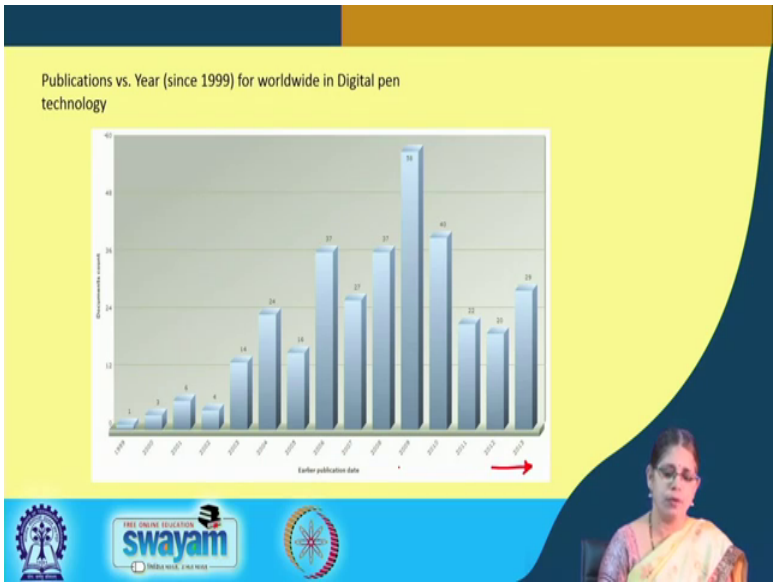

So, out of the data that is available, let us look at some of the data analysis done in this particular case. So, if you looking it from the point of view of 1999 to the period of 2013 on the x axis, one can see the growth periods are picking up from the time of 2003 to the maximum number of publications in the year 2009. Maintaining that to a certain level up to 2010 and then it falls. So, this provides an a view into how is the publication number increasing in a given year and what is the spread of the publications in the years encompassing 1999 to 2003.

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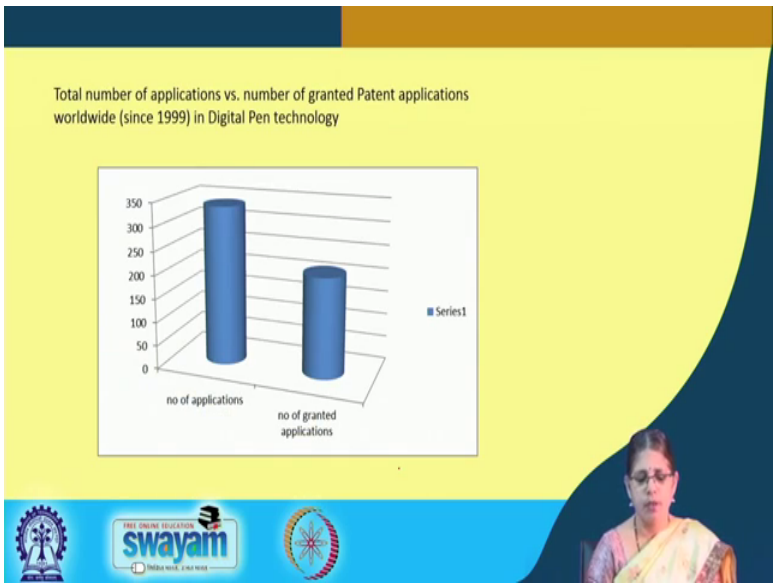

If one looks at the total number of published verses granted patents, one can understand the how many of the published applications are moving into grants. At this stage it is also important to note that the information in relation to claims and the prosecution of claims at the patent offices is necessary for different companies and research institutions to understand, how the patent prosecution is moving.

In some of the emerging areas of technology the prosecution of claims can take a longer time at the patent office. So, and then due to several considerations, one in relation to the conditions that are in the law with respect to eligibility patentability criteria and another due to the need for understanding disclosure norms, it may be taking a little longer at the patent offices in terms of the patent prosecution. In the emerging areas of technology the there may not be much of a prior art. So, the intrinsic evidence that is present in the patent application must be looked at from the point of view of the state of the art. So, there is a time that could be a longer time with respect to prosecution of some of these applications.

So, the relationship of studying published application verses we grants helps us understand to what extent the patent applications are moving through the patent office, how many grants are being recorded verse how many publications. So, here you see the while there are a lot of published applications few the number of grants are in comparison less so, this is what is the spread of it.

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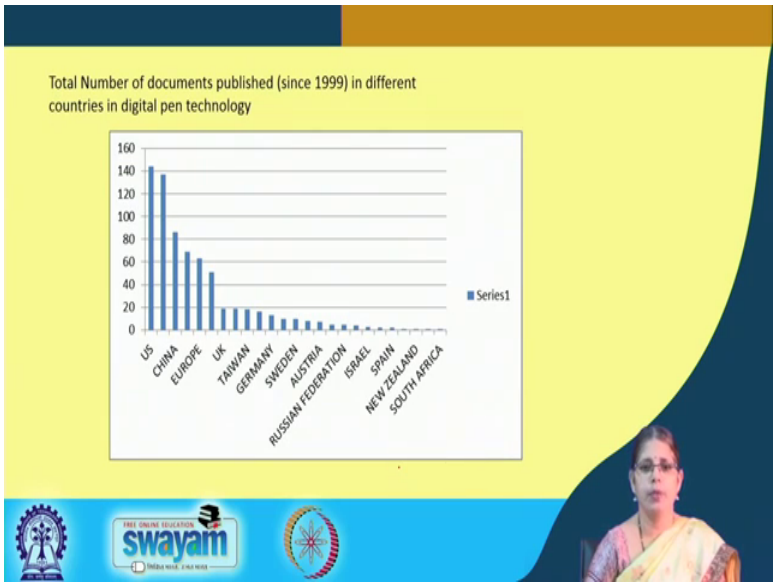

One of the important things with respect to understanding the scope of the technology development is in relation to geography. Now in this case of the digital pen when one looks at the entire world as from the database as a set of countries this is how one can find the data spread based on the analysis.

So, on the x axis you have the countries and then you have thee on the y axis you have the number of patent documents represented. As you can see from this particular figure US records the highest number of patents in relation to digital pen. Remember at all time points of doing the patent landscape it is important to understand what is the time period in which this data was collected.

If one way to look at the data from the point of view of the current developments, they could they would be; obviously, a difference in this graph. So, since the patent landscape is a very dynamic type of a search that is undertaken. So, whenever the patent landscape has to be reviewed one needs to change the time period and re conduct the search.

So, here in this case you have US and China which are closely present in relation to the number of patent documents that have there with respect to the these countries, which means that there is a lot of development in relation to the digital pens in the area of US and China and both are actually having major publications in relation to patents. Followed by Europe and then you have different countries which also record some patent numbers. This is how one can understand which are the major geographies in relation to the area of digital pen.

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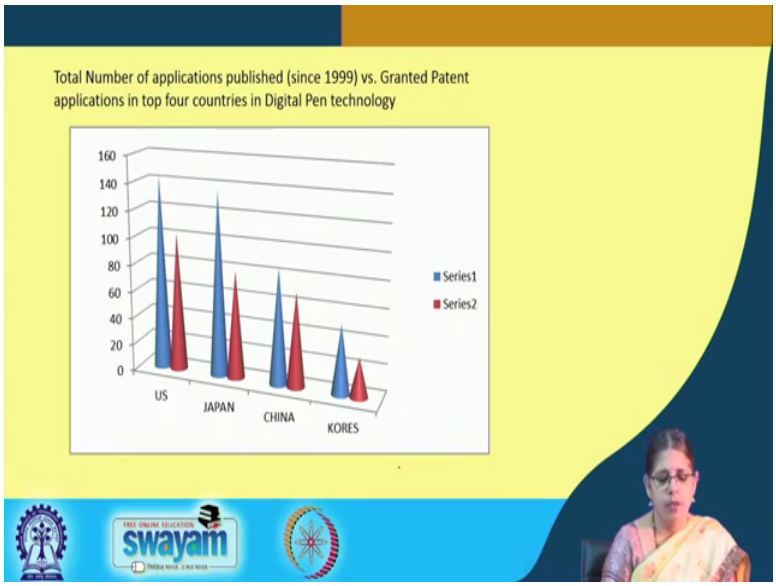

Further on if one needs to understand the how many of the publications in relation to digital pen are moving into grants at the respective patent offices one can go in for the specific plotting of the data. So, in the earlier figure, we understood that the US and China are the major countries and since many other countries like Japan and Korea are also have a lot of developments in this area. So, here we are looking at a smaller subset where we are looking at the published applications verse v grants in these individual countries.

This data has relevance because some of the technologies are implemented on the global front and so, it is no longer filing at a single patent office that is relevant for some of the technologies. Often filings are in multiple jurisdictions and when we talk about different patent offices, the prosecution timelines are different at different patent offices. One from the point of your procedural considerations, another from the point of view of the substantive requirements of inventions to be allowed in those jurisdictions. So, this gives us a good spread of the disinformation and for a company which is implementing technology.

Let us say in the United States or in Japan it is important to understand whether there are grants available from the point of view of enforcement of patents in those jurisdictions, also the opportunity to license is also available based on publication which provides

again provisional rights in relation to patents. So, this is how one can actually understand the basic bibliographic information in relation to the patent data set.

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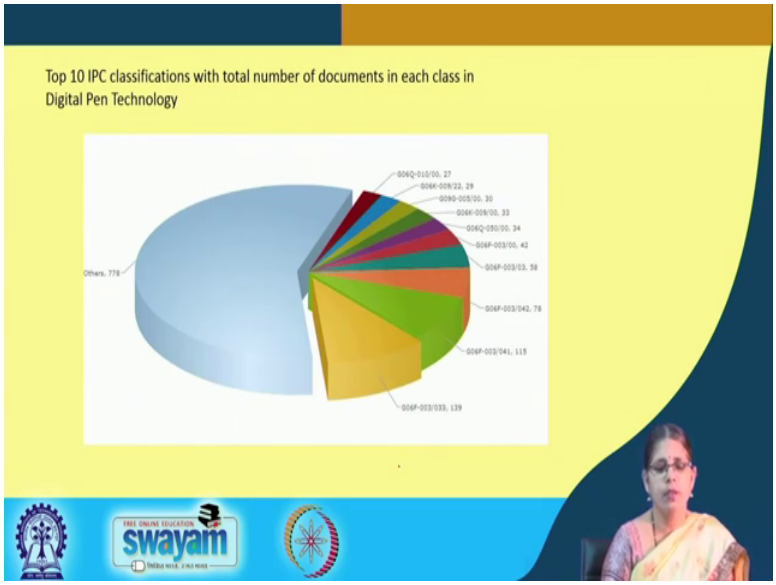

From the point of view of technology classification, one can understand the which are the top international patent classification codes that this patent data represents. Since we talked about the value of digital pen from the point of view of developments in the area of electronics on one hand, from the point of view of manufacturing and also from the point of view of these computer sciences it is important for us to now, keep in mind that there are certain IPC codes which are relevant with respect to the digital pen.

And if one looks at the spread of the IPCs one can understand, which are the classes where you see a major representation of patents. In this case you have the different subclasses under the G class which are relevant with respect to the IPC here.

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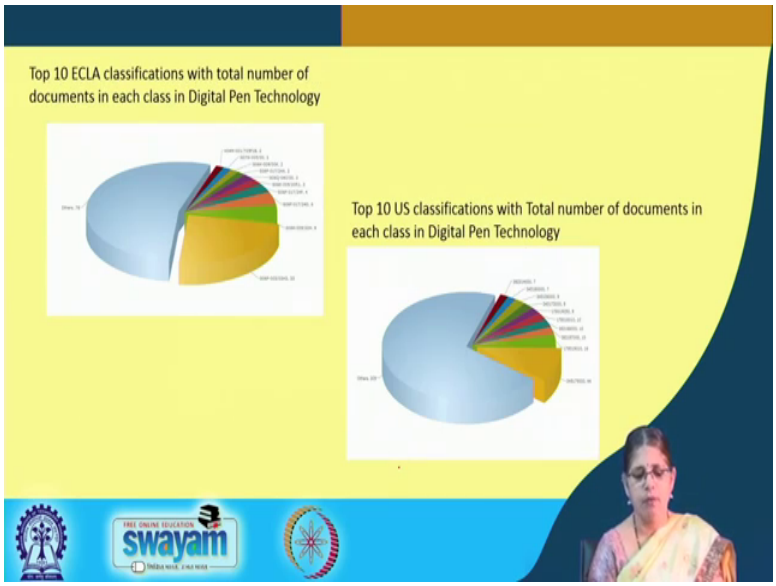

Further on one can actually look at the aspects of the ECLA as well as the US classifications. In many cases it is often noticed that the technology is more often taken in relation to certain countries. So, what if one needs to get a deeper view of the data. So, an analysis of the CPC or the analysis of the ECLA codes and the US codes would be useful, to understand which are the major technology domains in which the patents are being taken.

So, if one looks at the top 10 ECLA codes, you can see this is how the data is available. Again with respect to the US classification codes one can find the documents. One would wonder that why would one embark on the aspect of looking at the IPC codes on one end ECLA codes on the other end and also the us patent classifications. This provides you the information in relation to one the country classification system as well as the international Britain classification system because many patent offices maintain both the type of codes and so, therefore, it is important to keep this particular aspect in might.

Thank you.