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Commentary

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NRDMS

Network of Rural Development

Programming
development
from the
grass roots
level

Interview

**'Innovation is
our hallmark'**

By Dr. P. S. Kumar

**'Institutionalise
spatial planning'**

By Deep Singh

In position, on time and on track

ASL Advanced Systems Pvt Ltd, the pioneer in GPS technology in India, has been the armed forces' trusted supplier of GPS systems for over 15 years. In this interview, CEO RK Arora traces ASL's evolution from the initial experiments in the early 90s through the tough challenges and major breakthroughs at the turn of the century to its present enviable position in the Indian GPS market.

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□ Can you tell us about the evolution of ASL?

In the early 90s, the Indian defence forces decided to use GPS technology for their own operations. After evaluating the pros and cons of its suitability for defence purposes, they decided that GPS is a good technology they could make use of. I would say they took a good decision at that point of time. They also decided that the technology should be built locally in India for obvious reasons. DRDO and the then Department of Electronics, which is now the Ministry of Communications and Information Technology, got together to initiate what they called a national project to design and build GPS receivers indigenously and exclusively for the armed forces. That was how we got into the picture. We presented our case to the government along with a few others most notably Bharat Electronics. At the end of this initial interaction, we got a sponsored project for the development of receivers. We spent three to four years in designing the same. It was a good experience for us given the rigorous requirements and quality specifications of the armed forces. We had the designs ready by 1996-97 and operations in terms of supply began in 1996 or so. Since then, it has been a happy experience with the defence forces. We regularly supply receivers to them for a variety of requirements primarily for navigation purposes.

We then realised that there are opportunities for GPS outside the defence market. It has several opportunities in a variety of sectors, verticals I would say, like transportation, healthcare, utilities and security. They needed GPS based solutions. Here was a kind of, I would not say shift in focus, but an added dimension to our activities. We began building GPS based solutions. This happened four, five years ago. We have been regularly

supplying our solutions since then. Some of our solutions are related to vehicle tracking, timing, mapping, data logging and so on. These applications demand integrating GPS as a sensor. This can take place through a number of communication systems. In India, we have seen an explosion in mobile communications. So these applications involve interfacing a GPS sensor over mobile communications or satellite communications or over any proprietary radio etc. So we talk about all these things when we are talking about GPS based solutions.

There is another solution which is all about timing. GPS, in addition to the position, also gives accurate information about time. We can make good use of this information for several industrial applications. For example, let us say typically in a power sector, there is a large grid operation which requires accurate time synchronisation of various events before the power load can be dispatched to the utility sites. GPS has one interesting application there of synchronising the time of different events. Essentially using time stamp output of GPS drives a number of applications.

Coming back to ASL, we were a GPS company to start with. Apart from the fact that we were the first and even today the only supplier of GPS systems to the armed forces, we were also the first and only designer of GPS chips for the world's largest GPS chips supplier Sirf. As GPS has spawned several new applications, we as an organisation are getting into some of those. There is another variety of application that is fast emerging which requires integrating GPS with GIS database. That is where the whole vertical technology of geomatics comes into play. We are now very much into this field. We realise that this is going to open up tremendous opportunities. A major initiative in this direction is the creation of a national spatial data infrastructure through which information on maps and the various geographical attributes would be made available. This can help us address issues like disaster management, natural resource management, utility planning and a whole range of applications where input of GIS and GPS are required. Many organisations are seriously working on geospatial intelligence and geospatial solutions which integrate within themselves GPS sensors and external environment which may be both communication and GIS. This may throw open an opportunity for building intelligent geospatial information systems. That essentially leads us to driving applications which are popularly seen as location based services. A lot of people have talked about LBS and even in India, people are working on it. I think this discipline is set to grow because of at least two developments that are taking place in India. One is the mobile communication infrastructure growth that we have seen in the last five years and the other is the liberalisation of GIS industry vertical through the map policy of India and the setting up of NSDI. I think these two watershed developments that have taken place in India are going to drive LBS. Now I think business opportunities are emerging and a lot of industries are working towards it. Services and manufacturers will emerge and solution providers as software developers will also emerge to take advantage of these opportunities.



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□ From a technology perspective, what were the challenges that ASL has faced in developing GPS receivers?

The challenges were essentially of three types. First of all, when we started, there were only a handful of people who knew what GPS was all about. We had to train a set of people by exposing them to some companies which were doing good quality work on GPS. So that was the challenge, to put together a team which understands GPS as a technology. The second challenge we faced was regarding quality. The military as we all know has stringent quality specifications. As an organisation, we were faced with this challenge in the very first instance. Besides the quality of the product, there were other requirements of the platforms on which GPS receivers were supposed to be mounted. The army had tanks of different versions, the airforce had a number of aircraft again of different versions and the navy too had a variety of aircraft. So we had to meet the platform specifications as well.

The third and last challenge we faced was that of production. Having completed a design and passed the quality test, we had to set up manufacturing operations. The numbers ran into thousands. To be able to produce these with the stipulated quality and within the given time-frame was a challenge indeed.

We now have a fourth challenge, which we did not have then. It is the cost. GPS is just a sensor. But because of its growing usage across the globe and India, the costs have come down drastically. So the cost of any product or solution built using GPS has to be competitive. And the market being what it is, flooded with diverse GPS solutions and products, we have to make sure that the product we build is quality effective and cost effective. We are meeting this challenge through cost optimisation in the design itself. We go through designs to check out what are the areas in which we can optimise the cost without compromising on quality. We also consider other things like how can we do component level integration, how can we reuse some of the components and how can we make good use of open platforms and so on to reduce the cost.

□ What in your view is the status of GPS based services in India?

I would say now is the right time for GPS based services to take off in India. Until recently, GPS usage was limited. Now I think it is growing because of the extraordinary growth in mobile communications and GIS applications. The services using GPS are going to grow in transportation, utilities, security and even in healthcare.

At the international level, the growth is indeed very high. According to some reports, in 2003, the worldwide GPS production was 13 billion. It is going to be around 21.5 billion in 2008. This production will drive services, which have their own revenue implications. Moreover, it is no longer just GPS. Other navigation systems are coming up most notably, Russia's GLONASS in which India is also involved and Europe's Galileo. Surprisingly, even in small countries like Nigeria, and Indonesia, some of

these efforts are going on. So it is not just the GPS, a whole range of systems, both global navigation systems and domestically supported systems, are emerging and they are going to play a significant role in the overall development.

□ Does ASL have any civilian customers?

Yes, we do have civilian customers. Just to give you some idea. In the initial seven, eight years, nearly 100 percent of our business was in defence. Right now, our business in defence is 75 percent and the remaining of our business comes from the civilian market. It is not to say that the defence business has been given second priority but the point is we have grown in the civilian business. We have customers like the railways and some police organisations who are using our systems in the civilian sector

□ What are the major projects that ASL is currently working on?

One of the challenges that we are facing today is cost optimisation. As part of our development, we have come out with a new design called Geocom. This is a GPS positioning and messaging device. It can be used for a variety of applications primarily based on GPS. One important aspect in this is cost. We have calculated that it does provide a reduction of 20 percent in cost over our own previous international designs. It is a sleek, handheld device. It can be mounted on vehicles, it can be used for vehicle location and tracking, it can also be used for emergency communication and collecting spatial data. So it has a variety of applications. The only change is the software embedded into it. We have just started manufacturing this. Another product is the geointelligent information system for transport (GIST). This is a web enabled application. We do believe that with geospatial developments taking place in the market, this kind of a product will help us open a number of other opportunities.

□ In the west there is much hype about location based services particularly in mobile industry. Your comments?

Any new discipline passes through the hype situation. Location based services have been talked about for many years. It is only now that we are witnessing some applications emerging internationally. In India, not much has happened. It has only been hype. But there are companies like BSNL, which have introduced LBS on a limited scale. What will drive LBS is the quick availability of map data. The government is addressing some of these issues. That has to happen fast. The attributes will get created and the services will get created. There are other factors too. If we take the mobile communication explosion, the one and only factor that made it possible is the steep reduction in the cost. The moment the tariff fell, the demand for mobiles went up. Today, we have some of the lowest mobile tariffs in the world. I would like to see the same thing happening in LBS. If maps and map related information become available at a throw away price, I think we will see tremendous growth taking place in those services.

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