Sanjai Kohli and his team

1. Where did you get the idea for your invention? What was the key point in its development?

In the early 90s, I tried to navigate in downtown Tokyo using what was then a state of the art GPS navigation system. In addition to being expensive, the system was the size of a briefcase as it contained several navigation aids as GPS was unreliable in urban environments. I realised that there was a great opportunity in GPS devices if I could make them operate reliably in urban environments without external aids while making them smaller and cheaper.

At that time, signal processing was based on synchronous digital circuits – chip size and processing power were linearly correlated. By rethinking the physics of signal processing, we were able to implement an asynchronous exponential relationship between the two, and our first chip was 200 times more capable than those in the briefcase sized systems and available at a fraction of the cost. This jump in processing power allowed us to shrink GPS systems, over time, down to the size of a finger tip, increase reliability by orders of magnitude, and make a standalone GPS navigator a reality that works in urban environments and even indoors.

2. Explain in three sentences what makes your invention so useful.

Our technology effectively changed the way people navigate their lives. It allowed for substantially lower-cost communications systems by dramatically increasing signal processing capabilities. GPS navigation in cellular phones and personal navigation devices was just one of the obvious benefits. It also laid the groundwork for the advent of modern high data rate and broadband communication systems such as Wi-Fi and 3G cell-phone networks.

3. How has the commercial success of your invention changed things for you?

While our company was successful commercially, more important for me was the utility of the products that were created from GPS navigation systems in cars, PNDs, cell phones, and the leverage of this technology into usable everyday products. It is these successful products that are created that really give me true satisfaction of knowing we made a difference rather than the financial returns.

4. What were the advantages of filing for a European patent? Would you recommend that other inventors take this route?

In this age of globalization one cannot afford not to file a patent in the EU. It is a prerequisite if you believe in your invention and the products that will follow. Further, the patent process in Europe is more exacting and rigorous than the US.

5. Looking to the future, do you think that patent protection will go on playing a role in your technical field?
Patent protection is a must but the challenge we face moving forward is the cost of patent litigation. Litigating a patent for infringement can cost $20-$40 million, and an inventor or a small/medium business cannot afford this expense. As a result, in the future, a SME maybe forced to team with a patent “troll” to enforce their intellectual property.