

THE TALE OF A BOY WITH VISION

LIFE IS A STORY WITH UNPREDICTABLE MOMENTS YET SO PREDICTABLE ENDINGS.

If you see back into your life you will see all the incidences that happened make sense only if it's a fairy tale. You find something important then you work on it, sometimes you fail but sometimes it's the luck you blame and then there are trails of incidences that follow up. In the end we all get through all the ups and downs and we call it the happy ending, yes! we all have our own happy endings. How small or big it will be that depends on the choices we make throughout the journey. I have a friend whose story is like the story of Leonardo da Vinci. Does this seem a little dramatic? Believe me it is! He is a tech-lover and had successfully developed three gadgets on his own. My friend, Shruti introduced me to him for the first time when we were in the first year of graduation that was 2013. Then I realized we were sharing the same branch, that's Electronics and Communication. We became friends later, in the starting he was an insane person but eventually I got to know that the insanity is for the technology-love. So we didn't share the branch only but the interests too. Later on, his interest grew up in Electronics and mine in Space but otherwise we were like long-lost twins. He found his mentor who was quite like him, insanely in love with technology, and when they met he found his magic beans. But his story took a million turns until he found his ultimate aim of his life.

It all started in the summer of 2014, end of the first semester, with a phone call. Yes! A phone call, which marked the first turning point of his life; it was from his friend Amar who asked him to join a summer training program with him at Delhi. This was the first time he was doing something not related to academics. And since his friends were going he wanted to join it, a perfect opportunity to spend summer with friends while learning something new. As the days passed, he found himself being indulged in embedded systems and he loved to be there. The training was going well, their Instructor motivated them to be productive and for being engaged in some projects related to embedded systems as applications were infinite. He didn't realize this until the instructor got changed. The new instructor was too serious and strictly followed the course being covered in the training; they were now trapped in a scenario quite like the academic schedule. One day all of his friends were sitting together and started discussing about what they have learned till then, while the discussion was going on, Shashank said, *"I liked the way our first instructor motivated us. I had thought for some projects but I don't know if they are good enough to pursue."* To this Amar showed a webpage to everyone and said, *"Check out this idea to start with, the Electronic Voting System but I don't exactly know how to proceed."* and he continued to explain the whole thing.

Everyone agreed to discuss the idea with their instructor. After listening to the idea, Mr. Abhishek Saxena told them that the course had only provided a basic outlined structure about Embedded and there is lot more to it, like boot loader, flash, SPI. Listening to those words made them realized they cannot do it, not at that point. So the idea was dropped. Although on discussing with the other instructor, they got to know about ROBOWAR competition. This set the oncoming second turning point of his life.

After training they came back, but the echo of “ROBOWAR” was in their minds. He called the team, (Shashank, Amar, Talha and Ghanendra) and decided to take part in the National Level Competition for Robotics, the ROBOWAR. It was to be held at Indian Institute of Technology, Guhawati (IITG). They started to work on the challenge provided by the Institute as a full functioning Robot to be presented on the final day. Nothing could seem more important if someone is working on the same thing day and night arguing with parents on late home comings and wasting time but nothing could affect their deliberation. *“I was senior design Engineer of the team”,* Shashank grinned, *“and we named it Thor since it could bang the opponent robot with an attached hammer”* he added. With his dedication and desperation to make it work, the Thor was roaring on the platform of ROBOWAR’14 at IITG. It all worked out and the team with its Thor secured 8th rank in National level competition. *“The first time Thor roared made me skip a heartbeat, you know like love at first sight!”* he softly smiled and added, *“But obviously we needed it to work at the final stage and it did. I know we couldn’t get any top rank but other bots were really huge and we were lucky enough to hold 8th rank.”* Their performance was worth appreciating at the very first attempt. Working with Bots was his new fun now; he was so thrilled about Robots that he joined a technical group of the University for learning more on Robots and embedded systems, the AMURoboclub. There he found Aftab Usmani and Mohd. Haris Siddiqui, they both were crazily great at coding and robotics and Ali Shazan who was the walking encyclopedia in Embedded Systems. And so Shashank found them fascinatingly awesome. I personally called that club the Boboclub just to tease him. Through the club itself, he got to know Prof. Ekram Khan who was the mentor of the whole club. Shashank again decided to compete in next year’s ROBOWAR, this time it had to be organized by Indian Institute of Bombay (IITB) and the challenge was with an objective to design a wireless bot. He again had to start with the day and night ON-n-OFF schedule. In the meanwhile, he became the Joint-Coordinator of AMURoboclub. In the busy schedule he was trying to balance everything up. It seemed like this time luck couldn’t cope up with him, in the last the Bot failed due to overheating of circuits and untidy juggling of wires. The team was disheartened. After coming back from IITB, Prof. E. Khan asked them about the experience there. They told him the whole story. To that, Prof. encouraged them to see the bigger picture, he told them to do something different and not to be disheartened, *“after all, experiences matter, you won’t learn from the number of wins but from the experiences and failures”*. Listening to the words from Professor he was thinking the whole day what he did

wrong. He slept that night with the words of Prof. Ekram Khan, *“do something different”, “experiences matter”*. The next day when he woke up, he realized his mistake. And this was the third and the most important turning point of his life.

The experience he gained from the challenges at IITG and IITB was great, but the thing was to reach there he had to spend a lot of money. In IITG he secured a rank, but in IITB the team lost and they had wasted a huge sum of money, around INR 16,000 (around \$250) just on the bot, putting aside the travelling and accommodation expenses. And this wasn't even for something big, like betting money on a game just for fun, total wastage of time and money. Thinking of what bigger picture Professor was talking about, he went to the Professor's cabin. *“Sir, I have to do something different. I want to do a project under you”*, he requested. Professor enquired about his knowledge in Embedded Systems and Robotics and said *“Okay, you have knowledge in both. Rather than doing some project, you can just pick up one problem in the society and see what you can do to help. It needs not to be very high-tech but can be very basic, let's say in this high traffic environment how will you help a blind? Or may be some different scenario, totally depends on you”*. After a little discussion, Professor asked him to think over it and come up with a basic idea to solve the problem.

Shashank came back to home, wondering for an ordinary problem faced by people in daily life but couldn't elope the one mentioned by the Professor. So he decided to work on the challenge faced by the blinds. He asked one of his friends, Abhinandan Jain to join him in this and explained the whole thing. But the same thing was still probing over, how to solve it with the simplest technology. After a little research together, they came up with a brilliant idea to overcome any challenge popping up in the way of blind people. They described their solution to the Professor, on which Professor was delighted to further guide them through. This was the day, Shashank was jubilant to work on his own project. They started with the Alpha Model Implementation of the prototype in which they used ultrasonic sensors and Arduino boards. And the model was ready within 2 weeks. Yeah! That proved how thrilled he was. Professor was impressed by the work but other Professors in the room didn't think the same way and started down picking about the flaws it had. But at the same time the fate has already rolled the dice, they worked on the flaws and made the model better. After a few days, Professor Ekram Khan arranged a gathering and called the boys to present their improved design in Women's Polytechnic department of the University. Things went well; everyone appreciated the work and encouraged them to go for the next level. Some Professors asked Prof. Ekram Khan to file patent for the design, that words were so inspiring. Shashank was also working with Robonics in parallelism but that never affected his performance. That night they all, everyone in the club, partied hard celebrating their success of the Alpha Model at AMURoboclub aka Boboclub.

For the next phase, *“The design needs to be more compact and flexible”*, Professor uttered; to this Shashank asked for two weeks. After trying so hard in improvising the design, they

couldn't wrap the work up within two weeks. That wasn't that bad as it seemed. Well they came two days later with their perfected design, the Beta Model. They named it "ADVANCE CANE". The design was ready to be tested and so Professor told them to take it to the Blind School for final testing.

At the Blind School, they spent nine days in testing the design's efficiency and accuracy and to have the real feedback from the blinds. All they could hear was the overwhelming applause and appreciation for the very first time. Seeing the happiness among the blinds in the school was the life defining moment for him. That very moment he clearly knew what he had to pursue in life, solving the problems, problems of the society and helping himself to use his knowledge in the right path, no more wasting time in those douche competitions that solely were based on having fun and wasting money over nothing; such a waste of talents. From now on he had to help society. He relived the moment when he realized what he loved the most but this time it was paying back to the society. *"I longed for the way my work was being appreciated but the feelings I have by realizing that I could help one of the neglected part of the society is just incredible. They had to rely on others for everything, every single bit of the daily routine we follow so normally, they face extreme challenges in each of these routines. I am so happy to help and innovate a maneuver that could help them through one of these challenges, "walking". Our design does it all, detecting not only obstacles in proximity of half a meter distance at front but helps them with the uneven terrains and stairs. When we were at Blind School, they were already using a similar product but it only had one sensor to detect obstacles from the front, its range was less too and it costs about INR 3000 (\$ 50). Ours had two improved sensor with a practically nice range of detection with an approximately one third of the price, INR 1000 (\$ 15) and most importantly it was mountable over any cane. So its flexibility and dramatic reduced cost with extra features were the factors that overpowered any other existing designs"*, he beamed and grinned a little more.

The thing he said was so true, \$ 50 won't seem a big sum for people like us, but the people who need it are not that financially supported or have a well background especially in countries like India. If they were rich they could have afforded expensive eye treatments and operations but the ones who couldn't, Shashank aimed to help them as there must be something that is easily accessible at lower prices. And he succeeded, very well.

After a great success, they presented their prototype in Technical fest of our College, Genesis'15, where I helped him prepare his presentation, and he secured first rank there. They also presented the prototype at the Innovation Council of India, by the time result could announce, his Advance Cane was gaining grounds, he came across Mr. Shailendar, a reporter and the next day his story was in the Newspaper. He said, *"Ekram Sir had advised us to stay clear of the popularity but since our parents were unhappy about what Sir told us to do so we agreed to give a brief interview but asked him not to publish any photograph. After*

reading the story in the paper, my family allowed me to stay and work at college late at nights too. This was so amazing for me, I can't even tell you."

Stories in the newspaper have its own charisma. The Vice Chancellor of the University read it too, so he summoned Shashank and his partner along with their mentor for a meeting. In order to get funds for manufacturing a bunch of 12 canes to be distributed at the Blind school as a start, it was a great opportunity for Shashank to make this happen. He told me, "We were at Vice Chancellor's office demonstrating the prototype, unluckily there was a loosening of wire and we got panicked. We couldn't be more embarrassed, we were at VC's office and our prototype wasn't working. Few minutes later, Abhinandan noticed the wire loosening, he told me but we still were like what to do now. That moment Professor Ekram Khan literally hijacked the conversation and asked for 10 minutes to solder the wires up. We came back and this time it worked, we were like Thank God. At that moment, professor saved our asses literally. And obviously, VC was impressed too, he promised to fund our target for 12 canes." Everything seems to be on his side, right! But this wasn't all-going-good-be-happy-time for him. Due to some political drama in the University, VC couldn't help them since they didn't have any official agreement letter.

Since they had to send the product for manufacturing as they had promised to the Blind School for the donation they needed fund, so their next target was ZHCET-NA (Alumni Meet, Zakir Hussain College of Engineering-North America). They were selected to present their prototype at the University's Alumni Meet. They needed to design a pamphlet, here came my role again. I helped him with flyer and one of our mutual friend, Divya Agrawal, suggested the perfect name to be placed on as the title, VISION. The response at the fair was tremendous and the council awarded the prize money to two teams, one of which was ours, VISION. Along with this, he had to collect more funds so he decided to ask other Alumni's to help him through. I helped him writing a letter to request funds for the manufacturing process to start. Responses were nice but nobody replied to help him. One day, he got a mail from Mr. Kaushik, working at ITI, Bareilly. *"The mail said ITI will help us in the manufacturing process but the condition was ITI will own the maneuver and we will be given 2% of the profit as Royalty."* he explained. He wasn't doing all this just to sell his prototype and the company could devastatingly increase its price for retail. All those hardships were to help the blinds to have the maneuver at the lowest price possible. So he rejected the proposal. Yes, he did it, many of us can't but he did.

After that mail, nobody approached him. He almost lost his hope to get any proposals. I talked to him and told him that he did the right thing, and one day, may be one warm and lucky day, someone will come forward to help him and those blinds. So he didn't stop there, the flyer I helped him with at the time of Alumni Meet, he kept it on internet. In the meanwhile, he started working over new projects targeting some other needy persons. He got to know about the food losing its nutritious value. He researched for the root cause for

this and found out the farmers being uneducated are unable to provide the farming grounds the correct proportion of nutrition it needed due to the fertilizers they were using that contained very low percentage of nutrition. So he decided to work on this. He realized he couldn't help with improving quality of the fertilizers but he can help farmers to keep a check on the nutritious level of the soil. He discussed the idea with Professor E. Khan, who approved the idea and he started working on Smart Agriculture to help farmers with a team to make a prototype.

The fairy tale didn't end here yet. Remember the internet flyer that had all the details of the Advance Cane, his prototype for helping blind, brought back the magic in his life. Again a phone call changed everything, this time it was from a guy who worked at INTEL, India, Mr. Mayank Varshney. So now, the Intel guy had an offer for Shashank that was equally profitable to the company, Shashank and Abhinandan and for the blind people. They made the deal. Yeah....! But they had to test the model among 10,000 students at Blind Relief Association, Delhi while doing everything, like literally everything a normal person would do. "Those students made kites and used mobile phones recognizing each keypad's button with its tone", he said with an astounding voice. So the test was really tough but equally important for rating the accuracy and the efficiency of the model. The feedback was good but the students encountered some problems too. The Blind Relief Association reported the feedback to the Intel guy. After having a discussion with Shashank, the Intel guy suggested some improvisations and his organization was ready to start out the manufacturing procedure. The VISION sticks will be in the market by the next year. Oh! And the promise he made to the Blind School about 12 canes, the company agreed to donate first 20 Vision sticks to the School. Great ending for everyone... Not yet, the Smart Agriculture project he was working on, it has been taken over by STMicroelectronics and Department of Telecommunication, India. He is developing integrated software and hardware based system for farmers that will help them in deciding which crop should be selected for the given season and amount of fertilizers to be used.

And yet he hasn't stopped, currently he is working on his new project, smart metering and controlling all electrical appliances through smart phone. Learning something new and solving problems is his passion. Helping a part of society that really needed attention showed him the best way to pursue his dreams.

Learning for yourself but utilizing what you have to help others is what this world needs. You can live like the others who don't care for the world or you can stand up and aid the world. Every person has its own contribution to make to this world but how you do it, is what matters. May be you can't help the whole world but you surely can help a part of the society who really needs you.

Through Smart metering and controlling home appliances he is thriving in reminding people that saving energy is utmost important, it will be easy with new technologies and no one has to disburse a huge bill over it. Though the idea doesn't seem to look new but the existing technologies are only for the affluent part of the society, but Shashank always looks for "it's-for-all-policy" and tries to lower the packaging costs of the gadgets as much as possible by using the simplest of technologies.

Shashank had to face a lot in finding funds to make his prototype in real market's packaging. But right now people are so privileged that these Incentive Challenges from around the globe are being published on Internet and anybody can access them. So you get a problem and an opportunity to solve it and help the people facing it. You can learn a lot from it and the sense of helping people out are the best. But you got to be creative and thinking out of the box is the key towards success. Some challenges just need a design to show you creativity and you don't even have to deal with all the technicalities and if you are creative enough your design will be approved and you might get the opportunity to work on your own design with a company or even funds. The prizes encourage and attract huge crowd to come forward and showcase their hidden creativity to the world.

-MEDHA SHARMA