

Jim Zondag – This Is How I Work

It has been a long time since the last How I Work article has come out, so we're coming back with with Jim Zondag from FRC team 33, a veteran mentor who has been in FRC since 1998. In this interview, he talks about how his interest in STEM at a young age inspired him to pursue a career in engineering, which led him to join FRC. He joined the Killer Bees in their early years and has become an integral part of the team since. Read more about his amazing stories and advice from his many years in FRC, and learn how a veteran mentor works!

[Responses from August 28, 2015]

Name: Jim Zondag

CD Username: [Jim Zondag](#)

Current Gig/Job: Apps Development Manager – Chrysler Uconnect System

Alma Mater/Degree: Oakland University - Master of Science – Electrical Engineering - Calvin College – Bachelor of Science – Electrical Engineering

Current Team(s): [FRC team 33 The Killer Bees](#)

Former Team(s): None

Location: Auburn Hills, Mi

Hobbies: Robotics, Woodworking, Electronics, Programming, Reading and anything that involves Making or Learning; preferably both.



What inspired you to do what you do? Tell us a story.

I have always had a love of machines and how things work. I spent my youth fixing, building and rebuilding bikes, lawnmowers, stereos, motorcycles, farm equipment, cars, and anything else I could find with my brothers. When I was a young, I had a mentor. He had a lifetime of experience and from my young perspective, he had an almost inhuman ability to fix or build anything almost effortlessly. I found this to be very inspirational. He taught me many things about tools use, mechanics, internal combustion, electricity and many other subjects. He did this for no reason other than I asked, and he was always there to help. Because of his teaching, at a young age I found myself far ahead of many of my peers in my ability to build, fix and understand machines. This inspiration and confidence led me to become who I am today. I always figured that I would want to do the same favor for others someday if I had the chance. A few years after I became a professional, I found FIRST Robotics, and it was a natural fit for me. It has become a way of life for me.

What is your day job, and how'd you get there?

I have a really cool job. I am the Apps Development Manager for Chrysler Uconnect Systems. Basically, my group takes a lot of the cool stuff that you have on your smartphone, tablet or laptop, and we figure out how to integrate this into your car. Pandora Music, Google Search, Siri, you name it. This is very high tech, very fast-paced, and very challenging work. I have a

great staff of young engineers who make all of this possible. We work with Google, Apple, Sprint, QNX, and lots of other technology companies every day on these projects. We make cool, awesome stuff like this:

<https://www.youtube.com/watch?v=2d6gTQdxTnw#t=149>,
or this

<https://www.youtube.com/watch?v=0VWZ4RveCsc>

I am a farm kid from Ontario, Canada. I have always loved cars, and I always wanted to design vehicles of some kind when I grew up. I worked hard and got good grades in high school. I was fortunate enough to get a scholarship from my church which allowed me to go to the U.S. for college, where I majored in Electrical Engineering. I landed a job at Chrysler in vehicle engineering shortly after graduation, which was pretty much a dream come true for me. I have spent my career in a variety of EE roles in vehicle design, mostly in embedded systems and software design. Electronics have evolved tremendously over these years and there are always new technologies to learn. My current job is fast, fun, and very technical.

What is your favorite story to tell about robotics?

I have many, here is an early one:

I joined our team in its 3rd year of existence for the 1998 season. Our team was not very capable back then. We did not really design things; we just built things. This sort of worked, but was chaotic. I found this rather odd, but I was the new guy and initially I was just trying to figure this whole FIRST thing out. Somehow I ended up being the competition coach. Our machine did not perform very well, and the student drivers were frustrated by this. We made the most of what we had, but were clearly a second class team compared to a few others around us. We went to the CMP, did fairly well, but were eliminated in the quarterfinals. Later, we were watching the semifinals and Team 67 was playing. HOT had a very capable robot that year, and they drove it very well. I commented about some of the design features of their machine to one of my fellow mentors. He replied with, "Our team could never build a robot like that." I was surprised by this and when I asked him why, he really had no good answer other than we were simply not that good, and probably never would be. I took as somewhat of a personal challenge. The following year, I revamped our entire design process, and led a large percentage of the robot build effort. We were an actual contender in 1999 and have improved our process every year since. The moral of this story: "Don't let your perceptions limit your reality. Anything is possible if you make a plan and find a way to execute it."

What's your favorite robot that you didn't help build?

There have been lots of great robots over the years, but I think 254 really set a new standard this year with Barrage. I had the privilege of getting to play with the Poofs in Elims at the CMP way back in 2001, and I was impressed by their machine already then. Every year since they build a machine that is capable, efficient, and beautiful. They set the benchmark for all of us, and in 2014, they certainly outdid even themselves. I particularly like the fact that this robot did not take advantage of any chokehold approach; it simply outperformed us all through excellent design and execution. Very impressive.

What apps/software/tools can't you live without? (Work/Robotics/Home)

I love cloud services; anything which allows high accessibility and is device agnostic. I love streaming music, my eBook library, Dropbox, Flickr, and I find Google Docs indispensable. I also use CAD extensively for many things, robotic and otherwise, and I think learning to design in 3D is one of the most empowering skills I have ever learned. I like Inventor and Solidworks, and I use them somewhat interchangeably.

I really don't use social media much. I think it is an enormously powerful thing, but it is also the most distracting thing that mankind has ever created. I use all social media sparingly, even CD.

What's your workspace setup like? (Work/Robotics/Home)

I love workshops. I have many and I seem to build them wherever I go. I am not a great multi-tasker and I find that I can best focus my attention if I have environments dedicated to specific tasks. If I go into my shops, I work on the things I built them for until I leave. Even though I am a software guy, I have a lot of mechanical shop spaces. I have about 6 shops in my current life:

I have a garage bay at my home which is a setup as a woodshop. I like to make things out of wood and I make stuff all the time there. I build cabinets, furniture, and lots of other items for my never ending home renovation projects.



I have a small electronics/metal shop in my basement. I make smaller, less messy items there. Lately I have been into desktop manufacturing, and I have a small 3 axis CNC mill that I built with my son this summer and we have been learning to use it.

I have a dedicated robotics machine shop at the Chrysler Tech Center. It is not real big, but it is perfect for us. We build all of the Killer Bees Robots here and we have all the machine tools we need to do what we do. We gradually upgrade our equipment as we find decommissioned machines throughout the complex.

I have a dedicated robotics computer room at the Chrysler Tech Center. I had an unused copy/vending alcove converted into a private lab. We got about a dozen computers from corporate IT and set up a central server. We do all of our CAD, Website, programming, Graphics and media stuff in this space.

I have a really cool electronics area at work where my work team does our product development. We have test benches, simulators, lots and lots of test equipment, and over 100 smartphones and mobile devices.

I have a small woodshop at my church. For the past 13 years, I have taught a weekly shop class for the 1st through 5th graders at my church. We make birdhouses, stepstools, pinewood derby cars, and all sorts of crafty things. I believe that everyone should learn to make things with their own hands, and starting young is the key to a lifetime of making.

What do you listen to while you work?

I prefer mostly stuff from the Hardrock/Heavy Metal category. Old, new, from Foghat to Five Finger Death Punch. Anything with a hard driving beat is good background music while I work or drive (and much of my real work is driving). Metalworking and Metallica just naturally go together. AC/DC and Android are also a great combo.

What's your schedule like during build season?

We put in a lot of time. I am kind of an obsessive person, and I am at almost every session. I am usually the first one there and the last to leave. I pretty much work on robotics every single day from Jan 1 – to May 1. My typical weekday I will put in 5-7 hours in the evening, and then we will do about 12 hours on most Saturdays. We never have official meetings on Sundays, but I started a tradition of “Software Sundays” years ago where I work on CAD, Programming, Analysis, Scouting, Program Management, whatever, at home. Others sometimes join me, and a lot of online sharing occurs. These sessions allow me to focus on design and details without having to manage a large group of kids. Once the robots are done at the end of Feb., we have scheduled practice daily for 2-3 hours until the CMP is over. On weekends when my team is not competing, I will MC or game announce at other District events and VEX events. It is kind of crazy, but I love it, and it has become a way of life.

What everyday thing are you better at than anyone else?

One of my strengths is managing chaos. I work best under pressure and I seem to be drawn to projects which have high degrees of complexity and high degrees of risk (Probably why I enjoy FIRST J). I like to take on programs which are a complete mess and figure out how to make them successful. I seem to be a sucker for punishment in this area, but I definitely have a strong sense of accomplishment as a result. I have created some very cool stuff in my life, worked on some really great teams, and on many award winning vehicle programs.



What's the best advice you've ever received?

“Don’t be afraid to ask for what you want.” Never assume that people will know what you want if you don’t tell them. This applies to everyone, your boss, parents, professors, spouse, roommate, children, everyone. Too many people never ask for what they really want, and spend much of their life waiting for things that will never happen as a result.

What is your favorite guilty pleasure?

Reading. I know this sounds lame, but I have a very busy life, and I am usually completely booked for almost every waking hour of every day. Sometimes when I feel overwhelmed, I just put everything on hold for an hour and read something off my reading list. It is sometimes refreshing to be deliberately non-productive and mentally reset. I am a big fan of short form science fiction, and my reading wish list is very long.

Fill in the blank. I'd love to see Brandon Holly (125) answer these same questions.

Anything else you want people to know about you?

I could not do most of what I do without the support of my wife, Lorianne. She is simply the best.

“There go my people. I must follow them, for I am their leader.” – Gandhi