Girton Travel Award Report

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In the summer of 2017 I spent two weeks with twenty two other manufacturing engineering students undertaking a research project looking into the effects of digitalisation on the Japanese manufacturing industry. The visit was the result of over a year’s worth of planning, research and raising sponsorship with the final output to be a full research report and presentation to stakeholders based on our findings. The Girton travel award contributed strongly to my ability to attend this once in a lifetime trip and gain all of the education and experience that I did.

Our trip began the day right after graduation with a flight to Tokyo, landing late the next evening where we headed straight to our hostel deep in the city to collapse into bed and prepare for what was sure to be an exciting and busy two weeks to come. The first Monday was a day off in our schedule of company visits and allowed us to acclimatise and do some exploring of what was a truly fascinating city to see. During the first day we wondered many streets in many districts of Tokyo, absorbing the fantastic strangeness and vibrancy that Tokyo seemed to exude. We paid a visit to the famous Shibuya crossing - the busiest street crossing in the world, and tried not to lose each other; we visited the meji shrine and wondered through this place of calm right in the centre of this huge busy city, walked through many shops and streets just taking in the amazing culture and colours of the place, before finally ending the first day by heading to the top of the mori tower to take in the view across Tokyo at night. This was a truly amazing experience, seeing the huge metropolis stretching out in front of us, really bringing home the reality that our hard work over the previous year had paid off!

The second day in Japan and we had the first visit to attend at IBM. Although first we had time for a quick visit to the tsukiji fish market, the oldest and biggest fish market in the world. This was a fascinating experience, although some of our group who were less inclined towards fish perhaps did not appreciate the experience quite so much. After this, we headed to the imperial palace to wander around the peaceful and beautiful gardens, although we didn’t have time to enjoy the palace itself as it was time to head over to IBM for our first visit. This was a very interesting visit, with talks on IBM Watson, the approach IBM were taking towards the internet of things, and an introduction to pepper, a robot that recognised the presence of humans and interacted with us.
The final day in Tokyo was a busy one, with two visits in one day lined up. Our first visit was to Hitachi consulting who talked about how they could use machine learning in order to improve operator training among other things and presented their vision for where they believed the future of manufacturing and digitalisation was. The second visit of the day was to the ministry of economy, trade and industry. This was a very important visit in that we were very lucky to have the opportunity to talk to Japanese policy makers about the government approach to digitalisation in Japan. They talked us through a white paper that had been written on the topic of the Japanese robot revolution, a paper so new and on topic that it had yet to be released yet! After two great visits, we wrapped the day up with a trip to the national gardens, yet another area of peaceful tranquillity in busy Tokyo. We then had to go to get an evening bus to Fujinomiya, a town in the foothills of Mt Fuji, ready for another visit the next day. Although before everyone turned in for the night in our traditional Japanese hotel, with futon beds and matting floors, we took the time to get the true Japanese experience in an onsen, with everyone getting to know each other a little better!

The next day was a highly anticipated visit for most people on the trip, we were off to visit the Fanuc factory. Fanuc are manufacturers of automation robots. These are the robots which we had worked with extensively on our course and knew well by their distinctive yellow branding. So we were understandably excited when we were picked up in a yellow bus, and taking to their site based in a national park near Mt Fuji. We were given a tour of their factory, which has the amazing ability to claim a ratio of robots to humans of 80 to 1. After the visit we then headed to the nearest mountain side to see if we could get a view of Mt Fuji in all its glory. We headed up to the Chureito Pagoda where a lot of photos of Mt Fuji are taken. The clouds threatened to make our trip in vain, as we couldn’t see the top for a long while, but as we were about to leave, as luck would have it, the clouds literally parted, and allowed us the view we were looking for! That evening we got on a night bus for a long, slightly uncomfortable journey to Kyoto, and our final stop on the journey.

Arriving in Kyoto at 7am after a night long bus journey was not the most pleasant experience in the world, particularly as we had the prospect of a busy day of visits lined up during the day. After a quick stop at the hostel to drop our bags and to get changed, we headed over to a Sake brewery. This was the most traditional and, it’s fair to say, least digitalised factory of our trip! It was however very interesting, and we all appreciated the sake tasting session afterwards. Before we spent all afternoon drinking as much sake as we could, we had to rush away as we had a traditional Japanese tea ceremony booked. This was a great experience for us all, allowing us to immerse ourselves in true Japanese culture: learning how to undertake the ceremony ourselves and a crash course in
Japanese calligraphy thrown in. The third and final stop in a very busy day was to a Japanese gold shop. Here we were given a talk on the gold industry and given a chance to make our own gold leaf pictures.

The next day we spent the morning taking our first chance at down time to get into our allocated groups for writing sections of the research report and start getting our thoughts down and record everything we had learnt so far – turned out it was a lot! In the afternoon we joined a meeting of local manufacturing and research companies, organised through Kyoto university who gather together on a Saturday to share ideas and then share a beer or two afterwards. This was a great opportunity to interact with Japanese business people in a fairly relaxed setting, and share our experiences from our different perspectives. In the evening we got our first chance to experience the Japanese nightlife and let off a bit of steam.

Sunday was the first day since the first Monday that we had completely free, with nothing pre planned. The group therefore dispersed to various places that they wanted to explore. I and a few others went first to the Fushimi Inari shrine, otherwise known as the 1000 tori gates. This was a beautiful place to visit and was a really interesting place to walk around and explore, with plenty of places to find off the tourist path as well as on. We then headed over to a place a bit outside the city, and visited a monkey sanctuary, took lots of photos of monkeys, then went to walk through the famous bamboo forest. However our plans were foiled when just before we were about to go in, the heavens opened, and we got caught in a torrential downpour. We had no choice but to run as fast as possible to the nearest train station to head back to the hostel.

The next four days were taken up with many visits to various manufacturing companies. First there was Omron, who manufacture electronic components and kindly spent a whole day with us taking us through their business and digitalisation approaches. The next day we had two visits, Daikin in the morning, manufacturers of air conditioning units and similar, who had a very interesting factory to walk around, including autonomous guided vehicles that played popular music jingles to warn of their presence! The afternoon was to Murata who took us into their open innovation space and showed us some very cool products including self-balancing robots and one directional speakers that you had to be standing in one specific place to be able to hear. On the third day we went to visit the Kyoto institute of technology and
had two presentations on current research being undertaken by student researchers at the university, one being how to digitalise traditional skills to ensure that they do not get lost. The second visit of that day was to Hilltop, a company that specialises in rapid prototyping for companies and has a lot of very interesting innovation projects going on at the same time. They very kindly put on dinner and drinks for after the tour, another chance to socialise with Japanese professionals in a relaxed environment. The final day of visits started with a visit to the Advanced Telecommunications Research Institute (ATR). They talked us through some of the projects that they had going on, and we got to interact with one of their humanoid robots, it was strangely realistic, it was definitely a case of the uncanny valley effect (see above picture – can you spot the robot in the group?). The final visit was to Kyocera, a large ceramics manufacturing company who shared their approach to digitalisation and opened up a discussion with us about the future of ceramics manufacture.

After a very busy two weeks of research, we took the Friday and spent the whole day inside putting our various sections of the report together in order to collect our ideas before we left Japan. That evening however was the time to celebrate. We went for a traditional teppanyaki Japanese meal followed by two hours of traditional Japanese karaoke and just generally relaxed a bit after a very busy and sometimes stressful two weeks! The final day of the trip was spent visiting more tourist destinations in Kyoto: we visited the golden temple in the morning. This was a beautiful site and a very peaceful experience. We then head over to the Gion area of Kyoto and wondered around the many temples: again, a very relaxing and calming experience. This was definitely required after such a busy week!

The trip ended that evening, and we all dispersed. Some people headed back to the UK but most people headed off on various other travels around the world to see and experience new things. It can be said however, that the two weeks spent on this research project will certainly stay with us all, through the learning, life experiences and cross continent friendships that were made.