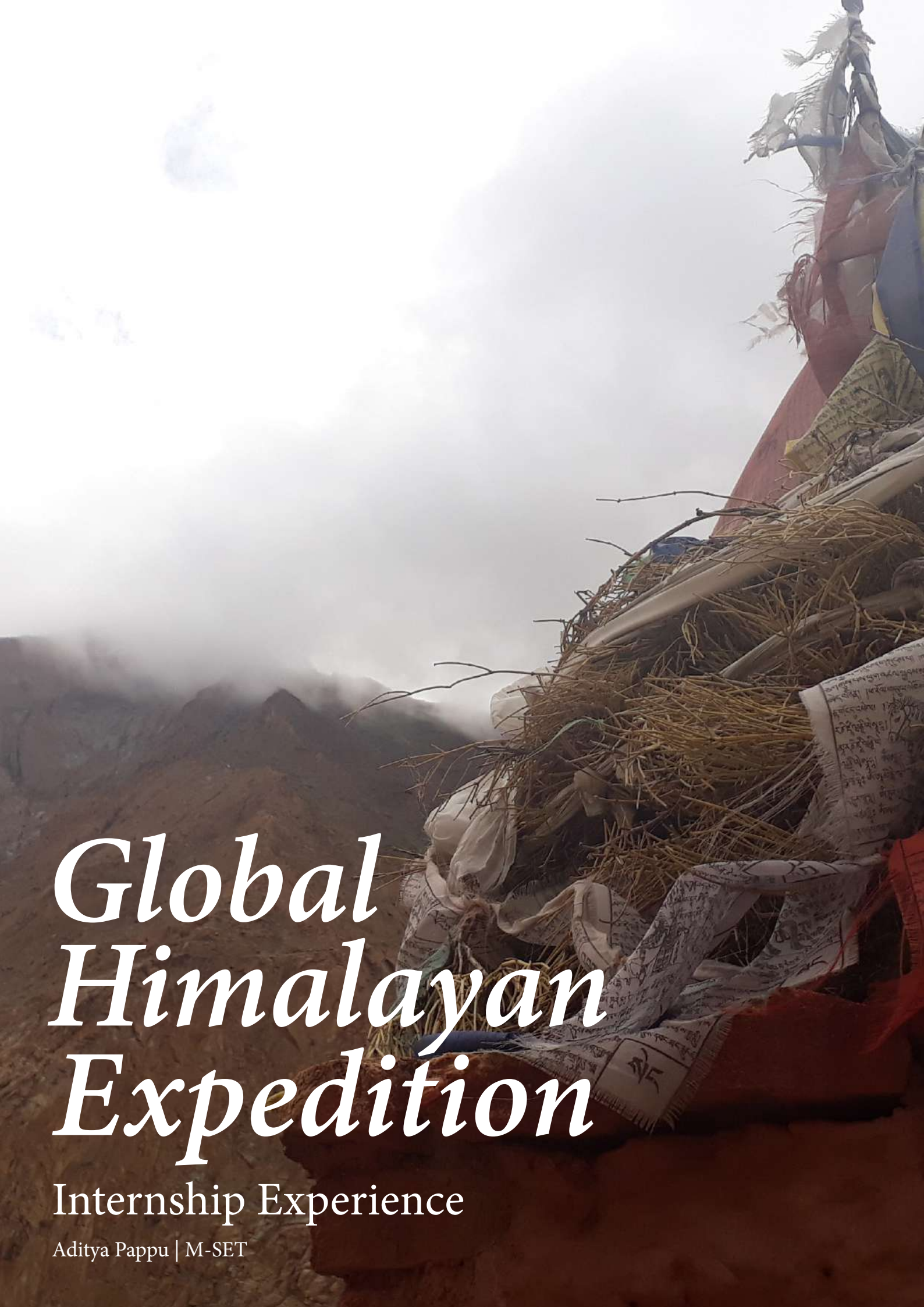

Global Himalayan Expedition

Internship Experience

Aditya Pappu | M-SET

"In a gentle way, you can shake the world."

- M. K. Gandhi

Sunset in Leh, Ladakh

Preface

"Om-Mane-Padme-Hum", A common mantra in Tibetan Buddhism here seen painted on rocks in Likstey, Ladakh.

Namaste,

I'm Aditya Pappu, a student of the M-SET program and full time nerd. For those not familiar with the M-SET masters at the University of Twente (Enschede, NL), it's a 2 years 120 ECTS masters that mandates a 30 credit internship in the second year of the program. This internship can be done with any company in the world for a duration of 3 months. The only constraint being that the company's work must be related to Sustainable Energy Technology (SET).

From mid-July 2019 to mid-October 2019, I interned with the Global Himalayan Expedition (GHE), a social enterprise, whose primary work since its conception in 2014 was to electrify remote communities. Every year, GHE assimilates groups of changemakers from all over the globe from a range of backgrounds, takes them on an expedition to a remote village in the Indian Himalayas, and works with these travellers to setup a solar micro-grid with LED bulbs to bring light to those communities that, even in the 21st century, live in darkness. GHE terms these as Impact Expeditions.

Apart from providing the basic facility of electricity, GHE has also worked on setting up solar-powered computer labs in the schools located in these villages. These computer labs came to be known as Himalayan Innovation Centers (HICs), and were deployed across multiple schools located in the remote inaccessible parts of Kargil and Ladakh (two regions in the Indian Himalayas). These labs gave students the very first access to digital education and the system itself was loaded with tons of offline educational content to supplement their learning.

For three months in the summer of 2019, I worked with GHE as an intern and as part of their HIC fellowship. My work was a good mix of energy and education. For the former, I worked as part of teams that electrified remote communities. I got the much-cherished oppoutunity to be a part of three solar electrification projects. And for the latter, I got to live for brief durations in four differnt schools (each housing its own HIC), and develop educational and digital content to train teachers and students on using the hardware and software that was part of the HIC.

During these three months I was totally cutoff from the world (think zero Wi-fi, zero call and messaging services). I saw, felt, learned and experienced a completely different side of engineering, the side you won't find in research papers or big fat thesis books. The kind of enginering you won't find being glorified by mainstream media nor the kind of engineering that you will find glamourized on billboards on a Black Friday sale. This is the story of that rare and special kind of engineering that changes lives forever.

The kind that gives hope.

Enjoy.

Acknowledgements

To Paras, Stanzin, Jaideep, Dorjay, Stanzin Jigmet, Shakeer, Gagan, Manjhiri, Aangmo Didi, and Gaurav for giving me a life-changing story to tell.

To Mom and Dad, for teaching me the empathy needed to experience this story.

To Anu, for being the more socially sensible one. And for staying away from my GI Joes. And Beyblades. And my Pokecard collection.

And to Dr. Maarten Arentsen, for trusting me enough to get completely lost in the mountains. Lost in a good way though.

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Skyurbuchan
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-HIC training

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-Village Electrification

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-HIC training

Leh
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-HIC training
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Likstey

Abran
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I-K-K
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-Village Electrification

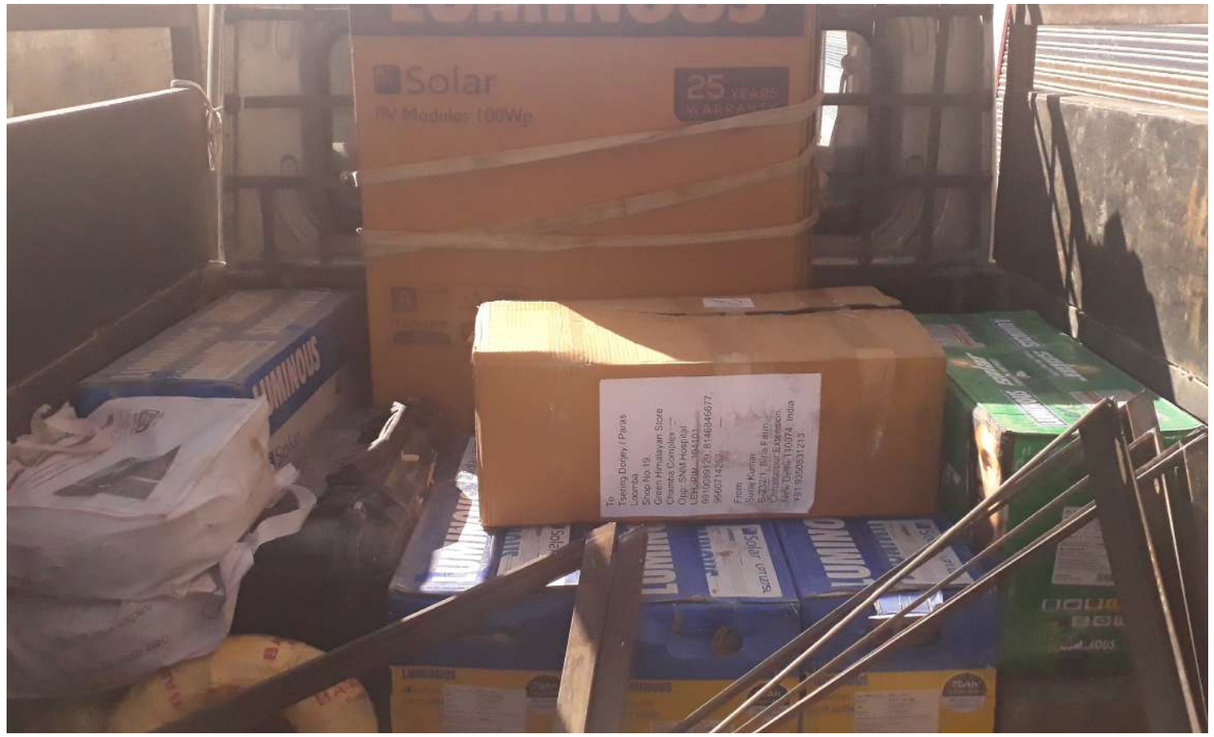
Village I-K-K is an extremely old village that comrpises of five houses. The architecture seen in the picture is typical of Ladaki houses.

I-K-K

I-K-K was my first GHE assignment and also my first electrification assignment. Located about four hours drive from Leh, this tiny village of just five homes resides on the side of the NH1 expressway. Keep going forward on this expressway and you would reach the Indo-China border. It's a centuries old village and now it only houses senior citizens since the younger people have moved away to the major cities in search of a better life. While the village does get light once in a while, courtesy of the diesel generators of the neighbouring Indian Army camp, this electricity sharing is infrequent and extemely rare. For all intents and purposes, this village has been living in darkness since decades.

GHE's team had stumbled upon this village a few months back. Thereafter, the village had been pretty proactive in its communication, the result of which was this electrification expedition.

Our team consisted of three people. Shakeer, a briliiant home-brewn self-taught engineer and Stanzin, a mountain guide turned GHE engineer and me. My job was to observe them and learn the ropes. To bombard them with as many questions as I could to gain as much understanding of the system as possible.
To learn about all the tiny yet critical micro-processes that need to be executed when one wishes ...to bring light into the lives of others.



Hardware check
Loading all the required materials into the truck at the warehouse in Leh, Ladakh.

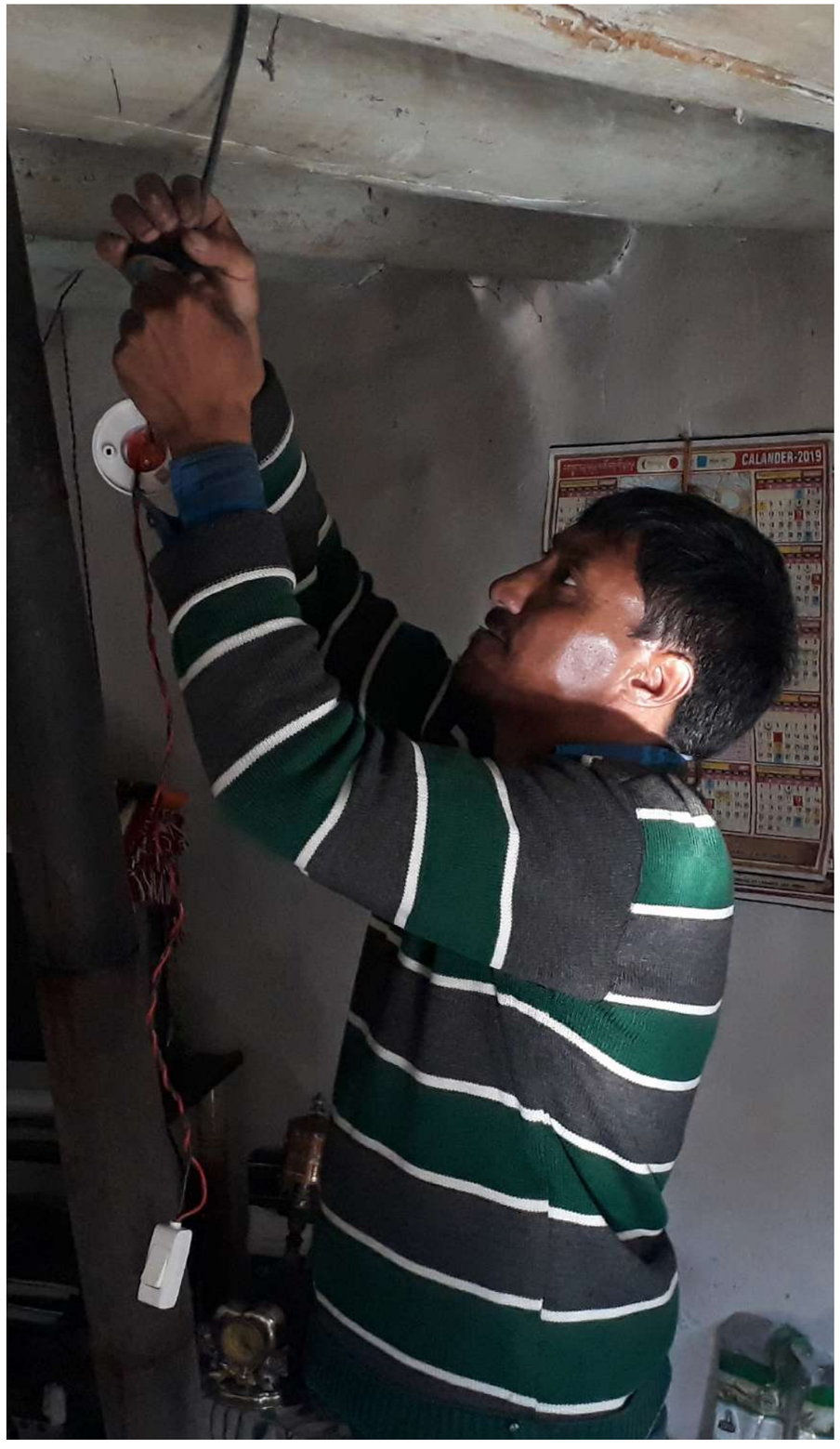
Roadtrip anyone?
I-K-K is around 4 hours drive from Leh. Driving on the NH1 expressway, the primary transportation lifeline in this region. Zero traffic and 100% mountains and epic views.

Research first. Then act. *Stanzin talks to the village head who also owns the house we are in now. The very first step in setting up a micro-grid to electrify a home is to have a conversation with the house owner as to where he or she would prefer the bulbs or light sources to be installed in. After all they know their home the best. Also they make great tea.*

Home sweet home. *A villager from I-K-K stands in front of her home. I-K-K is a tiny village that mainly consists of the elders who inherited these homes and still live there. Most youngsters have moved away to the main cities in the region such as Leh, Kargil or Srinagar.*

Setting up the PV panel.
After the wiring is done and the bulbs and the holders are put up, next comes setting up the PV panel. Stanzin, with help from a villager, is mounting a frame onto a mono-crystalline solar panel on the terrace of the villager's house. Notice the two wires
coming out of the panel; the positive and negative terminals.

Bulbs, wires et al. *The next step after finding out the bulb positions, is to map out the wiring to the bulb holders. It's important not only from the basic electronics connections perspective but also from the perspective of using the minimum length of wire for the grid. Remember. We are miles away from any hardware shop. No replacements. No extras. No substitutes.* ***What we have, is all we have.***



Full focus.
Shakeer is attaching the bulb holder to the cable drawn into that room. Each bulb holder has a switch (in pic). Shakeer is without doubt, one of the finest engineers that I have had the honor of meeting in my life.

Electrified!

On August 1st, 2019 at 22:00 hrs, a tiny village, hours away from the Indo-China border, nearly forgotten by time gets to see light for the first time. It takes a full eight hours to deploy five working grids. Shakeer and Stanzin worked round the clock to bring light to this tiny community. Once darknes fell, we did a countdown and then switched on all the lights at once! And then Shakeer and I went to the nearby Indus riverbank to try our best to click a decent picture with our phone cameras. We both clicked. As usual, his was better.

Me got a light!
The vilage head smiles as the doorway to his home is finally illuminated. Given that old Ladaki houses have multiple steps, having a light at the entrance is pretty imperative from a safety perspective.

Reflections

What does it take to bring light into people's communities?
What does it take to change people's lives for the better?
When I asked myself this question before this expedition, a lot of things came to mind. Money. Expertise. Resources. Contacts. Technology. Innovations. Research.
And yet with all that present in abundance in this county and in this world, the people of I-K-K, like the rest 1.3 billion people on this planet, were still living in darkness.
And it took only two electricians without any sophisticated degrees or engineering skills to change their life forever. No complicated hardware. No complex software. No great funds. Nothing exceptional to be honest.
And yet...they did it.

So again...what does it tuly take to make the world a better place?
What do you actually need to be a changemaker?

2 Likstey

Likstey was my first true remote deployment. Sure I-K-K was remote (everything here is), but that was just a single-day electrification. Likstey was a one week assignment. According to the Panch (village head), private network providers had installed towers to provide 4G network but they still hadn't activated the service. For me, this meant that I would be cutoff from the world for one full week. By cut-off I mean full cave-man no-outside-world-contact type cutoff. Like Iron Man drifting through space at the end of Infinity War type cutoff. No Facebook, no Instagram and no Google. Basically the perfect recipe to seriously traumatize any millenial.

GHE had installed a Himalayan Innovation Center (HIC) in the Likstey Public School. HICs were essentially computer labs that boasted of Raspberry Pi based computers, a SmartTV and a Rachel + server. The entire lab of course, was powered by solar panels. The HICs, like any GHE-powered home had the same system design from the energy supply aspect. Solar panels followed by a CCU followed by a fuse and then the load (computers or SmartTV in this case). The purpose behind installing these labs was to motivate school students to get aquainted with using computers, a mandatory skill, as they navigated the 21st century. However since the students and also the teachers had never seen, or at least used a computer before, working on the installed computers was understandably difficult and quiet scary. My assignment thus was to spend one week, training the teachers and the students to use these workstations and showing them how the computers could be integrated into their regular curriculum. Call it a form of teaching and technology-adoption kind of thing, if you will.

For the next one week I conducted digital education classes for both the teachers and the students with the idea of getting them aquainted with the system. I got the students aquainted with all the educational content in the Rachel+ server and did one-on-one sessions with the teachers to show them how they could incorporate the server content with their daily teaching. Keep in mind that no matter how well provisioned the lab was in terms of digital facilities, the teachers wouldn't encourage the use of the lab unless it directly aided their own teaching plans.

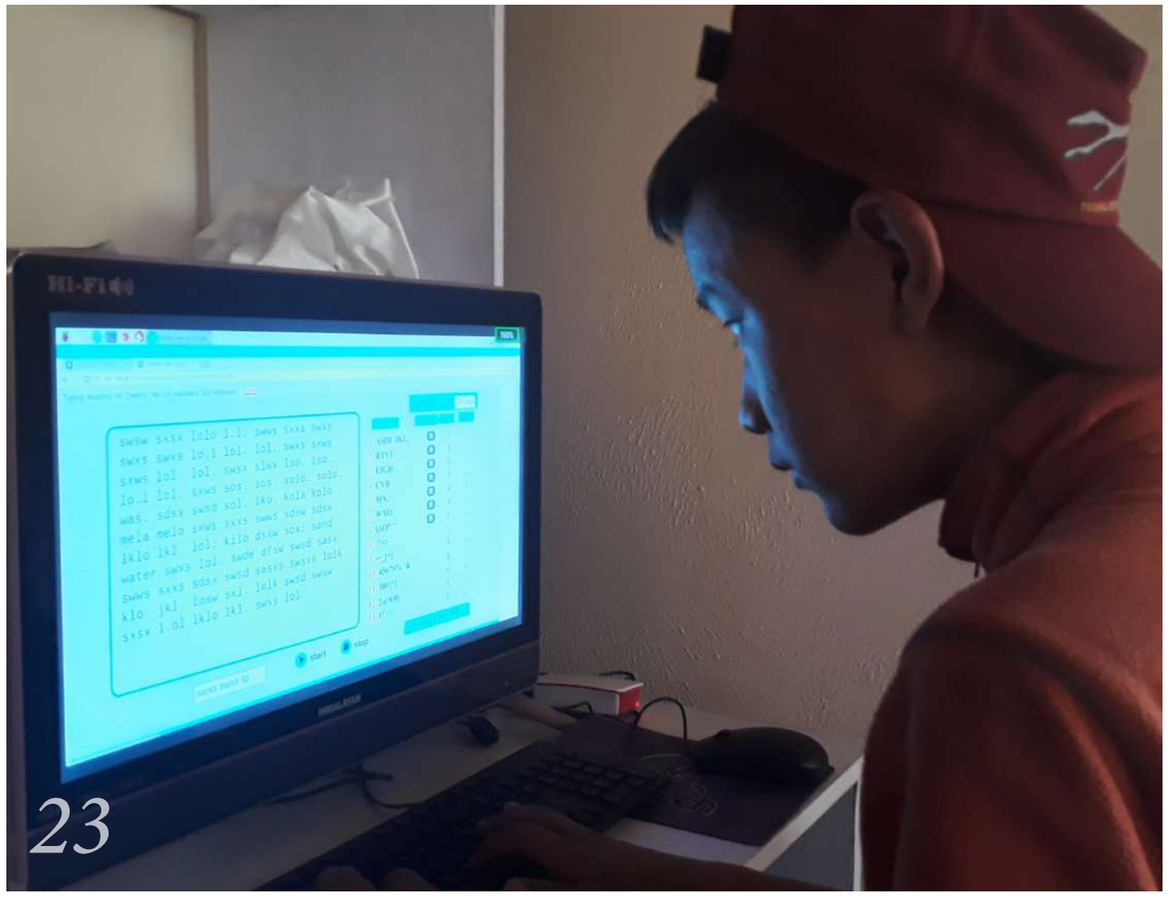
Likstey was a residential school and since the village itself was quiet small, only a few grades had students. I focused on training the 9th and 10th grade students; a total of 10 students (6+4). These 10 students lived on campus in a hostel and since I too lived on the school premises, in that one week I developed a beautiful bond with these students which involved going on evening walks, doing a Maggi party, cokking Momos together and dancing to Ladaki music.
I started as their computer teacher, and eventually became their friend.

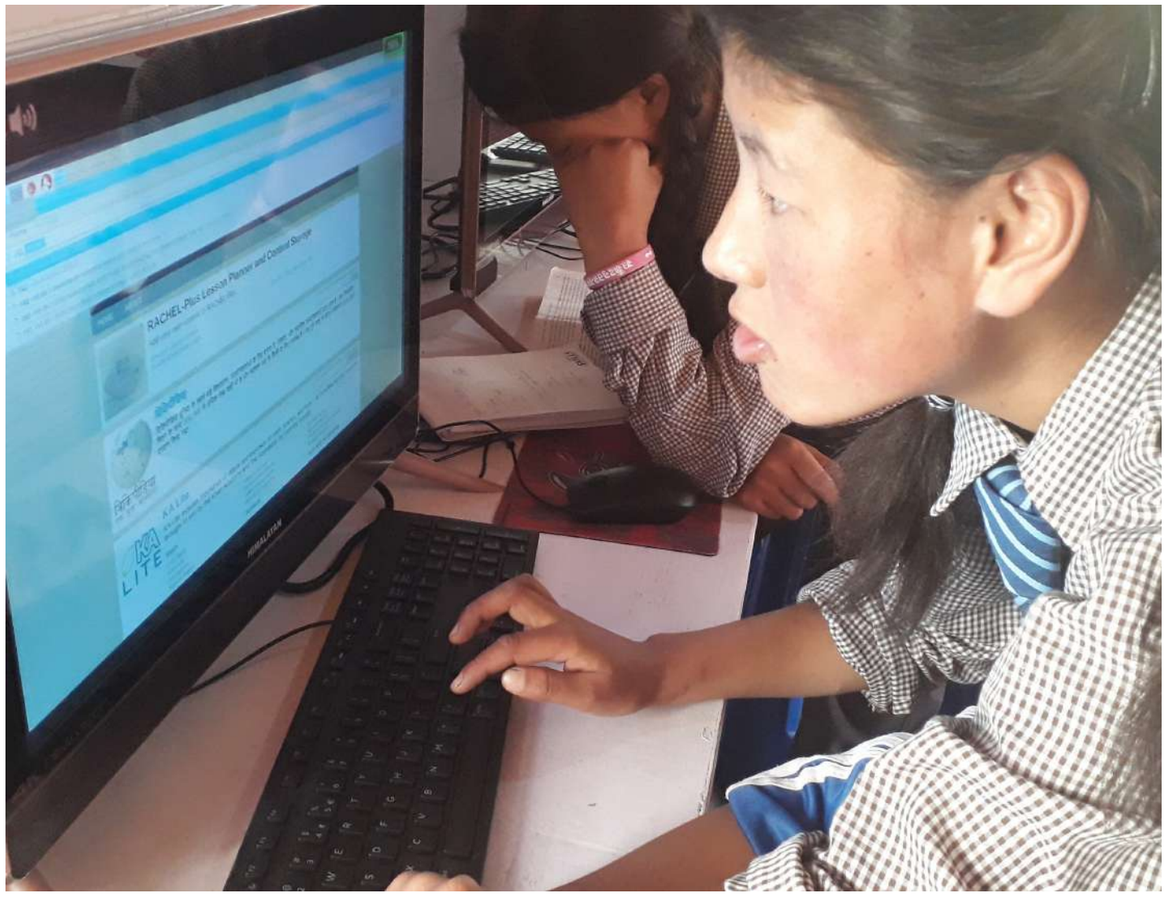
The lab.
The HIC in Likstey, consisting of six Rpi workstations and one Smart LED TV (to the left). You can also see the Rachel+ server (it's that tiny white thing above the very first PC from the left).

Some technology stuff.
In the picture is first the Charge Control Unit (CCU) which is the light brown box labelled MPPT. Then you can see the 10A fuse (also called an MCB), placed to break the connection in case of over-current. You can also see the MPPT box to the right which connects to the Rachel+ server (the black power adapter in pic) and the DC-to-AC converter (below the blue MPPT box) which connects to the SmartTV. Remember PV outputs DC so we need a converter to get AC.

Maybe you should read the instructions first?
In case you were wondering how a GHE micro-grid operates. This instruction sheet was attached on the wall near the entrance to inform the students and teachers about the basic precautions to take while using the lab. Check out the instruction at the very bottom that cautions against connecting high-voltage devices such as rice cookers, irons or water heaters to the lab grid.

Learning to use the lab.
(going clockwise from top left)
-Students watch a TED talk by Arvind Gupta about making toys out of trash. The TED talk is already stored offline on the Rachel+ server.
-A student is scrolling throught all the content stored on the server, trying to find Wikipedia so that she can search for information about Likstey on it.
-A student practices his typing skills on the Typing software. The students need tons of practice to imcrease their typing speed and accuracy owning to their lack of experience with computers.





Momos & Maggi

Lets have some fun!
(going clockwise from top left)
-A picture of the entire class in the home of one of the students we visited on the weekend. If you're trying to find me in the pic, don't. I'm the one clicking.
-Children trying to make shadows on the wall in the kitchen when we were all cooking together.
-The kids teaching me how to make Momos. I guess learning goes both ways. :)

Reflections

In a world where the mainstream conversation often revolves around human rights inequalities, what about educational inequality? In a world that's obsessed with putting an air-conditioner in every classtoom and a smartphone in every student's hand, what about the millions who can't go to school, not because they don't want to but because there isn't any school in their neighbourhood that can boast of even the most basic of facilities?

We are making the world digital, and reveling in the luxury that it provides us with, but what about the millions of children who shall enter the world tomorrow and would have never used a computer.
Where will these kids go? And what will they do?
In a world where one needs to know how to use Google Drive in order to be able to have the license to pursue their dreams, what will happen to those millions who have never touched anything digital in their lives, and for no fault of theirs of course.

What about these kids? Do we just ...leave them behind?

3 Taisuru

My next assignment after Likstey was in Taisuru, a small town in the Kargil district (unlike the previous deployments which were in the Ladakh district). The main task was the same as Likstey. The previous year, GHE had setup a HIC in the Evergreen Private School, consisting of 10 workstations, a SmartTV and a Rachel+ server. Unfortunately, since the school didn't nave a computer teacher, the students and teachers weren't actually making much use of the lab. My task was to train the teachers and students in using the lab and motivate them to integrate it's facilities into their regular curriculum. I would be living in Taisuru for a duration of two weeks. No net. No connectivity with the outside world of course.

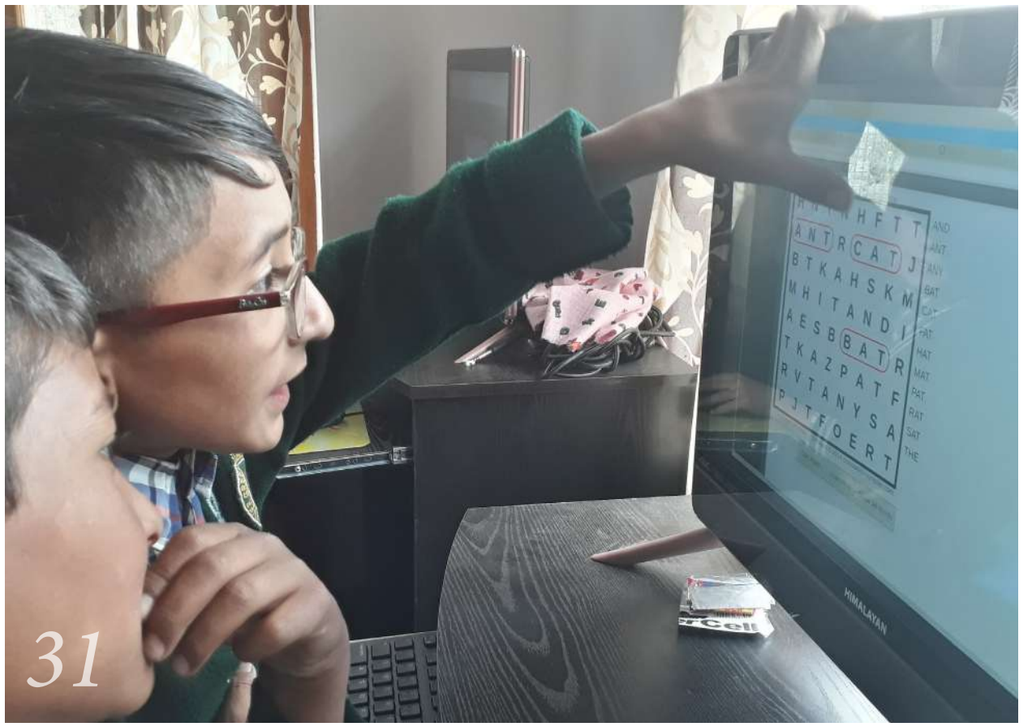
I mean...who needs that anyway, right?

Let's talk about the school. So Evergreen was a Private School, the only private school in the town of course. There were two goverment schools in the same town but they didn't match up to Evergreen in terms of the quality of education. Since Evergreen was a private school, it had the freedom to enforce it's own standards of education. In terms of running and financing, Evergreen was a community school. A few years ago, some members of the village Taisuru and the neighbouring village Khargee, seeing that public schools were unable to provide education of any reasonable quality, decided to take matters into their own hands to start and run a school all by themselves. They went around the village, talked to and convinced each individual about the importance of good schooling, collected funds and started by first building a basic structure on a plot of land donated to them by sympathetic villagers. They started slow, with just a couple of classrooms, some broken benches and blackboards to write on. Eventually, with passion and perseverance, they built up Evergreen into the brilliant private school it is today. One struggle after another struggle. Brick by brick.

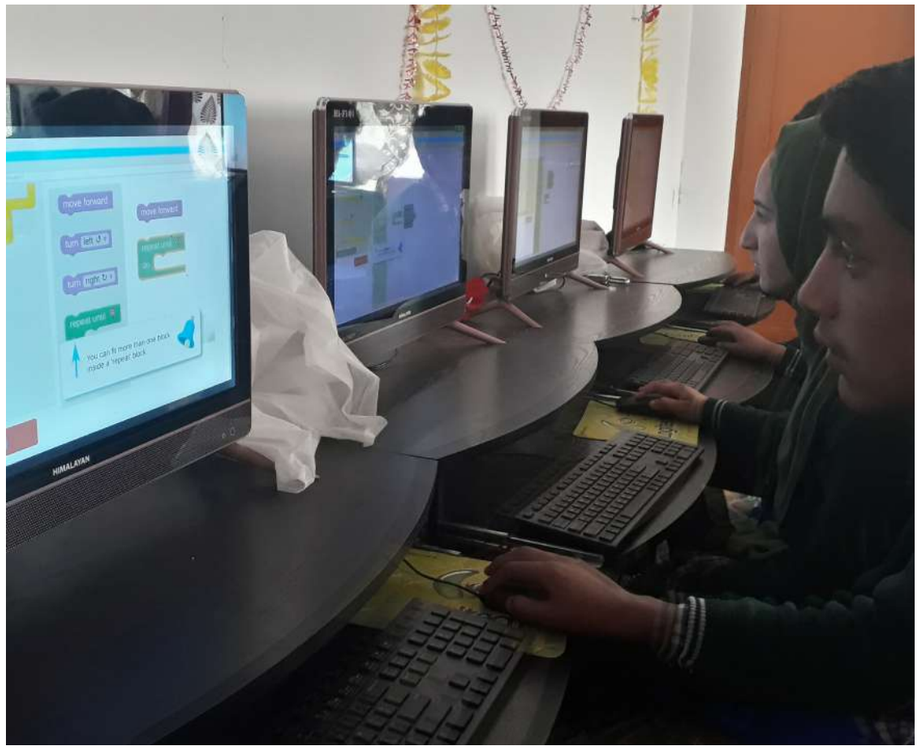
A point about Kargil, the region Evergreen was located in. See the moment one mentions Kargil, for every single Indian, it is the war of 1999 that shines into their memory. For that matter, even if you just Google Kargil, it's the Wikipedia page 'Kargil War' that shows up above the Wikipedia page 'Kargil'. Kargil had sadly become infamous for the 1999 Indo-Pak conflict. However, as I was to learn during my two weeks stay in Taisuru, there is always much more to a place and its people than some historic conflict. Kargil had grown way beyond it's history, and tranformed into one of the most gorgeous places I had ever witnessed in my life. And its people? The most hospitable and kindest souls you'd ever find.

Kargil and Taisuru showed me, that when given the choice between being entrenched forever in the essence of one's violent past or moving beyond hate and nurturing a future that blooms of forgiveness and empathy, humans always choose the latter.

Learning can be fun!
(going clockwise from top left)
-Students take a break to watch The Hobbit on the HIC SmartTV.
-Sudipto (Evergreen school teacher), helps one of the students in a typing lesson.
-Two kids try their best to hunt down all the words hidden in a word maze. They are playing a vocabulary word game on the Rachel+ server.



Anybody can code!
10th grade kids learn how to do visual coding using Scratch. This software is already loaded on the Rachel+ server that each HIC has.



Tech stuff.
Since the Evergreen HIC has 10 computers and a SmartTV, it has two CCU and MCB units. One pair for five computers. Also note that the DC-to-AC converter is connected to the right MCB. Again, we need this converter to power the SmartTV that runs on AC power.

Fooling around.
The HIC lab is as much a computer lab as it is a fun place for the kids to gooof around after a hard day at school. And also a great place to pose for pictures. :)

Building the school wall

My school, my responsibility.
One afternoon some kids decided to take reponsibility for their school and started cleaning it up and rebuilding the backside wall. What began as an afternoon activity transformed into a shining example of community strength and bonding as students of all grades and even teachers joined in.

Reflections

The goverment should provide good schools. The goverment should provide quality healthcare. The goverment should provide good housing. The goverment should provide electricity. And even jobs. The goverment should then also provide a comprehensive pension plan.
That's what we all think don't we? That's what we all wait for. The goverment ....to solve everything. Poverty, crime, illiteracy, umemployment, corruption ...and the list goes on. Whenever there's something wrong with our communities we blame the goverment and then wait for them to find a golden solution to our problems. Because how can we possibly solve our own problems, right?

Well ...here is a community that didn't wait for the government. They decided to take matters into their own hands. They took the hard way out. They had a vision. Then mobilized the community to participate in that vision. Built a concrete plan out of that vision. Then used their own sweat and toil to build something beautiful ...a school.

While the world was busy bickering about the goverment not doing enough, Taisuru taught me an important lesson in the Power of Individual Responsibility.

Don't wait for the world to solve your problems.
Who knows, maybe the world is waiting for you to solve theirs.

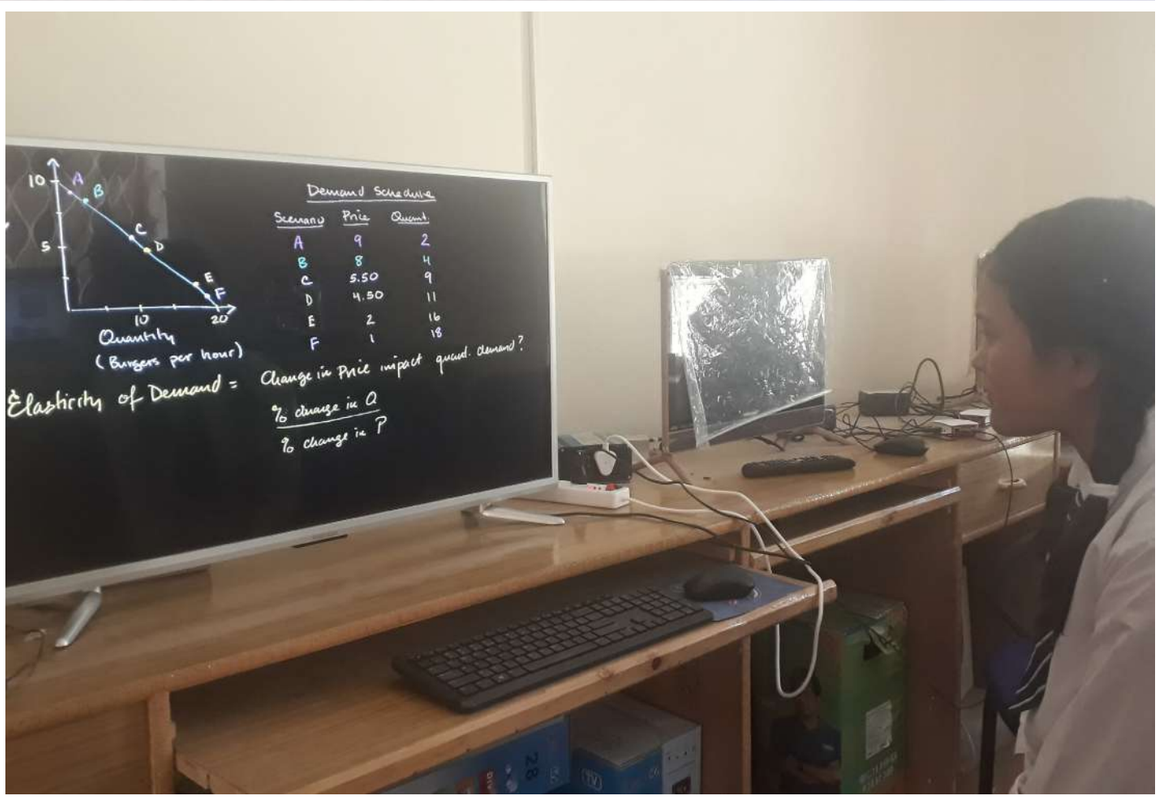
My problem, my responsibility.
Aga Hassan.
The school's founder.

4 Skurbuchan

Skurbuchan. A tiny hamlet located around 2.5 hours drive from Leh, Ladakh. It's the kind of place that would never appear on any conventional tourist route since it lies off the main NH1 expressway. This was my fourth assignment (if you count I-K-K as an assignment). GHE had installed a HIC with 10 computers, 1 SmartTV and a Rachel+ server. However given the usual lack of digital knowledge on the side of the faculty and students, I was required to train them in using the lab's facilities. This deployment was for 4 days. A short but necessary one.

Skurbuchan was a public upper high school. Meaning from grades 7th till 10th. It wasn't officially a resedential school, but due to the upcoming board exams, the school had been converted into a resedential one, with students and faculty living on campus from Monday till Friday and going home over the weekend.

This complicated my task a little bit more. How does one integrate digital education into an already fixed and comprehensive curriculum? How does one impress the importance of computers and self-learning in an educational system that offers a theoretical and an extremely guided experience?



Getting the basics right.
(clockwise from top left)
-Skurbuchan teachers practice their computer skills.
-A student checks out an Economics lesson on Khan Academy. KA lectures are pre-loaded on the Rachel+ server.
-A teacher tries out her typing skills on the pre-loaded typing game hosted on the server.

Dwindling stats?
The school board at Skurbuchan. The number of students at this school has been decreasing since the past many years, now standing at a measely 49. With better educational facilities availble in bigger cities, families are moving away to give theri children a brighter future.

There's a Rpi somwhere.
A couple of students and I toiled away on the last day to fix these green Himalayan cases on the Rpi CPUs. Suprisingly enough, these small boxes are the actual CPUs of the computer systems. Technology these days is just amazing, right?

Is there a motorcycle somewhere?
The Skurbuchan HIC was setup with the CSR funds provided by the motorcycle company Royal Enfield. It is such CSR programs that facilitate the hardware necessary for the Impact Expeditions and HICs.

Reflections

Everyone loves progress. Everyone wants urbanization. Bigger cities. Mega-cities. A ginormous number of facilities, all just an app away. But as people move away to these cities ...what happens to the remnants of the communities they leave behind?

As I walked through the deserted streets of Skurbuchan, a village that once must have been a bumbling community, but now was just a handful of people, I wondered what would happen to his place ten years from now? Would it still be there? Would its memories be preserved? Would the bunch of kids giggling at the side of the street still be there or would they too be whisked away into the city to build a 'better life' for themselves? Would anyone know that this place even existed?

We remember the past that we read about. The epic battles, the mighty kings, the massive empires, the glorious freedom struggles.

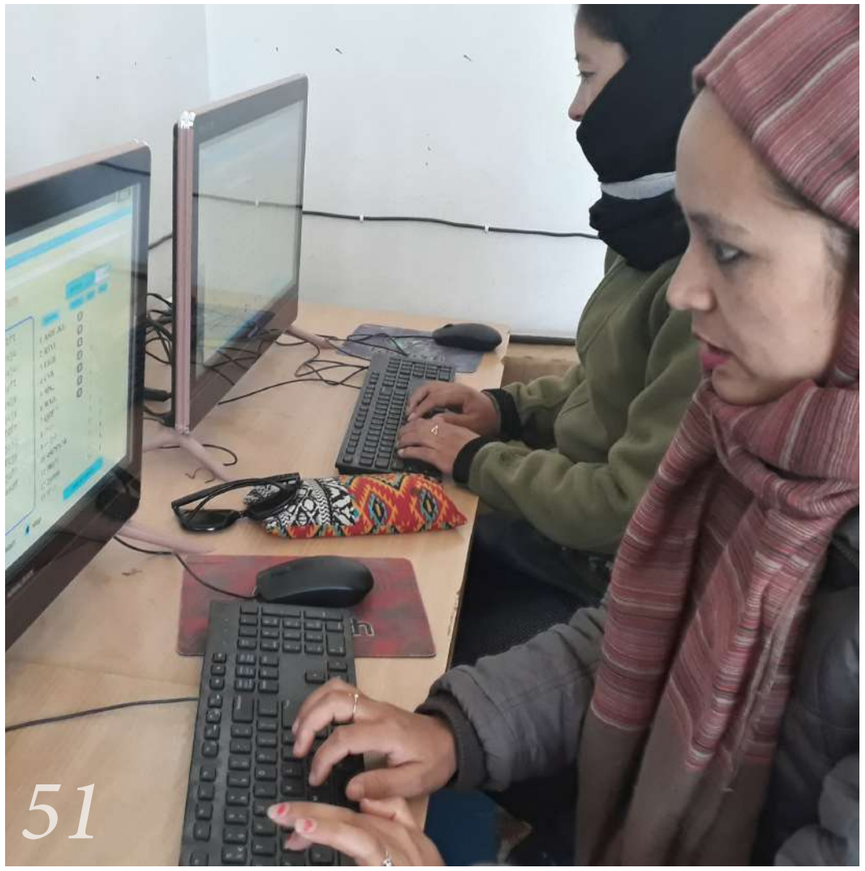
But what about the other parts of our past, that never make it into a history textbook? What about the less epic parts of history. The quieter parts. The beautiful parts. Who remembers those stories?

Who remembers the past that no one remembers?

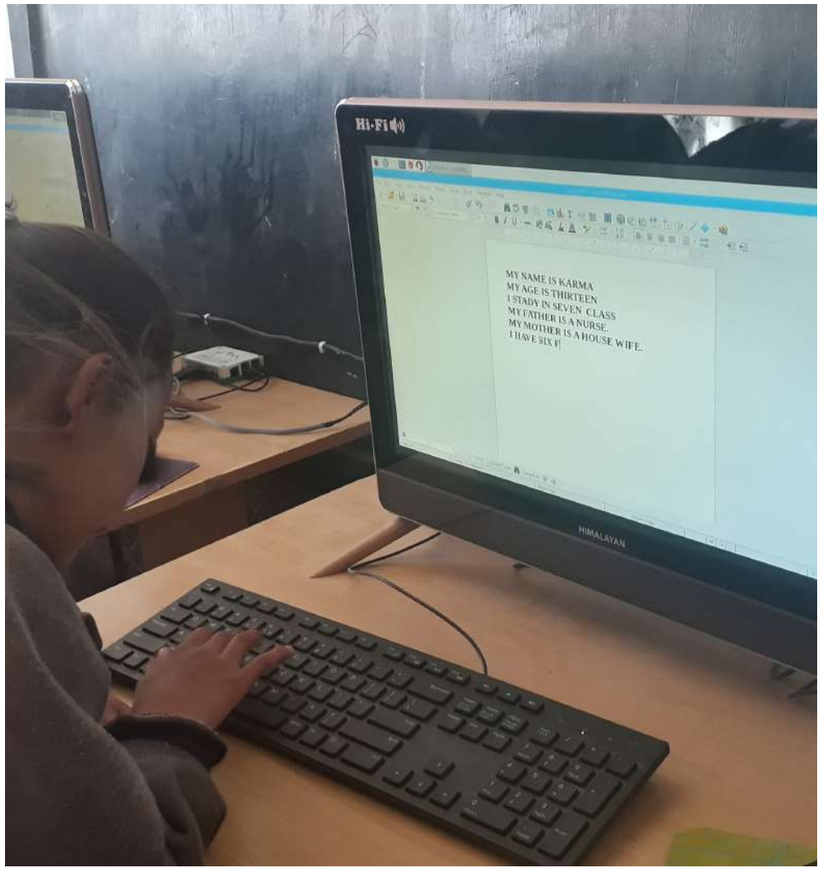
5 Satho

Satho was my final HIC assignment. It is located in the remote Changtang sub-region of Ladakh. Since Satho was located at a much higher altitude than the other places I had been to, and given the time of the assignment (September), it was extremely cold. Satho was a very tiny hamlet (much smaller than Skurbuchan) that had a public residential school for all grades from Kindergarten to 10th grade. The teachers in the Satho resedential school were a bit more aquainted with the lab's facilities but not enough to integrate it well enough in the curriculum. Additionally the lab had two defunct computers (out of 10) and as we eventually found out (a defective CCU) and so this assignment was necessary to carry out the required repairs to get the HIC back on track.

Satho highlights.
(going clockwise from top left)
-The entrance to the Satho Public Resedential School. Pretty deserted, huh?
-The CCU-MCB pair in the HIC lab. Also a DC-AC converter to power the SmartTV.
-Stanzin conducts repairs on the defective CCU. Later we had to replace the MCB attached to that CCU too since the MCB wasn't able to handle the entire load on it. We replaced it with an MCB of a higher rating.



A well-trained teacher...
Teachers practice using the typing software and navigating the Rachel+ server content.



...is a well-trained student.
Students try out to their hand at Libre Writer (the MS Word equivalent of Linux).
Since the younger students could only understand Ladaki, I conducted training sessions for the older students first, and then the older students taught the younger ones.

Reflections

Satho was a big victim of the crase for quality education. Better education. See, Satho was a public resedential school and was construted under India's Right To Education (RTE) Act. Because it was constructed by goverment appointed contractors, it's architecture didn't incorportate all the age-old ideas of natural warming that the Ladaki communities had assimilated over the years. It never struck the goverment that they should have tapped into the local knowledge before bringing in their bull-dozers and trucks to construct a structure out of cement; a material that has no capacity to retain internal heat and insulate rooms from the shivering cold outside.
This made the schools inhabitable by October, severely affecting the quality of education and one more critical factor...the health of the students. This was specially bad, since being a resedential school, parents would often drop their children at the school and go off into the mountains (think animal rearing nomads), and when the child got sick...there was no one for the school's faculty to call. There was no home for the sick child to go to. However bad it got, the child had to continue living...surviving in the same gripping cold that made it sick in the first place.

Think about it.
Tiny sick children...,
shivering in the cold,
moaning in sickness and pain,
crying to go home,
to nestle in their mother's arms,
but no parents. No home. No warmth. No doctor.
All in the name of education and policy statistics.

6 Ldumbur

Two more to go. Okay, so after a long time, finally, Ldumbur was an electrification assignment. But more than that, it was a 5 day Impact Expeditions with 17 students and 3 teachers from the International School of Zug and Lucern, Switzerland. For us, GHE, it was an expedition to bring light to a 1000-years old community called Ldumbur, nestled in the Kanji valley. For the students, it was part of their Personal Development Work (PDW) week. One week, every year, during which the students get to choose which social initiative they wish to work on, from 3-4 social projects across the world.

It was a 5 day expedition. Ldumbur was a tiny village of mostly thirty inhabitants. So tiny and remote that there weren't even any roads leading up to it. No transport routes. On Day 1, we departed from Leh, Ladakh in our mini-vans and drove till Kanji village (in Kanji valley) which was the nearest motorable point. Thereafter it was all old-school trekking.

On Day 2 we attached all the micro-grid hardware onto donkeys and mules owned by the villagers, and trekked uphil for two hours to reach Ldumbur, our destination. Post the traditional welcome with *Khataks*, we surveyed the village, divided ourself into three teams and began the process of electrification, which went into the third day of the expedition. On Day 4 we finally did the countdown bringing a centuries old community out of darkness; an event marked with dancing, tears of joy and lots of bear hugs.

Finally, on Day 5 we returned to Leh, and did a round of reflections about how the expedition affected us and what we learned and gained from it and concluded with our final team dinner.

Scenes from Day 1 and Day 2
(going clockwise from top left)
-Expedition leader, Manjhiri Gaikwad briefs the ISZL students about the itinerary
-We walked the last 5 kms of the journey to Kanji village.
-Unloading all the micro-grid hardware on reaching Kanji village. Here onwards, everything has to be on foot.
-A shot of Kanji village. Yeah. I know. It's the best one I had. Those small white structures are the village houses.

Destination Ldumbur.
-The expedition team reaches Ldumbur after a two hours trek from Kanji village. They are welcomed in the traditional Ladaki style with Khataks (the white cloth).
-All the hardware laid out on a mat for an explanation session. We explained how the entire system fits together to the students.
(in background) The expeditino team on their trek from Kanji to Ldumbur.

Electrification begins.
-Stanzin attaches a bulb holder inside one of the homes.
-The students of ISZL discuss the location of the holders. Stanzin helps them in this to plan the optimum approach so that we don't lose time.

Electrification scenes.
-One team of students works on setting up the frame and the PV panel on the roof of one of the houses.
- A shot of the CCU (blue box) and the 10A MCB post attachment and wiring in one of the houses.

Electrified!

On 24th September 2019, at 20:00 hours we did the final countdown! 14 homes saw light for the first time. We celeberated with the villagers, singing and dancing to Ladaki songs. For us it was just a light bulb but for them, the people of Ldumbur, it was long-yearned for access to a fundamental necessity to live a decent human life. The *Sarpanch* (village head), thaned the students profusely, while some villagers and students, overwhelmed by emotions, burst into tears of joy.

Reflections

You know what's the problem with the entire US vs THEM philosophy? In the end, nobody wins. No change happens. And while we are busy winning the debate, someone is still being denied their fundamental rights.

There are two types of people on this planet. Those who judge and those who solve. Every second you spend time judging, is a second you're not spending solving. To hate something, you need to judge it. To solve something, you need to understand it. There's a big difference.

There may be moments when you may think that a lack of electricity isn't your problem, it's Ladakh's problem. A lack of proper nutrition isn't your problem, it's Yemen's problem. A lack of freedom for women isn't your problem. It's Iran's problem. You are safe. You are healthy. You have a good amount of money in your account. A stable life. So it's not your problem. Not your headache. It's their problem. It's their pain.

That is exactly the kind of thinking that leads to millions still being denied their basic rights year after year. The kind of thinking that doesn't solve problems but aggravates them.

Remember... it's not US vs Them.
It's always WE.

7 Abran

Abran was my absolute final assignment with GHE for my SET Internship. Abran was a HIC electrification assignment. So solar micro-grid electrification yes ...but to set up a HIC lab in the Abran village school. This Imapact Expedition was done in collaboration with Bajaj (Indian company, HQ: Pune, India), as a CSR initiative. We teamed up with employees of the CSR division of Bajaj to do a 5 day expedition into Zhanskar valley in the Ladakh region where Abran was located. Though there were mountain roads availble this time, the journey to the village would be long (12+ hours one way), since the only route available would go all the way round via Kargil and Taisuru. But the smiles we say on the faces of the school students when they saw their very first computers more than made up for that.

Prepping up and reaching Kargil.
(going clockwise from top left)
-The first debriefing session at Leh, Ladakh. This time it was a team of 6 people (not counting GHE members).
-The mini-van stops at Rangdum, a village that comes on the way to Abran, for a break.
-Fotu-la. One of the highest passes in the Ladakh region. Altitude: 4108 m (13478 ft). It falls on the NH1 expressway stretch between Leh and Kargil.

Electrified!

Done and celeberated!
(going clockwise from top left)
-Behold the Abran HIC. 10 Rpi computers, 1 SmartTV and a Rachel+ server, all powered with solar panels.
-Students excitedly, operate a computer for the first time while expedition members look on.
-**Who's the boss?** *Tsewang Dorjay, a core team member of GHE attaches a bulb holder. This individual is a stunning example of the combination of leadership and humility.*

Reflections

As the children played with the new computers, slowly, without anyone noticing at first, a very old and frail man walked into the lab and sat down in front of one of the computers. He had never seen a computer...something digital...something that had this screen and stuff...ever in his life. He didn't know what it was. This glowing thing...this long thing with many buttons...this black object to hold in one's palm. His face though...it resonated with the most happiness of all the people in the lab. Absolutely sincere pure joy. His mind was probably figuring out how to use this machine that was in front of him but in his heart, he clearly wanted to say just one simple thing to all of us.

"Thank You"

8 Rounding it up...

And that was my SET internship. Three months spent in different parts of the Indian Himalayas, each more remote than the previous one, working with some of the most awesome human beings on this planet, bringing light to communities entrenched in darkness for centuries, travelling to some of the most extreme climates on this planet, collecting interesting stories and much-needed life-lessons along the way.

So what did I learn? Well for starters I learnt the importance of **getting out of your comfort zone**. Of knowing your limits, understanding them, and then breaking them. See ...to put it plainly, great things are always difficult. That's exactly why they are great and only the rarest of souls try their hand at these things. Life always gives us a choice. You can choose to either do the easy things, finish everything the easy way, stay within your comfort zone and have no worries at all. But then you won't have any story to tell either. Or you can choose to go out of your comfort zone and try all those things that everyone who cares about you and your comfort told you to stay away from. You can try your hand at everything that makes you shiver in fear. You may succeed. Or you may fail. But either way, you'll have a powerful story to tell.

"The sooner you move out of your comfort zone, the sooner the world will find a reason to respect you."

The next thing GHE taught me was the importance of doing that one thing that very few of us really ever do. That one critical thing that either gets lost either in our rush to find gratification for our own solutions or gets burnt in the fires of our personal egos. **The importance of Listening.** Remember that school in Satho? Remember the children moaning in the pain of sickness while the deadly uncaring cold around them engulfed them? And there was nothing anyone could do. No parents to find. No doctors to call for aid. Why did all that happen? Because the goverment of the world's most populous democracy failed to listen. If goverments, with all their power fail to listen, what stops individuals like you and me from falling into that very trap? Most of the problems we engineers are tasked with solving could have been solved much faster and in a much more humane way had we only shut up our egos and listened first before rushing in with our pre-made solutions. In the words of Rocky Balboa, **"You can't learn anything talking. That's a fact of life. As long as you're talking you're not listening."**

The most powerful lesson that GHE taught me lies in the very essence of what it does every single day. **The power of Individual Responsibility.** This relates to every single expedition GHE has done till date and every assignment I had the honor of working on. For every problem we face in our lives, that directly affects us, we have two options. One is to do what we as a comunity, as a society love to do. Complain. Blame. Criticize. And then wonder why none of our problems ever get solved. Or we can take reponsibility for our problems and solve it ourselves. Think about it. There is noting special that goverment agents have that we can't aquire ourselves as individuals. No special expertise. No rare skillset. **We fail not for a lack of skill, but for a lack of will.** We, as individuals, are perfectly capable of solving every single crisis that knocks on our door. Yet we are too busy blaming others for not solving them for us. It's this lesson in the power of Individualism that I consider the most important learning during my internship with them. It's the will that counts. **The will to take reponsibility, to not indulge in blame games and to act.**

My internship came to an end in mid-October and I returned to my university to complete the remainder of my studies. Somethimes while working on my reports I look up at the window, and wish there was a mountain for me to climb. Open fields for me to sleep in, under the twinkling of the stars. Maybe a part of me is lost in the enourmous valleys of the Himalayas. Sometimes I wish I could escape all the pretentiousness that plagues higher education today and actually engage in something truly impactful. Something that could actually change people's lives and transform it. I learnt a lot in my internship. But if you ask me what was the most important thing I learnt, the answer would always be the same.

The most important thing I got, is a story to tell.

About GHE...

Global Himalayan Expedition (GHE) is a social enterprise headquartered in New Delhi, India that was started by Paras Loomba (CEO) in 2014. Paras was one of the 70 members of the 2012 International Antartic Expedition led by Robert Swan, OBE. Paras worked on using solar energy to light up the base in Antartica. Post the expedition, on reaching India, Paras decided to build on the same idea of providing electricity to remote, conventionally inaccessible areas of the Indian Himalayas. Thus GHE was born.

GHE works in the domain of remote energy access, digital education and sustainable tourism. Every year, GHE conducts what are known as Impact Expeditions. Bascially GHE collects a group of travelers from all across the world, from different backgrounds, and treks with them to a remote village that lacks electricity. Then GHE guides the travellers in installing solar powered micro-grids to bring light to these communities. GHE also extended this concept to setup solar computer labs in schools called Himalayan Innovation Centers (HICs). These Linux-based computer systems not only provide students with access to digital facilities but also aid them with tons of pre-loaded offline educational content to enhance their learning.

Once GHE electrifies a certain community, it sparks local livelihood generation oppoutunities by encouraging community residents to transform their homes into Homestays. Travelers get the oppourtunity to experience some of the most remote and untouched parts of the Himalayas, while locals get an additional means of livelihood. Some of these homestays also have a powerful Dobsonian telescope that gives travelers the chance to witness the clear starry skies of the Himalayas. Such homestays are known as Astrostays. GHE also trains the locals to use these telescopes so that they can conduct the Astronomy sessions for the travelers and add an additional source of income to their daily livelihood.

Till date GHE has electrified 101 villages, with a total of 1286 international travelers participating in its expeditions, installed 18 digital centers, impacted 41,800 lives and mitigated 1340 tons of carbon. GHE has received accolades and recognition from the World Travel and Toursim Council (WTTC), the United Nations World Tourism Organization (UNWTO) and the International Center for Integrated Mountain Development (ICIMOD), to name a few. GHE also holds the prestige of being a member of the Global Shapers Network and was invited to participate in the 2018 edition of the World Economic Forum (WEF) in Davos. GHE's expeditions have been covered by leading media houses such as NDTV and BBC and in 2019, The Guardian placed GHE on it's list of top 10 ethical travel companies in the world.

In the coming years, GHE looks to expand it's Impact Expeditions to the North-Eastern parts of India and Nepal, going ahead in its dream of bringing light to those who still live in darkness.

Julley!

Julley - 'Thank You' in Ladaki.