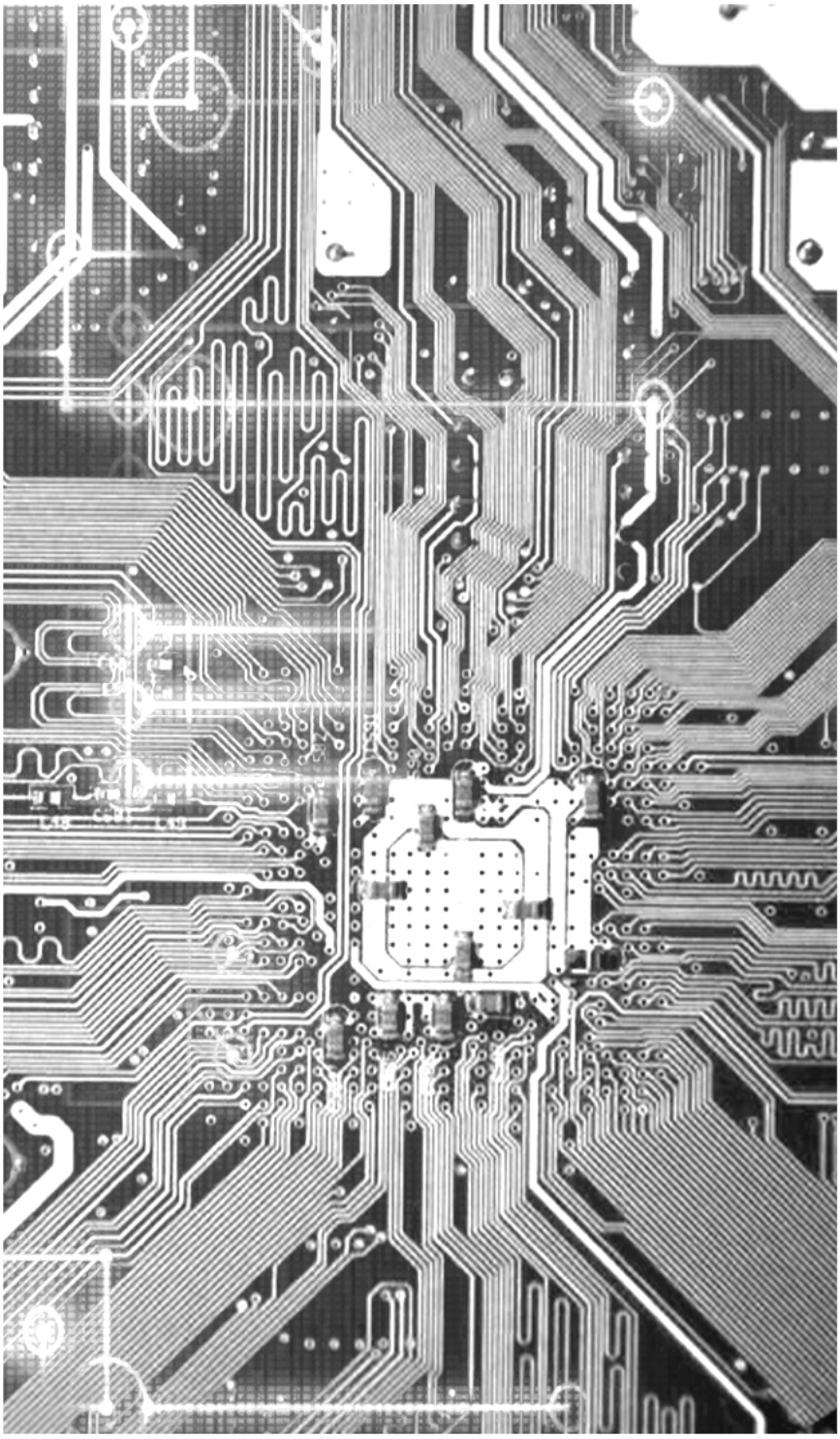
LIVEWIRE



ISSUE 8.0

PHOENIX

2018 EDITION

BITS-PILANI,

Department of Electrical Engineering

Office of 2017-18

Disclaimer: Some information has been collected from trusted sources. We are releasing it, believing it to be true to the fullest of our knowledge. Any discrepancies that may arise will not be the responsibility of the editorial board, PHoEnix, or the administration.

HEAD OF THE DEPARTMENT INTERVIEW

THE PERSON WHO IS UNTIRING AND PEP UP THE PLACE WITH HIS POSITIVE ENERGY AND ENTHUSIASM IS NONE OTHER THAN SANKET GOEL SIR. WE ONCE AGAIN TAKE THIS OPPORTUNITY TO THANK SANKET GOEL SIR FOR HIS CONSTANT SUPPORT, GUIDANCE AND TAKING TIME OUT OF HIS SCHEDULE FOR THE INTERVIEW. GO AHEAD, GIVE IT A READ AND GET YOUR SHARE OF KNOWLEDGE.

1)ONE QUALITY THAT YOU APPRECIATE IN BITSIANS?

SANKET SIR- I THINK ONE OF THE BEST QUALITIES THAT I DON'T FIND ANYWHERE ELSE EXCEPT FOR BITSIANS IS OUT OF THE BOX APPROACH THEY ARE ALWAYS CURRENT WITH THE TREND. THEY TAKE THE ACADEMIC LIBERTY WHICH IS GIVEN TO THEM TO BECOME A DIFFERENTIATOR.

2) ONE QUALITY THAT STUDENTS NEED TO IMPROVE?

SANKET SIR – THAT IS A TOUGH QUESTION (LAUGHS PLEASANTLY). I THINK STUDENTS KNOW WHERE TO IMPROVE THEMSELVES. BUT IF I HAD TO ANSWER YOUR QUESTION, I THINK STUDENTS SHOULD NOT DEVIATE FROM FUNDAMENTALS. IT IS GOOD TO BE CURRENT BUT IN THE COURSE OF THE CAREER, THE BASICS WILL ALWAYS RUN PARALLEL.

3) FACULTY AND THE ASSOCIATION HAVE BEEN TRYING TO IMPROVE THE STUDENT-FACULTY RELATION BY ORGANIZING INTERACTION SESSIONS, ETC. WHAT DO YOU LIKE TO SAY TO STUDENTS WHO ARE RELUCTANT TO COME OUT AND TALK TO PROFESSORS?

SANKET SIR- DON'T BE HESITANT AT ALL. BE VERY TRANSPARENT AND HONEST WITH THE FACULTY MEMBERS. I THINK WE GET CARRIED AWAY SOMETIMES WHEN WE DO NOT SEE ACADEMIC HONESTY BUT NO MATTER WHAT FACULTY WILL ALWAYS MAKE TIME. BUT ONE ADVICE IS THAT MAKE AN APPOINTMENT. EVERYTHING WILL BE MORE EFFICIENT AND PRODUCTIVE WHEN IT GOES WITH THE SCHEDULE.

4) WHAT ARE THE SOURCES OF INFORMATION FOR STUDENTS ABOUT THE ONGOING PROJECTS WITHIN THE DEPARTMENT?

SANKET SIR- WE KEEP THE WEBSITE UP TO DATE. THE FACULTY HAS CREATED THEIR PROFILES IN AN ADVANCED MANNER MENTIONING THEIR RESEARCH AREA, ONGOING PROJECTS, PUBLICATIONS, ETC. ONE THING WE ARE CURRENTLY WORKING ON IS TO COMPILE ALL THE PROJECTS AT ONE PLACE. BUT AGAIN YOU CAN ALWAYS CHECK THE PROJECTS AND MEET THE FACULTY. IN OUR DEPARTMENT CURRENTLY OPTICAL, NEURAL NETWORKS, MICROWAVE RF, WIRELESS COMMUNICATION, MICROELECTRONICS, ETC. RIGHT NOW THE DEPARTMENT IS NOT SO BIG THAT STUDENT MIGHT NOT BE ABLE TO APPROACH.

5) STRATEGIES AND TIPS FOR FOREIGN INTERNSHIPS OR OFF-CAMPUS THESIS?

SANKET SIR- THERE WILL NOT BE A PARTICULAR TIP IN THIS PROCESS. STUDENTS SHOULD HAVE A MULTIDIMENSIONAL APPROACH. WE HAVE INTERNATIONAL AFFAIR DIVISION AND WEBSITE FOR THIS. CHECK THE ONGOING AND PREVIOUS PROJECTS AND APPROACH THE ASSOCIATIVE DEAN OF IAD. ANOTHER APPROACH IS COME TALK TO THE FACULTY AND EXPLAIN THEM YOUR INTEREST IN THE PROJECT. FACULTY MEMBERS DO HAVE MANY CONTACTS AND HELP YOU THROUGHOUT. I PERSONALLY FORWARDED STUDENT RESUMES AND MANY OF THEM GOT A GOOD THESIS.

6) WHAT ADVICE DO YOU GIVE TO STUDENTS CONSIDERING TEACHING AS A PROFESSION?

SANKET SIR- TEACHING PROFESSION IS VERY RECREATIVE AND IMPRESSIVE. PAY STRUCTURE AND ENVIRONMENT ARE VERY GOOD IN THE CURRENT SCENARIO. GIVEN THE JOB SATISFACTION, I THINK STUDENTS MUST CONSIDER IT. HOWEVER, HAVING PH.D. IS ALWAYS AN ADVANTAGE BECAUSE YOU NEED TO GUIDE A PH.D. STUDENT IN THE COURSE OF A CAREER. SO I THINK IF A STUDENT PLANS TO TAKE UP TEACHING PROFESSION, HE/SHE SHOULD PLAN PH.D.

7) A TREND THAT QUITE A FEW STUDENTS FROM OUR BRANCHES ARE SHOWING INTEREST IN OTHER FIELDS OF ENGINEERING. IS THIS A GOOD OR BAD THING?

SANKET SIR- THERE IS NO HARM IN CHOOSING THE COURSE YOU LIKE. I DON'T SEE IT AS A BAD OR GOOD THING. STUDENTS ARE QUITE OPEN, SMART AND MATURE THESE DAYS. BUT MY SUGGESTION IS TO MAINTAIN A BALANCE BETWEEN THE CURRENT SITUATION AND VISION YOU HAVE FOR THE FUTURE. YOU MAY NOT ALWAYS FORECAST THE FUTURE PRECISELY SO THE SMARTNESS LIES IN MAINTAINING THE BALANCE. AS I SAID BEFORE, BE LINKED WITH FUNDAMENTALS.

8) ONE QUESTION MANY OF US WANTS TO KNOW 'PLACEMENTS WITHOUT CODING POSSIBLE?

SANKET SIR- IT IS VERY MUCH POSSIBLE, AND STUDENTS ARE CRACKING IT. IF YOU SEE THE NUMBERS ON THE WEBSITE, 35% OF THE STUDENTS ARE GETTING THE CORE JOBS. THIS HAS BEEN THE TREND SINCE LAST FIVE YEARS. BUT STUDENTS TEND TO TRUST THEIR SENIORS MORE THAN THE PROFESSORS (LAUGHS AND MAKES THE ENVIRONMENT MORE CHEERFUL AND LIGHT). IT IS NOT A WRONG THING. BUT FIRST-YEAR STUDENTS SHOULD ALWAYS TALK TO FOURTH-YEAR STUDENTS. SECOND YEARITES CARRY A BAGGAGE OF BIASES. SO ALWAYS TALK TO FOUR-YEAR STUDENTS. BACK TO THE QUESTION, PLACEMENTS ARE POSSIBLE AND NUMBERS ARE INCREASING.

9) FINAL SUGGESTIONS THAT YOU GIVE TO STUDENTS.

SANKET SIR- COME TO CLASSES. KEEP IN TOUCH WITH THE SUBJECTS. ENGAGE IN ON-CAMPUS TECHNICAL CULTURE. THIS TIME WE HAVE INCREASED THE NUMBER OF PROJECTS, IN RETURN STUDENTS SHOULD MAKE USE OF THIS OPPORTUNITY AND GIVE THEIR BEST. ALWAYS BE TRANSPARENT AND HONEST. I WAS QUITE SHOCKED WHEN I WAS TOLD BY COMPANIES THAT FEW RESUMES ARE NOT FAIR. PEOPLE WHO RECRUIT DO HAVE EXPERIENCE, KNOWLEDGE, AND AWARENESS. THEY CAN EASILY FIND OUT IF THERE IS ANY DISHONESTY.

LIST OF OFFICE BEARERS (2017-18)

Elected Members

GANESH VARMA (PRESIDENT)

HIMANSHU KARANDIKAR (SECRETARY)

SURAJ SARAB (TREASURER)

MAHESH KUMAR MOOND (JOINT TREASURER)

PRITHVIRAJ SINGH RATHORE (JOINT SECRETARY)

Design Team

PRATIK AKIR

NISHANT AGGARWAL

Editorial Board

KAUTILYA PHANI

MAHATI DOMALAPALLY

KUNAL VARSHNEY

NEHA TEBASSUM

ANJALI GOYAL

ABHISHEK ROY

Nucleus Members

GANESH GAMPA

RITHVIK D

AVNISH

MEHUL

RITHEEK PITTI

PRAJWAL DEVENE

HARSHA PANWAR

RISHAB MEHLA

Technical Team

NIKHILANJ

LOHITH

VINEEL C

AKHIL RAJ

KESHAV SHARAN

PRATHAMESH SARAF

PRABHMEET SINGH

ROHAN PANDA

MANAN GUPTA

Event Co-ordinators

AJAY

SWEKSHA SINHA

MEHUL SHARMA

PRATYUSH SINGH

POWER FROM AIR

GENERALLY, ALL THE INTERNET CONNECTED DEVICES NEED BATTERY OR POWER CORD FOR THEIR FUNCTIONING. EVEN THOUGH HAVING A BACKUP IS A SAFE OPTION DURI NG POWER OUTAGES, IT'S A RISK WHEN YOU TA KE INTO ACCOUNT THAT ALL THE THERMOSTATS, SEC URITY CAMERAS AND SMOKE ALARMS ARE IN NEED OF A POWER CORD 24/7. BUT THIS WON'T BE THE CASE IN NOT SO DISTANT FULLIRE. TECHNOLOGY THAT LETS GADGETS WORK AND COMMUNICATE USING ONLY ENERGY HARVESTED FROM NEARBY TV, RADIO, CELL-PHONE, OR WI-FI SIGNALS IS HEADED TOWARD COMMERCIALIZATION. RESEARCHERS AT THE UNIVERSITY OF WASHINGTON WHO DEVELOPED THIS TECHNIQUE DEMONSTRATED INTERNET-CONNECTED TEMPERATURE AND MOTION SENSORS, ALSO A CAMERA,POWERED THAT WAY.

ALTHOUGH WIRELESS POWER TRANSFER IS DONE BEFORE ON SEVERA L OCCASIONS AND ON A WIDE RANGE OF PLATFORMS, GETTING A DEVICE WITHOUT A CONVENTIONAL POWER SOURCE TO COMMUNICATE IS HARD. BECAUSE THE AIRWAVES HARVESTED FROM RADIO, TV AND OTHER TELECON1MUNICATION DEVICE HOLDS LITTLE E NERGY AND GENERATING RADIO SIGNALS IS VERY POWER INTENSIVE.
THE MINDS BEHIND THIS UNIQUE IDEA ARE SHYAMNATH GOLLAKOTA AND HIS COLLEAGUE JOSHUA SMITH. TH E Y PROVED THAT THE WEAKER RAD IO SIGNA LS WERE ENO UGH TO PROVIDE WHAT ALL AN INTERNET GADGET NEEDS, USING A PRINCIPLE CALLED BACKSCATTERING. ONE OF THEIR DEVICES SELECTIVELY REFLECTS INCOMING RADIO WAVES TO CONSTRUCT A NEW SIGNAL, INSTEAD OF GENERATING ORIGINAL SIGNALS - MUCH LIKE HOW AN INJURED HIKER SENDS AN SOS SIGNAL USING THE SUN AND A MIRROR. THIS TYPE OF GADGET USING THIS TECHNIQUE ABSORBS SOME AMOUNT OF THE ENERGY FROM THE SIGNAL THAT IS BEING MODIFIES TO POWER ITS OWN CIRCUITS, THEREBY UTILISING THE ·WEAKE R RADIO SIGNA LS.BY THIS, INTERNET DEVICES POWERED BY WI-FI AND OTHER TELECO MMU NICATIONS SIGNA LS WILL MAKE SMALL COMPUTERS AND SENSORS MORE PERVASIVE.

RFID CHIPS FOR THE CONTACTLESS SMART CARDS USED IN MASS TRANSIT IS ONE OF THE OTHER TECHNOLOGIES THAT USE BACKSCALLERING, BUT THEY REQUIRE SPECIALIZED READER DEVICES AND CAN COMMUNICATE ONLY WITHIN A FEW INCHES BECAUSE THE REFLECTED SIGNALS ARE WEAK AND THE READER ITSELF PRESENTS AS AN INTERFERENCE.
ANOTHER VERSIO N OF THE UNIVERSITY OF WASHINGTON TECHNOLOGY, DUBBED AS PASSIVE WI-FI, IS BEING MADE COMMERCIAL BY A SPIN-OFF COMPANY, JEEVA WIRELESS. IT LETS BATTERY-FREE DEVICES CONNECT WITH CONVENTIONAL DEVICES LIKE COMPUTERS AND SMARTPHONES BY BACKSCATTERING WI-FI SIGNALS OF THEN1. IN TESTS, PROTOTYPE PASSIVE WI-FI DEVICES HAVE BEAN1ED DATA AS FAR AS I00 FEET AND EVEN MADE CONNECTIONS THROUGH WALLS. DOING THAT REQUIRES ALTERING THE SOFTWARE OF THE WI-FI ACCESS POINT TO GENERATE AN EXTRA SIGNAL FOR PASSIVE WI FI DEVICES TO USE, VERY SLIGHTLY INCREASING ITS POV1ER CONSUMPTION. SMITH SAYS THAT PASSIVE WI-FI CONSUMES JUST

1 /10,000 AS MUCH POWER AS EXISTING WI-FI CHIPSETS USE ON A REGULAR BASIS. IT USES A THOUSANDTH AS MUCH POWER AS THE BLUETOOTH LE AND ZIGBEE COMMUNICATIONS STANDARDS USED BY SOME SMALL CONNECTED DEVICES, THAT'S MEA GRE WHEN TAKEN INTO ACCOUNT THE AMOUNT OF ENERGY THAT'S BEING SAVED, AND HAS A LONGER RANGE.

THERE HAVE BEEN SOME RECENT ADVANCEMENTS IN THE COMMERCIALISATION OF THIS TECHNOLOGY. DRAYSONTECHNOLOGIES, NOT A HOUSEHOLD NAME BUT PRETTY SURE TO BECOME ONE, HAVE ANNOUNCED FREEVOLT, WHICH THEY SAY IS "A SYSTEM THAT HARVESTS ENERGY FROM RADIO FREQUENCY(RF) SIGNALS BOUNCING AROUND IN THE ETHER AND TURNS IT INTO USABLE, PERPETUAL POWER." T HIS MEANS IT JUST DEVELOPED THE FIRST CON1MERCIAL TECHNOLOGY THAT 'LITERALLY CREATES ELECTRICITY OUT OF THIN AIR'. ALSO, THERE' S A COMPANY CALLED NIKOLALABS, THAT'S HOPING TO RELEASE AN IPHONE CASE THAT'S SAID TO EXTEND BATTERY LIFE BY RF ENERGY HARVESTING.

ACCORDING TO DRAYSON, FREE VOLT POWERS DEVICES USING AMBIENT RF ENERGY, NO DEDICATED TRANSMITTER REQUIRED. THE KEY TO FREEVOLT IS SAID TO BE THE EFFICIENCY OF ITS THREE CONSTITUENT PARTS. A MULTI-BAND ANTENNA SCAVENGES RF ENERGY FROM ANY SOURCE WITHIN THE 0.5-SGHZ RANGE, WHICH IS THEN FED THROUGH AN " ULTRA-EFFICIENT" RECTIFIER THAT L1RRNS THIS ENERGY INTO DC ELECTRICITY. A POWER MANAGEMENT MODULE BOOSTS, STORES AND OUTPUTS THIS ELECTRICITY -- AND THAT' S ALL THERE IS TO IT.

A STANDARD FREEVOLT UNIT CAN PRODUCE AROUND L00 MICROWATTS OF POWER. THAT'S NOWHERE NEAR ENOUGH TO SAY, RUN YOUR SMARTPHONE, BUT DRAYSON HAS SOME SPECIFIC USE CASES IN MIND. THE COMPANY THINKS FREEVOLT CAN BE THE BACKBONE OF THE CONNECTED HOME, AND IN A BROADER SENSE, THE INTERNET OF THINGS.

SENSOR-BASED DEVICES, SUCH A SMART SMOKE ALARM, CAN BE POWERED BY FREEVOLT INDEFINITELY. BEACONS THAT PROVIDE INDOOR MAPPING AND TARGETED ADVERTISING ARE ALSO PERFECT CANDIDATES.

WHILE IT'S EASY TO VISUALIZE SPECIFIC EXAMPLES -- A SMOKE ALARM THAT NEVER NEEDS A NEW BATTERY, OR A LOW-POWER SEC URITY CAME RA THAT ISN'T BOUND TO A MAINS OUTLET -- THE TRUE POTENTIAL OF FREEVOLT IS HARD TO GRASP. WE'RE TALKING ABOUT FREE ENERGY HERE: DEVICES THAT NEVER NEED CHARGING, COST NOTHING TO RUN, AND AREN'T LIMITED BY THE LOCATION OF AN EXTERNAL POWER SOURCE. AN ENTIRE SMART CITY -- WHERE ROADS KNOW WHEN THEY'RE BUSY AND BINS KNOW WHEN THEY'RE FULL -- COULD BE DEVISED USING COUNTLESS SENSORS THAT REQUIRE NO UPKEEP, AND HAVE NO OVERHEADS BEYOND THE PRICE OF THE HARDWARE ITSELF. IT'S A POWERFUL IDEA, AND BEYOND SENSORS, DRAYSON IMAGINES FREEVOLT BEING USED TO TRICKLE-CHARGE ALL KINDS OF HARDWARE, SIGNIFICANTLY EXTENDING THE BATTERY LIFE OF A WEARABLE, FOR INSTANCE. S,O I THINK THE CONCEPT OF 'POWER FROM AIR' IS GOING TO BE ONE OF THE BREAKTHROUGH TECHNOLOGIES OF 2016.

NEURAL IMPULSE MANIPULATION

"YOUR BRAIN HAS 100 BILLION NEURONS, EACH CONNECTED TO 10 THOUSAND OTHER NEURONS. SITTING ON THE TOP OF YOUR SHOULDERS IS THE MOST COMPLICATED OBJECT IN THE ENTIRE UNIVERSE." – MICHIO KAKU

THE BRAIN, AND HOW IT WORKS, HAS BEEN A CONSTANT SOURCE OF CURIOSITY AND AWE AMONG RESEARCHERS, AND COMMON MEN ALIKE. THEORIES REGARDING THE NERVOUS SYSTEM AND HOW IT FUNCTIONS, HAVE BEEN NUMEROUS AND EVER EVOLVING. ONE OF THE MOST INNOVATIVE AND FASCINATING APPLICATIONS OF THE AGE-OLD STUDY OF NEUROSCIENCE IS NEURAL IMPULSE MANIPULATION: THE ART OF CONTROLLING ELECTRICAL DEVICES USING BIOLOGICAL NERVE IMPULSES AS SIGNALS. A NEURON WORKS MAINLY BY USING ACTION POTENTIAL. SODIUM AND POTASSIUM IONS ARE PUMPED IN AND OUT OF THE NEURAL BODY TO CREATE SUCH POTENTIALS AND THUS, PROPAGATING A SIGNAL. SIGNALS TRANSFER WITHIN NEURONS USING NEUROTRANSMITTER EMISSIONS WHICH ARE AGAIN TRIGGERED BY THE ACTION POTENTIAL. BASICALLY, EACH NERVE ACTS AS ELECTRICAL WIRES, INSULATED FROM EACH OTHER IN PLACES. EACH SIGNAL, EITHER SENSORY OR MOTOR, WHETHER ARISING FROM SENSE ORGANS, OR FROM AN ACTIVE MUSCLE SITE, CAN BE BROKEN DOWN INTO ELECTRICAL IMPULSES IN A BROAD SENSE. THIS IS WHY THEY CAN BE MANIPULATED AND USED AS SIGNALS FOR MACHINES.

ONE OF THE MOST WIDELY RESEARCHED, AND OBVIOUS AREAS WHERE MANIPULATION OF NEURAL IMPULSE CAN BE USED IS PROSTHETICS AND BIONIC LIMBS THAT CAN BE CONTROLLED AND FELT LIKE REAL LIMBS. RESEARCHERS HAVE SUCCEEDED IN MAKING BIONIC LIMBS THAT CAN MOVE INDIVIDUAL FINGERS BY ATTACHING THE NERVE ENDINGS IN THE SHOULDERS TO CUSTOM-MADE SENSORS IN THE BIONIC LIMBS. AFTER SOME EXPERIMENTAL CALIBRATION, WHERE THE SUBJECT IS ASKED TO JUST 'IMAGINE' MOVING HIS HAND, THE BIONIC LIMBS COULD BE CALIBRATED TO SUIT THE SUBJECT'S NEEDS. SINCE A CALIBRATED BIONIC LIMB IS DEPENDENT ON THE IMAGINATION OF THE AMPUTEE(THIS IMAGINATION FIRES THE NEURONS WHICH SIGNAL THE SENSORS IN THE ARM), THERE ISN'T MUCH OF A STEEP LEARNING CURVE FOR THE AMPUTEE. THERE'S A THEORY IN NEUROSCIENCE CALLED THE 'THEORY OF PROTECTION' WHICH, AMONG OTHER THINGS, STATES THAT THE BRAIN INTERPRETS A STIMULUS TO OCCUR ONLY AT RECEPTOR SITE OF A PARTICULAR SENSORY NERVE, NO MATTER WHERE IT ORIGINATES. EVEN IF AN IMPULSE IS ORIGINATED IN THE MIDDLE OF A SENSORY NERVE, THE SENSATION WOULD BE FELT AT ITS END, WHERE THE RECEPTORS ARE. THIS FACT IS EXTREMELY CONVENIENT FOR CREATING LIMBS THAT 'FEEL'. SOME PRESSURE AND THERMAL SENSORS COULD BE EMBEDDED IN ANY BIONIC PROSTHETIC, AND IMPULSES FROM THOSE SENSORS COULD BE RELAYED AND TRANSLATED TO BIOLOGICAL ELECTRICAL SIGNALS THAT ARE INTERPRETED BY THE BRAIN TO BE ACTUAL SENSATIONS AT THE SITE WHERE THE RECEPTORS WERE SUPPOSED TO EXIST(AT THE SURFACE OF THE BIONIC PROSTHETIC).

"YOUR BRAIN HAS 100 BILLION NEURONS, EACH CONNECTED TO 10 THOUSAND OTHER NEURONS. SITTING ON THE TOP OF YOUR SHOULDERS IS THE MOST COMPLICATED OBJECT IN THE ENTIRE UNIVERSE." – MICHIO KAKU

THE BRAIN, AND HOW IT WORKS, HAS BEEN A CONSTANT SOURCE OF CURIOSITY AND AWE AMONG RESEARCHERS, AND COMMON MEN ALIKE. THEORIES REGARDING THE NERVOUS SYSTEM AND HOW IT FUNCTIONS, HAVE BEEN NUMEROUS AND EVER EVOLVING. ONE OF THE MOST INNOVATIVE AND FASCINATING APPLICATIONS OF THE AGE-OLD STUDY OF NEUROSCIENCE IS NEURAL IMPULSE MANIPULATION: THE ART OF CONTROLLING ELECTRICAL DEVICES USING BIOLOGICAL NERVE IMPULSES AS SIGNALS. A NEURON WORKS MAINLY BY USING ACTION POTENTIAL. SODIUM AND POTASSIUM IONS ARE PUMPED IN AND OUT OF THE NEURAL BODY TO CREATE SUCH POTENTIALS AND THUS, PROPAGATING A SIGNAL. SIGNALS TRANSFER WITHIN NEURONS USING NEUROTRANSMITTER EMISSIONS WHICH ARE AGAIN TRIGGERED BY THE ACTION POTENTIAL. BASICALLY, EACH NERVE ACTS AS ELECTRICAL WIRES, INSULATED FROM EACH OTHER IN PLACES. EACH SIGNAL, EITHER SENSORY OR MOTOR, WHETHER ARISING FROM SENSE ORGANS, OR FROM AN ACTIVE MUSCLE SITE, CAN BE BROKEN DOWN INTO ELECTRICAL IMPULSES IN A BROAD SENSE. THIS IS WHY THEY CAN BE MANIPULATED AND USED AS SIGNALS FOR MACHINES.

ONE OF THE MOST WIDELY RESEARCHED, AND OBVIOUS AREAS WHERE MANIPULATION OF NEURAL IMPULSE CAN BE USED IS PROSTHETICS AND BIONIC LIMBS THAT CAN BE CONTROLLED AND FELT LIKE REAL LIMBS. RESEARCHERS HAVE SUCCEEDED IN MAKING BIONIC LIMBS THAT CAN MOVE INDIVIDUAL FINGERS BY ATTACHING THE NERVE ENDINGS IN THE SHOULDERS TO CUSTOM-MADE SENSORS IN THE BIONIC LIMBS. AFTER SOME EXPERIMENTAL CALIBRATION, WHERE THE SUBJECT IS ASKED TO JUST 'IMAGINE' MOVING HIS HAND, THE BIONIC LIMBS COULD BE CALIBRATED TO SUIT THE SUBJECT'S NEEDS. SINCE A CALIBRATED BIONIC LIMB IS DEPENDENT ON THE IMAGINATION OF THE AMPUTEE(THIS IMAGINATION FIRES THE NEURONS WHICH SIGNAL THE SENSORS IN THE ARM), THERE ISN'T MUCH OF A STEEP LEARNING CURVE FOR THE AMPUTEE. THERE'S A THEORY IN NEUROSCIENCE CALLED THE 'THEORY OF PROTECTION' WHICH, AMONG OTHER THINGS, STATES THAT THE BRAIN INTERPRETS A STIMULUS TO OCCUR ONLY AT RECEPTOR SITE OF A PARTICULAR SENSORY NERVE, NO MATTER WHERE IT ORIGINATES. EVEN IF AN IMPULSE IS ORIGINATED IN THE MIDDLE OF A SENSORY NERVE, THE SENSATION WOULD BE FELT AT ITS END, WHERE THE RECEPTORS ARE. THIS FACT IS EXTREMELY CONVENIENT FOR CREATING LIMBS THAT 'FEEL'. SOME PRESSURE AND THERMAL SENSORS COULD BE EMBEDDED IN ANY BIONIC PROSTHETIC, AND IMPULSES FROM THOSE SENSORS COULD BE RELAYED AND TRANSLATED TO BIOLOGICAL ELECTRICAL SIGNALS THAT ARE INTERPRETED BY THE BRAIN TO BE ACTUAL SENSATIONS AT THE SITE WHERE THE RECEPTORS WERE SUPPOSED TO EXIST(AT THE SURFACE OF THE BIONIC PROSTHETIC).

- ABHISHEK ROY

MOBILE PROCESSORS

HEY GUYS,
EVER HEARD ABOUT ARM CORTEX A-53, A-57 ,14 NM TECHNOLOGY,10NM TECHNOLOGY AND 20 NM TECHNOLOGY, DUAL CORE AND QUAD CORE AND CONFUSED ABOUT THESE TERMS? GIVE THIS ARTICLE A READ AND YOU WILL BE THOROUGH WITH THESE TERMS.
PROCESSORS CAN BE JUDGED BY THESE 4 PARAMETERS:

1) ARCHITECTURE
2) TECHNOLOGY
3) NUMBER OF CORES AVAILABLE
4) CLOCK SPEED

IMAGINE BITS PILANI HAS A PIECE OF LAND AND THEY WANT TO HAVE A BUILDING ON IT. THEY WILL GO TO AN ARCHITECT FOR THE DESIGN OF THE BUILDING. ARM OR ADVANCED RISC MACHINES DESIGNS THE ARCHITECTURE OF CHIPS USED IN SMARTPHONES AVAILABLE IN THE MARKET.

CORTEX A-53, A-72,A-75 ARE VARIOUS TYPES OF MAPS AVAILABLE.
THE MULTI-STOREYED BUILDING YOU WANT TO BUILD ARE THE CORES OF A PROCESSOR.
2 STOREYED BUILDING- DUAL CORE
4 STOREYED BUILDING - QUAD CORE
8 STOREYED BUILDING- OCTA CORE

"They found a defect in the new chip. Looks like someone was asleep at the itty-bitty, teeny-weeny switch."

ALSO, CORES OF A PROCESSOR CAN BE UNDERSTOOD BY THE ANALOGY THAT YOU WANT TO LIFT 100 KG OF MATERIAL. 1 PERSON WON'T BE ENOUGH. MORE THE PERSONS, MORE DIVIDED WILL BE THE WORK AND LESSER LOAD ON EACH.THE NUMBER OF PERSONS IS REPRESENTING THE CORES OF A PROCESSOR.
HOW MANY BLOCKS YOU ARE DESIGNING ARE THE CORES OF A PROCESSOR.
NOW THE BUILDING IS READY AND EMPLOYEES ARE SITTING.
IF THE WALLS OF THE ROOM IN THE BUILDING ARE THICK-

1) YOU HAVE WASTED THE SPACE AVAILABLE.
2) TIME WILL BE WASTED IN THE EXCHANGE OF DATA BETWEEN PERSONS.

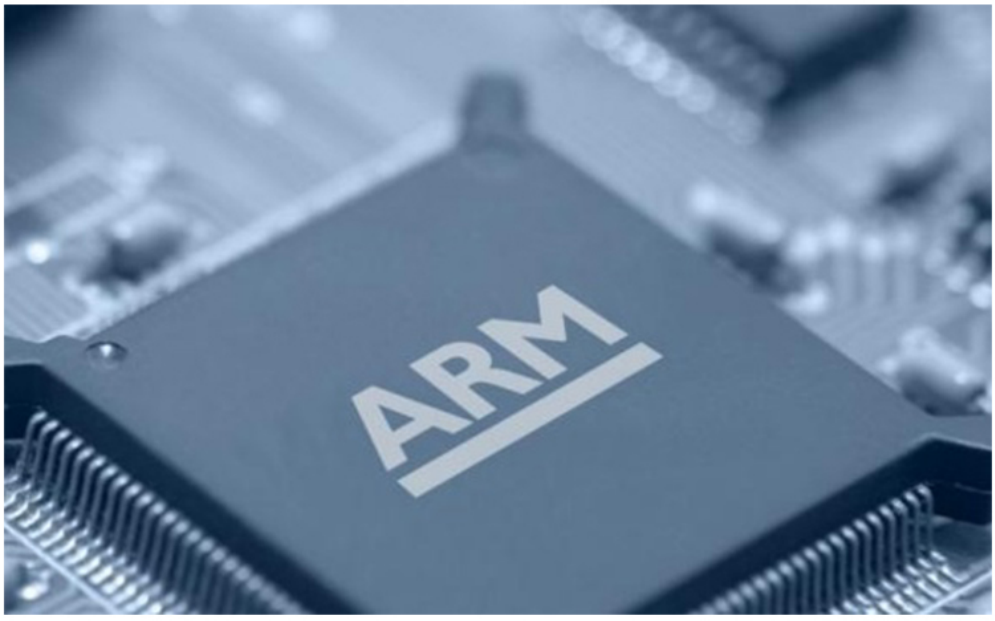
SO YOU WANT TO BUILD A WALL THAT IS AS THIN AS POSSIBLE.BUT THERE IS A LIMIT TO THAT RIGHT?

THIS IS THE TECHNOLOGY AVAILABLE 14NM TECHNOLOGY OR 10 NM TECHNOLOGY (QUALCOMM SNAPDRAGON 835) OR SAMSUNG EXYNOS 8895
WALLS ARE BUILT AND THE BUILDING IS MADE. NOW DOORS ARE LEFT?
THE MORE FREQUENTLY THESE DOORS WILL BE OPEN AND CLOSED, MORE FREQUENTLY YOUR EMPLOYEES CAN MOVE. THIS IS THE FREQUENCY OR CLOCK SPEED OF THE PROCESSOR (1.4 GHZ OR 1.8 GHZ). ALSO IF THERE IS MORE FREQUENCY, MORE POWER WILL BE CONSUMED.

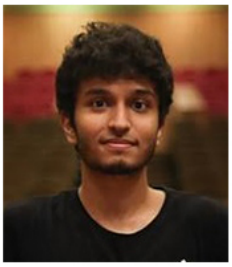
IN CONCLUSION,
ARM CORTEX A-53 AND A-72 ARE THE DESIGNS, THE HEIGHT OF THE BUILDING ARE THE CORES, THICKNESS OF THE WALLS IS 14NM OR 16NM TECHNOLOGY, THE FREQUENCY OF OPENING OF DOORS IS YOUR PROCESSOR FREQUENCY.
FOR A GOOD PROCESSOR, ALL THINGS SHOULD BE BALANCED.

SOURCE : YOUTUBE
SOME COMMON FULL FORM:
SOC- SYSTEM ON A CHIP
INTEL- INTEGRATED ELECTRONICS
ARM- ADVANCED RISC MACHINES

-KUNAL VARSHNEY



INTERVIEW WITH YOHAN MMR



1.PLEASE TELL US ABOUT YOURSELF. WHAT MAKES YOU DIFFERENT?

BEING IN EEE ,I WOULD SAY THAT MY CODING KNOWLEDGE ALONE MIGHT NOT HAVE BEEN ENOUGH TO CRACK GSOC, BUT CHOOSING AN ORGANIZATION WHOSE PROJECTS LIE WITHIN MY INTEREST I.E. ROBOTICS, MADE THE BIGGEST DIFFERENCE FOR ME.

2.)WHAT'S THE SELECTION PROCESS FOR GSOC AND WHAT GOES INTO MAKING A CREDIBLE APPLICATION?

THE FORMAL SELECTION PROCESS STARTS WITH THE SUBMISSION OF A PROPOSAL FOR A PROJECT THAT YOU PICKED FROM THE LIST, OR BY SUBMITTING AN IDEA OF YOUR OWN AFTER FINDING A MENTOR. THE ACTUAL PROCESS BEGINS MUCH EARLIER. DECEMBER IS THE RIGHT TIME TO START CONTACTING, AS THE MENTORS NEED TO KNOW YOU AND YOUR WORK CAPABILITY. ALTHOUGH ONE MAJOR PART OF THE APPLICATION IS THE UNDERSTANDING OF THE PROJECT REQUIREMENTS, ANOTHER IMPORTANT PART WOULD BE A FIRM KNOWLEDGE OF THEIR SOURCE. THIS IS SHOWN BY SUBMITTING PATCHES, FEATURE ADDITIONS ETC. THIS IS WHY THE CONTACT PROCESS SHOULD START IN DECEMBER SO THAT THIS PART OF THE APPLICATION STANDS OUT FROM THE REST. AND OBVIOUSLY IF THEY KNOW YOU, THEY WOULD PREFER YOU TO SOMEONE WHO STARTED CONTACTING THEM IN MARCH.

3.) HOW CAN ONE GET STARTED ON OPEN SOURCE CONTRIBUTION?

JUST OPEN THE SUMMER OF CODE PAGE AND PICK AN ORGANIZATION THAT YOU LIKE. THIS IS THE MOST IMPORTANT THING IN GSOC, WHERE YOU PICK ONE, BASED ON YOUR KNOWLEDGE, INTERESTS, SELECTION PATTERNS, CHANCES OF ORGANIZATION BEING SELECTED THIS YEAR, INDIAN ACCEPTANCE RATE ETC. AFTER THAT, JUST MESSAGE OR MAIL THEM THROUGH THE PROVIDED LINKS, INTRODUCING YOURSELF AND ASKING FOR WORK. IF THERE IS NO RESPONSE, JUST GO TO THEIR BUG LISTS AND START FIXING THINGS ON YOUR OWN.

4.)TO WHAT ALL SOURCES YOU KEPT YOURSELF CONNECTED? WHAT KEY THING YOU THINK WERE LOOKED FOR BY THE SELECTORS?

I WAS MAINLY CONNECTED TO THEIR GITTER CHATS AND MAILING LISTS. THEY LOOK FOR INTEREST AND ACTIVE PARTICIPATION IN THEIR CHATS, WHERE IN YOU HELP OTHERS. AND IMPORTANTLY, THE PRE-PROPOSAL MAILS WHERE YOU DISCUSS YOUR IDEAS OF IMPLEMENTATION. ALSO, THEY EXPECT AT LEAST A DRAFT PROPOSAL TO BE SUBMITTED BEFORE THE ACTUAL ONE.

5.)HOW AND WHEN DID YOU DECIDE ON YOUR PROJECT AND WHAT PROMPTED THIS DECISION?

THE WAY I GOT SELECTED WASN'T THAT IDEAL AND WAS VERY UNCERTAIN. IN DECEMBER, I CHOSE AN ORGANIZATION CALLED ASCEND, A COMPLEX DE SOLVER. OVER THE COURSE OF DECEMBER AND JANUARY, I SUBMITTED 3 PATCHES AND WAS CONFIDENT TO GET A PROJECT. HOWEVER, IN FEBRUARY IT TURNED OUT THAT THEY WEREN'T SELECTED AS A GSOC ORGANIZATION. I CHOSE THEM AFTER LOOKING AT THEIR CONSISTENCY FOR THE LAST 6 YEARS. HOWEVER, LUCK ALWAYS PLAYS A PART. SO I MOVED TO KDE AND PICKED A PROJECT WHICH A FRIEND HAD DONE FOR GSOC LAST YEAR. I THEN SPENT THE REST OF FEBRUARY FAMILIARIZING MYSELF WITH THEIR SOURCE. HOWEVER, I AGAIN DISCOVERED THAT THERE IS THIS ONE APPLICANT WHO HAD ALREADY FINISHED 10% OF THE PROJECT ,FIXED 4 BUGS AND HAD BEEN IN CONTACT WITH THEM SINCE DECEMBER. SO I HAD TO BACK AWAY FROM THE PROJECT KNOWING THAT HE WAS A BETTER CANDIDATE. IT WAS THE 12TH OF MARCH 2016, THAT I CHOSE THE ORGANISATION I FINALLY GOT INTO. REALISING THAT I WAS ALREADY VERY LATE, I MADE THE DECISION OF FORSAKING T2 FOR GSOC BECAUSE STARTING IN THE THIRD YEAR WOULD BE A BIT LATE. OVER THE COURSE OF T2 AND PEARL ,I ROUGHLY SPENT 8-9 HOURS A DAY READING RESEARCH PAPERS AND THEIR SOURCE CODE. THE PROJECT THAT I CHOSE WAS THE IMPLANTATION OF NEW ALGORITHMS TO INCORPORATE SOCIAL BEHAVIOURS. MOST OF THESE ALGORITHMS WERE JUST THEORETICAL RESEARCH PAPERS THAT HAD NOT SEEN REAL LIFE IMPLEMENTATION. HOWEVER, HAVING A SLIGHT KNOWLEDGE IN ROBOTICS AND SIMULATION SOFTWARES, I WAS ABLE TO IMPLEMENT A SMALL PART OF WHAT THE PAPERS SUGGESTED. I SUBMITTED THIS AS A NEW FEATURE. AS FOR THE PROPOSAL, I SPENT AROUND 30-40 HOURS IN SUCCESSION AS I HAD NO BUG FIXES NOR PREVIOUS CONTACTS. SO MY FIRST CONTACT WAS ITSELF A HIGHLY DETAILED PROPOSAL WHICH WAS MADE IN A WAY THAT SAYS," I CAN DO THE PROJECT WITHOUT YOUR HELP AND EXACTLY KNOW WHAT NEEDS TO BE DONE".

6.)AS WITH ALMOST EVERYTHING, WHAT WERE THE CONS OF THE INTERNSHIP? WHAT WERE THE PROBLEMS THAT YOU FACED?

THE ONLY PROBLEM THAT I FACED WAS THE LACK OF TIME. HAVING A 9AM TO 5PM PS ALONG WITH ANOTHER COMPETITION IN WHICH WE WERE FINALISTS, LANDED ME IN HAVING ONLY 2-3 HOURS OF SLEEP A DAY. THERE ARE ABSOLUTELY NO CONS IN DOING GSOC, THE MENTORS ARE HELPFUL, YOU LEARN PLENTY AND MAKE A LOT OF MONEY.

7.) HOW WAS YOUR JOURNEY? ANY REGRETS THAT YOU HAVE AND WHAT NEXT?

IT WAS HECTIC AND UNCERTAIN AT TIMES. BUT, I AM CONTENTED TO SAY THAT I HAVE NO REGRETS.

8.) FINALLY, WHAT PIECE OF ADVICE DO YOU WANT TO LEAVE BEHIND FOR THE FUTURE GSOCERS?

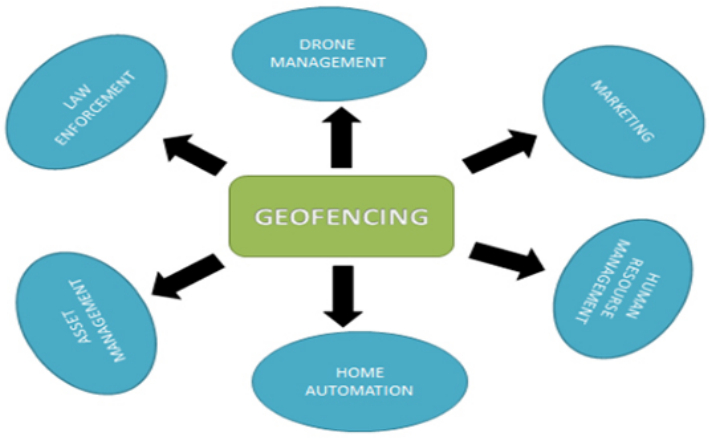
START EARLY AND DON'T WORRY EVEN IF YOU'RE THE UNLUCKIEST PERSON IN THE WORLD.

GEOFENCING:
TECHNOLOGY'S VIRTUAL 'CIRCLE OF TRUST'

WANNA GET INFORMED WHEN THE DOSA PLACE IS ON CAMPUS?WANNA CHECK IF YOUR FRIEND ATTENDS CLASSES SO THAT YOU GET TRIGGERED TOO?WANNA DO ALL THESE WITHOUT ASKING ANYONE?WE ARE FORTUNATELY IN THIS ERA NOW.
WHAT IS THIS VOODOO?

ONE OF THE GROUND-BREAKING INNOVATIONS, GEOFENCING, IS A LOCATION-BASED TECHNOLOGY THAT USES GPS/RFID TO DEFINE A VIRTUAL GEOGRAPHICAL BOUNDARY, ESTABLISHING A RADIUS OF INTEREST THAT CAN TRIGGER AN ACTION IN A GEO-ENABLED PHONE OR ANY OTHER PORTABLE ELECTRONIC DEVICE.
DEMYSTIFYING GEOFENCING:

TO USE GEO-FENCING IN A PRACTICAL APPLICATION, THE IMPLEMENTER, FIRST OF ALL, NEEDS TO ESTABLISH THE FENCING OF PARTICULAR LOCATIONS WITH THE USE OF GPS OR RFID ENABLED SOFTWARE. IT'S AS SIMPLE AS DRAWING A CIRCLE 100 FEET AROUND THE LOCATION ON GOOGLE MAPS. THIS IS CALLED THE VIRTUAL GEO-FENCE. THIS GEO-FENCING WILL TRIGGER A RESPONSE WHEN AN AUTHORIZED DEVICE ENTERS OR EXITS THAT AREA AS SPECIFIED BY THE ADMIN OR THE DEVELOPER.IT ALLOWS US TO SET UP AUTOMATIC ALERT TRIGGERS WHEN A DEVICE ENTERS/EXITS THE BOUNDARIES DEFINED BY THE ADMINISTRATOR.FOR INSTANCE, WHEN THE HOME OWNER'S SMARTPHONE LEAVES THE HOME'S GEO -FORMED PERIMETER, THE THERMOSTAT LOWERS ITSELF TO A PREDEFINED TEMPERATURE.



APPLICATIONS:

THE FUTURE OF GEOFENCING:
AS DEVICES BECOME INCREASINGLY SOPHISTICATED AND MORE ELEMENTS OF OUR HOME, VEHICLES, AND WORKPLACE ENTERS THE EVER-GROWING STABLE OF "INTERNET OF THINGS" OBJECTS EXPECT TO SEE GEOFENCING APPLIED TO MORE AND MORE DEVICES AND ENVIRONMENTS.

THIS INCREASED INTEGRATION COULD YIELD ALL SORTS OF NOVELTIES LIKE WORKSTATIONS THAT POWER DOWN WHEN THEIR OWNERS LEAVE THE BUILDING, COFFEE POTS THAT TURN ON IN THE MORNING WHEN THE FIRST COFFEE DRINKERS ARRIVE, ATTIC FANS THAT WHIRL TO LIFE TO SUCK IN COOL EVENING AIR AS YOU DRIVE HOME, GARAGE DOORS THAT OPEN AUTOMATICALLY AS YOU ROUND THE BEND, AND ALL MANNER OF LITTLE CHANGES THAT LEAVE THE COMPUTERS TO WORRY ABOUT THE TRIVIAL BITS WHILE WE GET TO FOCUS ON THINGS MORE INTERESTING THAN WONDERING IF WE LOCKED THE BACK DOOR PROPERLY.
`

-NEHA TEBASSUM

SPEECH TO TEXT

SMARTPHONES MADE LIFE SO MUCH EASIER. EVERYTHING JUST A CLICK AWAY. OH WAIT, YOU MAY NOT EVEN NEED TO CLICK OR TAP YOUR PHONE- JUST CALL OUT "OK GOOGLE" AND YOUR GENIE WILL COME TO YOUR RESCUE.

AUTOMATIC SPEECH RECOGNITION (ASR) OR COMPUTER SPEECH RECOGNITION OR SPEECH TO TEXT (STT) IS AN INTERDISCIPLINARY FIELD THAT DEVELOPS METHODS AND TECHNOLOGIES TO ENABLE RECOGNITION AND TRANSLATION OF SPOKEN LANGUAGE INTO TEXT.

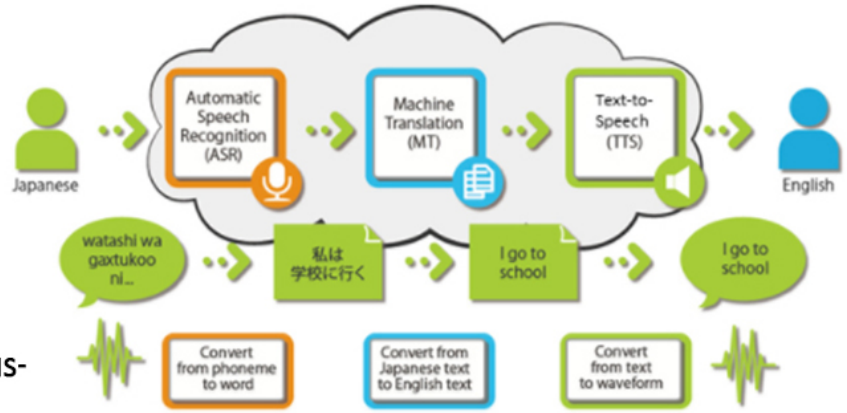
SOME APPLICATIONS THAT HARNESS SPEECH RECOGNITION TECHNOLOGY COMPRISE VOICE USER INTERFACES SUCH AS VOICE DIALING, CALL ROUTING, DOMOTIC APPLIANCE CONTROL, SEARCH, SIMPLE DATA ENTRY, PREPARATION OF STRUCTURED DOCUMENTS, SPEECH-TO-TEXT PROCESSING AND AIRCRAFT (USUALLY TERMED DIRECT VOICE INPUT).

THE ADVANCES IN DEEP LEARNING AND BIG DATA OF SPEECH TECHNOLOGY ARE EXHIBITED NOT ONLY BY THE SURGE OF ACADEMIC PAPERS PUBLISHED IN THE FIELD, BUT MORE IMPORTANTLY BY THE WORLDWIDE RENOWNED INDUSTRIES LIKE GOOGLE, MICROSOFT, IBM, BAIDU, APPLE, AMAZON, NUANCE, SOUNDHOUND, IFLYTEK, MANY OF WHICH HAVE PUBLICIZED THE CORE TECHNOLOGY IN THEIR SPEECH RECOGNITION SYSTEMS AS BEING BASED ON DEEP LEARNING.

WORKING:
A COMPUTER HAS TO GO THROUGH SEVERAL COMPLEX STEPS TO EXECUTE THIS HEFTY TASK. FIRSTLY, THE VIBRATIONS CREATED FROM OUR SPEECH (ANALOG WAVES) ARE TRANSLATED INTO DIGITAL DATA VIA ANALOG-TO-DIGITAL CONVERTER (ADC). TO IMPLEMENT THIS, THE SPEECH RECOGNITION SYSTEM REQUIRES PRIOR "TRAINING" OR SAMPLING. IT SAMPLES, OR DIGITIZES, THE SOUND BY TAKING PRECISE MEASUREMENTS OF THE WAVE AT FREQUENT INTERVALS.

THE SOUND IS FURTHER WORKED UPON- TO REMOVE UNWANTED NOISES, TO SEGREGATE IT INTO DIFFERENT BANDS OF FREQUENCIES, TO NORMALISE THE SOUND AND TO ADJUST IT TO A CONSTANT VOLUME AND SPEED LEVEL.

THE SEGMENTED SIGNALS ARE THEN MATCHED TO KNOWN PHONEMES (-THE SMALLEST ELEMENT OF A LANGUAGE) IN THE APPROPRIATE LANGUAGE. AS PER THE HIDDEN MARKOV MODEL, EACH PHONEME IS LIKE A LINK IN A CHAIN, AND THE COMPLETED CHAIN- A WORD. DURING THE PROCESS, THE PROGRAM ASSIGNS A PROBABILITY SCORE TO EACH PHONEME BASED ON BUILT-IN DICTIONARY AND USER TRAINING. EVENTUALLY, THE TEXT IS GENERATED AS THE OUTPUT ON THE SCREEN AND WE REALISE HOW EASY OUR LIVES HAVE BECOME!



APPLICATIONS-

THIS ASSISTIVE TECHNOLOGY (AT) TOOL CAN HELP KIDS WHO STRUGGLE WITH WRITING. DICTATION TECHNOLOGY CONVERTS SPOKEN WORDS INTO DIGITAL TEXT ON A SCREEN. THERE ARE SEVERAL TYPES OF DICTATION TECHNOLOGY KIDS CAN USE- BUILT-IN DICTATION TECHNOLOGY, DICTATION APPS, CHROME TOOLS, DICTATION SOFTWARE PROGRAMS.

IT IS A BOON FOR THE DISABLED! FOR INDIVIDUALS THAT ARE DEAF OR HARD OF HEARING, SPEECH RECOGNITION SOFTWARE IS USED TO AUTOMATICALLY GENERATE A CLOSED-CAPTIONING OF CONVERSATIONS SUCH AS DISCUSSIONS IN CONFERENCE ROOMS, CLASSROOM LECTURES, AND/OR RELIGIOUS SERVICES. SPEECH RECOGNITION IS ALSO VERY USEFUL FOR PEOPLE WHO HAVE DIFFICULTY USING THEIR HANDS, RANGING FROM MILD REPETITIVE STRESS INJURIES TO INVOLVE DISABILITIES THAT PRECLUDE USING CONVENTIONAL COMPUTER INPUT DEVICES.

IN-CAR SYSTEMS: SIMPLE VOICE COMMANDS USED TO INITIATE PHONE CALLS, SELECT RADIO STATIONS OR PLAY MUSIC FROM A COMPATIBLE SMARTPHONE, MP3 PLAYER OR MUSIC-LOADED FLASH DRIVE.

USE IN MILITARY: HIGH-PERFORMANCE FIGHTER AIRCRAFT, HELICOPTERS, TRAINING AIR TRAFFIC CONTROLLERS ARE SOME AREAS THAT HAVE UTILIZED THIS TECHNOLOGY. SPEECH RECOGNIZERS HAVE BEEN OPERATED SUCCESSFULLY IN FIGHTER AIRCRAFT, WITH APPLICATIONS INCLUDING: SETTING RADIO FREQUENCIES, COMMANDING AN AUTOPILOT SYSTEM, SETTING STEER-POINT COORDINATES AND WEAPONS RELEASE PARAMETERS, AND CONTROLLING FLIGHT DISPLAY. OWING TO HIGH NOISE LEVELS IN THE HELICOPTER ENVIRONMENT, MUCH REMAINS TO BE DONE BOTH IN SPEECH RECOGNITION AND IN OVERALL SPEECH TECHNOLOGY IN ORDER TO CONSISTENTLY ACHIEVE PERFORMANCE IMPROVEMENTS IN OPERATIONAL SETTINGS. AIR TRAFFIC CONTROLLERS (ATC) HAS BENEFITED CONSIDERABLY DUE TO THIS TECHNOLOGY. SPEECH RECOGNITION AND SYNTHESIS TECHNIQUES OFFER THE POTENTIAL TO ELIMINATE THE NEED FOR A PERSON TO ACT AS PSEUDO-PILOT, THUS REDUCING TRAINING AND SUPPORT PERSONNEL.

-HARSHA SINHA

WASTE TO ELECTRICITY

THE WASTE-TO-ENERGY MARKET IS UNDERGOING A RESURGENCE AS THE POLLUTION AND POPULATION OF THE WORLD IS UNDERGOING SUDDEN INCREASE THESE DAYS. AS RENEWABLE ENERGY SOURCES ARE GAINING MORE ATTENTION, CONVERTING ORGANIC WASTE INTO ELECTRICITY IS BECOMING MORE AND MORE POPULAR.

BASICALLY, THERE ARE TWO WAYS OF CONVERTING WASTE INTO ELECTRICITY- BIOGAS PRODUCTION AND WASTE TO ENERGY OR POPULARLY KNOWN AS WTE PRODUCTION.THE FIRST GROUND-UP LARGE-SCALE WTE PROJECT IN 20 YEARS OPENED ON 7TH OCTOBER 2015. IT IS LARGEST OF ITS KIND IN THE COUNTRY.

WHILE BOTH WAYS ARE USUALLY ACCOMPLISHED ONLY AT A LARGER SCALE, THERE IS A SIMPLE METHOD FOR PRODUCING BIOGAS ON AN INDIVIDUAL SCALE AS LONG AS YOU HAVE THE OPTIMAL FERMENTATION TEMPERATURES AND METHANE-RICH LIVESTOCK MANURE.THE GAS CAN THEN BE COMBUSTED TO PRODUCE ELECTRICITY.

THE FRENCH START-UP 'WAGA ENERGY' RECENTLY INSTALLED A WASTE TREATMENT PLANT IN SAINT-MAXIMIN (FRANCE), CAPABLE OF CONVERTING BIOGAS FROM HOUSEHOLD WASTE INTO RENEWABLE ENERGY (BIOMETHANE), WHICH CAN SUPPLY ELECTRICITY TO UP TO 3,000 HOUSEHOLDS. THIS NEW TECHNOLOGY, CALLED "WAGA BOX" WILL BENEFIT THE INHABITANTS OF THE SOUTH OF OISE (HEATING, COOKING, BATH WATER, ETC.). THE ELECTRICITY PRODUCTION FROM BIOGAS HAS ONLY AN ELECTRICAL EFFICIENCY OF 40% BUT BIOMETHANE PRODUCTION BY THE WAGA BOX MAKES IT POSSIBLE TO VALORIZE 90% OF THE ENERGY. TO PRODUCE ELECTRICITY, BIOGAS IS MOSTLY FLARED OR RELEASED DIRECTLY INTO THE ATMOSPHERE. THIS NEW TECHNOLOGY OF 250 M2 ALLOWS TO DELIVER 20 GWH OF ENERGY PER YEAR, AND CAN THUS SUPPLY APPROXIMATELY 3 000 HOUSEHOLDS OF SAINT-MAXIMIN, APREMONT, VERNEUIL-EN-HALATTE AND CREIL. IF THIS TECHNOLOGY SPREADS WORLDWIDE, THEN IT CAN REDUCE THE CONSUMPTION AND THE SHORTAGE OF ENERGY ON A VERY LARGE SCALE. THUS CREATING FORTUNES IN THE FIELD OF INNOVATION.

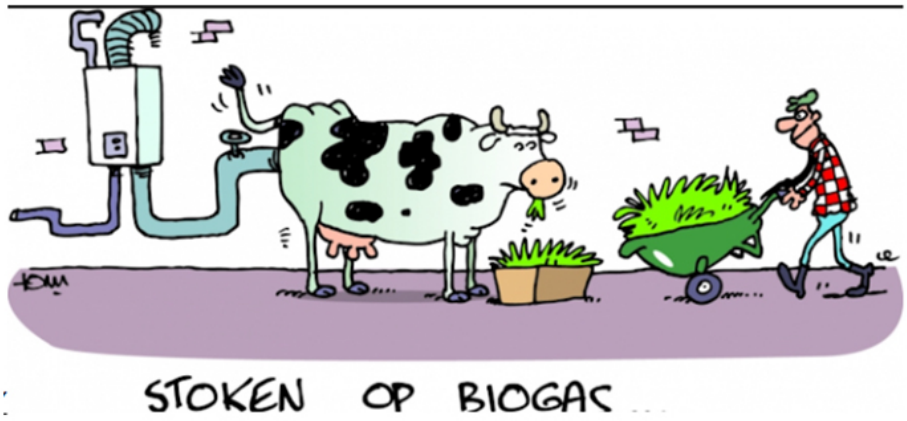
THE ISRAELI START-UP 'HOMEBIOGAS' HAS DEVELOPED A SYSTEM SPECIFICALLY DESIGNED FOR DOMESTIC USE IN WHICH YOU DEPOSIT FOOD LEFTOVERS, WHICH MAKES IT POSSIBLE TO PRODUCE BIOGAS EASILY AT HOME. THE BIOGAS PRODUCED CAN THUS BE USED FOR COOKING, HEATING AND EVEN LIGHTING. THIS COMPACT BIOGAS CONVERTER IS DELIVERED AS A KIT TO THE INDIVIDUAL WHO CAN THEN INSTALL IT HIMSELF IN HIS GARDEN.

TO TURN ORGANIC WASTE INTO ELECTRICITY, ORGANIC WASTE IS FIRST DRAINED INTO AN UNDERGROUND DIGESTER WHERE WASTE FROM TOILET FACILITIES, GARBAGE DISPOSALS AND LIVESTOCK MANURE CAN BE ADDED TOO. ORGANIC WASTE SUCH AS LIVESTOCK MANURE IS INCREDIBLY RICH IN METHANE. THIS MAKES IT THE IDEAL INGREDIENT IN THE PROCESS OF CREATING BIOGAS AND RECOVERING USEFUL ENERGY. COMMUNAL BIOGAS PLANTS ARE CONCEIVABLE, ESPECIALLY WHERE THERE IS A CONSTANT POPULATION OF LIVESTOCK PRODUCING LARGE AMOUNTS OF ORGANIC WASTE.

WTE CURBS LANDFILL USAGE AND LANDFILL EXPANSIONS ARE GREATLY REDUCED. WTE TYPICALLY REDUCES WASTE VOLUMES BY 90 PERCENT. BY ELIMINATING FOOD INTO THE LANDFILLS, FEWER AND SMALLER LANDFILLS ARE NEEDED TO PROCESS ASH AND THIS PROTECTS A VALUABLE NATURAL RESOURCE: LAND. IT ALSO OFFERS NEW REVENUE FOR THE COMMUNITY VIA TIPPING FEES. THE STANDARD FOR REGIONAL LANDFILLS THAT ARE USUALLY PRIVATELY OWNED, COMPETE WITH OTHER LANDFILLS FOR WASTE AND THE TIPPING FEES CAN BE UNPREDICTABLE. WTE FACILITIES OFFER STABLE TIPPING FEES FOR MUNICIPAL FOOD WASTE.

VARIOUS TECHNOLOGIES TO GENERATE ELECTRICITY FROM BIOGAS ON A HOUSEHOLD LEVEL ARE AVAILABLE. IN PRINCIPLE, THE CHEMICAL ENERGY OF THE COMBUSTIBLE GASES IS CONVERTED TO MECHANICAL ENERGY IN A CONTROLLED COMBUSTION SYSTEM BY A HEAT ENGINE. THIS MECHANICAL ENERGY THEN ACTIVATES A GENERATOR TO PRODUCE ELECTRICAL POWER. THE MOST COMMON HEAT ENGINES USED FOR BIOGAS ENERGY CONVERSION ARE GAS TURBINES AND COMBUSTION ENGINES. COMBUSTION ENGINES CAN BE EITHER INTERNAL COMBUSTION ENGINE (E.G. RECIPROCATING ENGINE) OR EXTERNAL COMBUSTION ENGINE (E.G. STIRLING ENGINE).

FOR SMALL-SIZE HEAT ENGINES, COMBUSTION ENGINES ARE POPULAR AS THEY ARE MORE EFFICIENT AND LESS EXPENSIVE THAN SMALL GAS TURBINES. HOWEVER, GAS TURBINES MAY BE MORE EFFICIENT WHEN OPERATING IN A COGENERATION CYCLE PRODUCING HEAT AND ELECTRICITY. COGENERATION OR COMBINED HEAT AND POWER (CHP) DESCRIBE THE SIMULTANEOUS GENERATION OF BOTH ELECTRICITY AND USEFUL HEAT. HEAT ENGINES (ALSO THERMAL POWER PLANTS) IN GENERAL DO NOT CONVERT ALL OF THEIR THERMAL ENERGY INTO ELECTRICITY. IN MOST CASES, A BIT MORE THAN HALF IS LOST AS EXCESS HEAT. BY CAPTURING THE EXCESS HEAT, CHP USES HEAT THAT WOULD BE WASTED IN A CONVENTIONAL POWER PLANT, POTENTIALLY REACHING AN EFFICIENCY OF UP TO 89%, COMPARED WITH 55% FOR THE BEST CONVENTIONAL PLANTS. THIS MEANS THAT LESS FUEL NEEDS TO BE



THIS MEANS THAT LESS FUEL NEEDS TO BE CONSUMED TO PRODUCE THE SAME AMOUNT OF USEFUL ENERGY. BY-PRODUCT HEAT AT MODERATE TEMPERATURES (100-180°C) CAN ALSO BE USED IN ABSORPTION CHILLERS FOR COOLING. A PLANT PRODUCING ELECTRICITY, HEAT AND COLD IS SOMETIMES CALLED TRIGENERATION OR MORE GENERALLY A POLYGENERATION PLANT.

MICRO COGENERATION IS A SO-CALLED DISTRIBUTED ENERGY RESOURCE (DER). BIOGAS IS BURNED FOR RUNNING A GENERATOR (E.G. MICRO TURBINE). THE INSTALLATION IS USUALLY LESS THAN 5 KWE (KILOWATTS-ELECTRICAL). INSTEAD OF BURNING FUEL TO MERELY HEAT SPACE OR WATER, SOME OF THE ENERGY IS CONVERTED TO ELECTRICITY IN ADDITION TO HEAT. THIS ELECTRICITY CAN BE USED WITHIN THE HOME OR BUSINESS OR, IF PERMITTED BY THE GRID MANAGEMENT, SOLD BACK INTO THE ELECTRIC POWER GRID.

MINI COGENERATION IS A DER USUALLY PRODUCING MORE THAN 5 KWE AND LESS THAN 500 KWE AND THE EXCESS ENERGY IS GENERALLY FED INTO THE ELECTRICITY GRID. TO BE VIABLE A GOOD BASE LOAD FOR ELECTRICAL DEMAND AND HEAT DEMAND MUST EXIST.THE TECHNOLOGY IS EASILY ADAPTABLE AND CAN BE APPLIED AT HOUSEHOLD OR COMMUNITY LEVEL.

“FOOD WASTE SHOULD HAVE A HIGH VALUE,” SAYS STUDY AUTHOR ROY POSMANIK, A CORNELL POSTDOCTORAL RESEARCHER, IN HIS STATEMENT. “WE’RE TREATING IT AS A RESOURCE, AND WE’RE MAKING MARKETABLE PRODUCTS OUT OF IT.”RELATING TWO PARALLEL WORLDS OF ELECTRICITY AND BIOLOGICAL WASTE IS ITSELF A HUGE SUCCESS ON MAN’S PART. RESEARCHERS HAVE BEEN WORKING FOR YEARS TO DEVELOP METHODS TO TURN FOOD WASTE INTO A VIABLE AND ECONOMIC ENERGY SOURCE. THUS, WASTE TOO CAN BECOME A VIABLE SOURCE OF ENERGY IF GIVEN THE CORRECT AMOUNT OF IMPORTANCE.

-ANJALI GOYAL

A SMILE IS A CURVE THAT SETS EVERYTHING STRAIGHT

HARSHIT SONI, WHO BELIEVES IN THIS QUOTE STARTED 'SMILEMIDDLE' (WWW.SMILEMIDDLE.COM), WHICH PROVIDES A PLATFORM FOR ARTISTS TO SHOWCASE THEIR TALENT. LOT OF US HAVE MANY IDEAS FOR STARTUPS. SO PHOENIX ASSOCIATION DECIDED TO TAKE YOU THROUGH THE JOURNEY OF HOW THE STARTUP IDEA TOOK A SUCCESSFUL SHAPE. HERE IS WHAT HARSHIT WANTS TO SHARE.

WHAT MOTIVATED YOU TO START-UP WHILE MAJORITY GO FOR JOBS? AND HOW DID YOUR PARENTS REACT?

LONG BACK, I READ A BOOK CALLED "RICH DAD POOR DAD", WHICH BROUGHT ABOUT CHANGES IN MY MENTALITY TOWARDS ENTREPRENEURSHIP. RIGHT THEN, I HAD DEVELOPED THE THOUGHT OF STARTING A BUSINESS SOMETIME.

WHAT CLUBS AND DEPARTMENTS WERE YOU A PART OF? AND TELL US MORE ABOUT YOUR INITIAL ENDEAVOURS/PLANS.

I WAS IN DOSM, DEPP. I LEARNED HOW TO PITCH COMPANIES AND ALSO TRIED CORPORATE ADVERTISING. I WAS NOT INDUCTED INTO E-CELL. THIS MOTIVATED ME MORE INSTEAD OF DEMORALIZING AND BUILT MY CONFIDENCE TO WORK ON MY OWN. I TOOK SOME INTERNSHIPS BASED ON MARKETING. I ALSO WORKED ALONG WITH ONE OF MY FRIENDS ON HIS IDEA.

HOW DID YOU GET THE IDEA OR CONCEPT FOR YOUR BUSINESS?

BACK IN MY SECOND YEAR, BEFORE MY PS1, I PONDERED THAT THERE ARE MANY SKILLS LIKE-SINGING, POETRY, PAINTING-THAT I DON'T KNOW. RATHER THAN MYSELF DEVELOPING ALL THE SKILLS, I CAN CONTACT MANY OF MY FRIENDS WHO ARE GOOD AT THESE. SO I REALISED THAT I CAN PUT MY IDEAS AND EMOTIONS AND THEIR SKILLS TO GENERATE A GIFT THAT I CAN PRESENT TO ANYONE I WISH.

I FOUND OUT THAT THE ART AND CRAFT MARKET IS TOTALLY UNTAPPED AND UNREGULATED NOT JUST IN INDIA BUT ACROSS THE GLOBE. SPECIFICALLY THE AREA OF PORTRAIT ARTS WHEN MERGED INTO GIFTING TARGETS GOOD AMOUNT OF NEEDS.

HOW FAR HAVE YOU COVERED AS PER YOUR INITIAL PLANS?

NO BIG INITIAL GOALS. I JUST WANTED TO START SOMETHING.

DID YOU THINK OF A PLAN- B?

I BELIEVE THAT IN ORDER TO GIVE 100%, BETTER ONE NOT HAVE ANY PLAN-B. HOWEVER, I CAN COUNT ON MY SKILLS AS MY BACKUP AND THEY WILL FETCH ME THINGS WHEN NEEDED.

WHAT DO YOU THINK IS YOUR INPUT TO OUTPUT RATIO?

I STARTED IN AUGUST 2016, ALTHOUGH BRAINSTORMING STARTED WAY BEFORE. INITIALLY, THE OUTPUT WAS VERY LOW. FOR THE FIRST EIGHT MONTHS, IT WAS NEGLIGIBLE. GRADUALLY IN THE NEXT FEW MONTHS, TRACTION STARTED BUILDING UP. IN FACT, THE OUTPUT FOR TODAY'S INPUT TOO WOULD BE REFLECTED AFTER A FEW MONTHS. MARKETING AND EFFORTS SHOW EFFECT IN THE LONG TERM, NOT IMMEDIATE.

HOW BIG IS YOUR TEAM? HOW DO YOU ADVERTISE YOUR BUSINESS?

MY TEAM COMPRISES OF FOUR PEOPLE, THAT ARE STUDENT EMPLOYEES- FROM DELHI AND JAIPUR.
I AM PROFICIENT IN DIGITAL MARKETING AND WE USE SOCIAL MEDIA TO CREATE AWARENESS ABOUT THE STARTUP..

WHAT CAN YOU ADVISE STUDENTS?

I'D SAY IF YOU WANT TO START, THEN START NOW. THERE ARE MANY PEOPLE WHO HAVE IDEAS BUT DON'T EXECUTE THEM. ALSO, COMPANIES AND STARTUPS ARE MUCH MORE LIKELY TO HIRE AN ENTREPRENEUR AND THAN A FRESHER BECAUSE A PERSON WHO HAS STARTED, WHO MIGHT HAVE EVEN FAILED, WOULD BE MUCH MORE EXPERIENCED THAN ANY FRESHER.
ALSO, CG SHOULD BE MAINTAINED. A GOOD CG WILL GET YOU CONFIDENCE AND A LOT OF OPPORTUNITIES.

HOW TO BE A 9 POINTER?

MYTHILI K.
2ND YEAR, ECE

THE FIRST THING IS TO SNAP OUT OF THE FEELING THAT PHOENIX IS TOUGH. WE HAVE BEEN HEARING IT EVER SINCE WE JOINED HERE AND THERE IS THIS CONSTANT FEAR THAT PHOENIX IS GOING TO BE A LOT OF SLOGGING. ONCE YOU GET OUT OF THAT, THE SUBJECTS ARE REALLY INTERESTING PROVIDED YOU HAVE A GOOD BASE IN EEE COURSE OF THE FIRST YEAR. EVERYTHING THAT WE LEARN IS PRACTICALLY APPLICABLE AND IT'S ALWAYS BETTER TO PUT IN YOUR EFFORTS FOR THE SUBJECTS THAT YOU LIKE. IT'S NOT POSSIBLE TO WORK EQUALLY HARD ON ALL THE SUBJECTS. WORK ON THE SUBJECTS THAT INTEREST YOU AND WHICH YOU WOULD LIKE TO PURSUE FURTHER. GRADES WILL FOLLOW. DON'T BOTHER ABOUT THE SUBJECTS THAT YOU CAN'T DO. IT'S BETTER TO BE AN EXPERT IN ONE RATHER THAN WORRYING ABOUT ALL.

GARGI GUPTA
2ND YEAR, EEE

BE CONSISTENT, STUDY REGULARLY, BE IN TOUCH WITH YOUR PROFESSORS AND SOLVE PREVIOUS YEAR QUESTION PAPERS, READ THE TEXTBOOK. APART FROM THAT, IT REQUIRES THE CLARITY OF CONCEPTS WHICH IS THE MOST IMPORTANT THING AMONG ALL.

BHARATHWAJ SURESH
2ND YEAR, ECE

I BELIEVE CONSISTENCY IS THE MOST IMPORTANT ATTRIBUTE. VIRAT KOHLI, WHEN ASKED IN AN INTERVIEW ABOUT HIS "PURPLE PATCH" SAID 'TO HAVE THE DISCIPLINE TO IMPROVE AS A CRICKETER EVERY DAY, YOU NEED TO DO BORING THINGS'. THIS IDEA APPLIES TO ACADEMICS AS WELL. THERE IS NO NEED TO SPEND THE ENTIRE DAY IN THE LIBRARY OR PULL OFF ALL-NIGHTERS BEFORE THE EXAM. JUST STICKING TO BASICS LIKE REVISING EVERYDAY CLASSWORK, GETTING DOUBTS CLARIFIED AND BEING REGULAR TO CLASS (OR STICKING TO A SCHEDULE, IF ATTENDING CLASSES ISN'T "YOUR THING") IS SUFFICIENT TO PROVIDE A SOLID BASE. THIS, FOLLOWED BY SOME HOURS DEDICATED TO PROBLEM-SOLVING IS ALL THAT IS NEEDED. STICKING TO THIS ROUTINE IS WHAT MOST OF US (INCLUDING MYSELF) HAVEN'T PERFECTED. FINALLY, ON THE D-DAY, THE RIGHT EXAM TEMPERAMENT WOULD ENSURE THAT PERFORMANCE MEETS PREPARATION.
HAVING SAID THAT, I'M SURE EVERY ONE OF US WILL HAVE OUR OWN APPROACH TO SUCCEED. THE END GOAL IS THE SAME, AND THERE ARE MANY RIGHT WAYS TO REACH THERE. THE MOST IMPORTANT THING IS TO STAY COMMITTED TO YOUR CHOSEN PATH AND TO NEVER LET THE PASSION GO DOWN. SUCCESS WILL SURELY FOLLOW, NOT NECESSARILY IN TERMS OF GRADES.

SHREYAS RAVISHANKAR
2ND YEAR, ECE

THIS IS BY NO MEANS A FORMULA FOR SCORING A CG ABOVE 9.
HALF OF THE PROBLEM IS WITH A PRECONCEIVED NOTION THAT 'PHOENIX' IS TOUGH. IF YOU ASK ME I'D SAY THAT THE AMOUNT OF WORK IS SIMILAR AS COMPARED TO OTHER BRANCHES AND THERE IS NO ESCAPING THAT WORK.
PREPARING ON THE LAST DAY IS NOT GOING TO HELP YOU, HENCE BEING UP-TO-DATE WITH WHAT IS BEING DONE IN THE CLASS IS IMPORTANT, EVEN IF ONE DOES NOT ATTEND CLASSES.
PRACTICING MORE PROBLEMS (IN ADDITION TO TUTORIAL PROBLEMS) WILL ENSURE THAT QUESTIONS IN THE EXAM DO NOT SEEM COMPLETELY 'UNKNOWN/NEW'.
LASTLY YOU MUST REMEMBER THAT YOUR CURRENT ACADEMIC STANDING IS NOT IN ANY WAY AN INDICATOR OF WHAT YOU ARE CAPABLE OF. PEOPLE OFTEN JUDGE THEMSELVES BASED ON THEIR PREVIOUS PERFORMANCE, AND THIS BECOMES A MAJOR HURDLE. I KNOW PEOPLE WHO WERE 7 POINTERS IN THEIR FIRST YEAR, WHO MANAGED TO SCORE 9+ IN THEIR SECOND YEAR

RAAHUL JAGANNATHAN
2ND YEAR, EEE

TO ME, IT ALL BOILS DOWN TO THREE THINGS:
1. ATTEND CLASSES. THEY DEFINITELY HELP AND KEEP YOU UP TO DATE WITH WHAT'S GOING ON.
2. CLASSES ALONE THOUGH, WILL NOT DO. YOU ARE GOING TO HAVE TO WORK IF YOU WANT RESULTS.
3. ENJOY WHAT YOU ARE DOING.

PRIYASH BARYA
2ND YEAR, ECE

I WOULD SUGGEST EVERYONE TO READ THEIR TEXTBOOKS. MOST OF THE PRESCRIBED BOOKS ARE VERY GOOD AND INTERESTING. SOLVE MANY PROBLEMS FROM THE EXERCISES.

SHIKHAR SHARMA :
3RD YEAR, ECE

SCORING NINE-POINT CG ISN'T TOUGH BUT IT DOES INVOLVE A CERTAIN LEVEL OF DEDICATION AND HARD WORK. SIMPLE THINGS LIKE ATTENDING LECTURES AND TUTORIALS, WHICH USUALLY PEOPLE ASSUME TO BE INSIGNIFICANT MIGHT HELP IN SCORING AND MAINTAINING NINE GPA. THERE ARE A FEW POINTS WHICH I TRY TO FOLLOW WHILE PREPARING FOR ANY EVALUATION COMPONENT:

1. DO NOT DEPEND SOLELY ON PREVIOUS YEARS' QUESTION PAPERS FOR PREPARATION: IT DOES SEEM CONVENIENT TO GO THROUGH THOSE PAPERS AND SIMPLY FOCUS ON THE TOPIC FROM WHICH QUESTIONS HAVE BEEN ASKED, BUT FOR ME THIS TECHNIQUE NEVER WORKS. PREVIOUS YEARS' PAPERS SHOULD BE USED TO TEST YOUR KNOWLEDGE AND UNDERSTANDING ONCE YOU HAVE GONE THROUGH THE ENTIRE SYLLABUS THOROUGHLY.
2. ATTEND AS MANY CLASSES AS POSSIBLE: READING FROM BOOKS DOES GIVE A BETTER UNDERSTANDING BUT ONE SHOULD BE SINCERE ENOUGH TO AT LEAST READ THE RELEVANT TOPICS REGULARLY AND NOT PILE THEM UP FOR THE LAST DAY. I KNOW I AM NOT THAT SINCERE SO I ATTEND CLASSES INSTEAD, SO THAT WHILE READING FOR AN EVALUATION COMPONENT NOT MANY OF THE TOPICS SOUND STRANGE AND NEW TO ME.
3. MAKE NOTES IN CLASS: THIS DOES HELP ME A LOT IN STAYING AWAKE EVEN THROUGH THE MOST BORING OF THE LECTURES. THE MORE YOU WRITE THE LONGER YOU RETAIN AND THE BETTER YOU UNDERSTAND. WHATEVER PART I DON'T UNDERSTAND IN THE CLASS, I GET IT CLARIFIED RIGHT AWAY OR AFTER THE CLASS. MOREOVER YOU HAVE SOMETHING FAMILIAR TO REFER TO WHILE STUDYING FOR THE EXAM.
4. WORK HARD: START PREPARING FOR MID-SEMS AND COMPRE AT LEAST A WEEK BEFORE THEY START. LAST DAY'S HARD WORK SIMPLY OVERLOADS US. PLAN OUT STUFF, WE HAVE ENOUGH TIME IN OUR LIVES TO SPARE A FEW HOURS FOR STUDYING. IT'S NOT ABOUT MISSING OUT ON SOMETHING BUT JUST PRIORITIZING AND PLANNING OUT OUR ROUTINE IN SUCH A MANNER SO THAT STUDIES DO NOT TAKE A BACK SEAT IN OUR LIVES. LAST DAY'S HARD WORK CAN BRING IMMEDIATE RESULTS BUT WILL NEVER BE HELPFUL IN THE LONG RUN.
5. NEVER JUDGE YOURSELF LOOKING AT OTHERS' MARKS: STUDY FOR YOUR OWN SATISFACTION AND UNDERSTANDING. YOU MIGHT HAVE SCORED DECENTLY WHEN COMPARED TO THE REST OF YOUR BATCH BUT WORK HARDER IF YOU FEEL YOU CAN DO BETTER.
6. DO IT FOR YOURSELF: EVERYONE WHO HAS CLEARED BITSAT EXAM HAS SCORED WELL IN THE PAST. BUT PEOPLE STOP WORKING HARD OVER HERE IN COLLEGE. "THERE IS NO JOY IN LIVING A LIFE LESS THAN WHAT YOU ARE CAPABLE OF!"

NIKHIL MADAAN:
3RD YEAR, EEE

GETTING A 9+ CG IS NOT A DIFFICULT TASK AT ALL IF ONE CAN MAINTAIN A BALANCE BETWEEN ACADEMICS AND OTHER INTERESTS. GOING TO CLASSES IS HELPFUL BUT EVEN IF YOU
DON'T ATTEND CLASSES IT WON'T MATTER AS LONG AS YOU KNOW SOMEONE WHO ATTENDS
CLASSES AND IS NOT RELUCTANT TO GIVE HIS/HER NOTES(NOW WE HAVE OUR LECTURES BEING
RECORDED SO NOW WE ARE NOT EVEN DEPENDENT ON ANYONE).

CGPA HOLDS GREATER IMPORTANCE FOR THOSE WHO ASPIRE TO GO FOR MASTERS. THIS IS ONE
OF THE MAIN REASONS THAT KEEPS ONE MOTIVATED TO DO WELL. ONE CAN EASILY MAINTAIN
A GOOD CG BY STUDYING JUST FOR AROUND TEN DAYS BEFORE MIDSEMS AND COMPRE AND IN THE REMAINING TIME DO WHATEVER YOU ACTUALLY WANT TO PURSUE IN LIFE.
ONE PIECE OF ADVICE IS THAT NEVER BE RELUCTANT TO CLEAR SOMEONE'S DOUBTS OR TO GIVE YOUR NOTES TO OTHERS JUST FOR THE SAKE OF SOME SORT OF COMPETITION AS ALL THIS
HELPS YOU TO DEVELOP THE BETTER UNDERSTANDING OF THE SUBJECT.
MAINTAINING THIS CG IS MUCH EASIER BECAUSE ONCE YOU HAVE IT, YOU DON'T WANT TO
LOSE IT. DON'T LET PEOPLE WHO KEEP ON CALLING YOU "GHOT", "NERD" INFLUENCE YOU.

NIKITA DODDAPANENI :
3RD YEAR, ENI

FIRSTLY, REMOVE THE PERCEPTION THAT PHOENIX SUBJECTS ARE TOUGH. NOTHING IS DIFFICULT
ONCE YOU START DEVELOPING INTEREST TOWARDS IT. YOU START DEVELOPING AN INTEREST WHEN YOU KNOW THE REAL-LIFE APPLICATIONS OF A PARTICULAR COURSE. SO I WOULD SINCERELY SUGGEST EVERYBODY
TO START ATTENDING CLASSES. YOU DEFINITELY LEARN A LOT IN THE CLASS. REVISE WHATEVER HAS BEEN TAUGHT ONCE YOU GET BACK BEFORE ATTENDING THE NEXT CLASS. THIS HELPS YOU TO MAINTAIN CONTINUITY WITH WHATEVER IS BEING TAUGHT. ONE CAN ALSO GO THROUGH THE TEXTBOOK. (TEXTBOOKS FOR FEW COURSES LIKE MEC, DD ARE REALLY GOOD, FEW ARE REALLY SHITTY :P).ATTEND ALL THE TUTORIALS, IF NOT THE LECTURES. STUDY WHATEVER HAS BEEN TAUGHT IN A WEEK BY THE END OF THE WEEK. DO NOT PROLONG IT FURTHER. THIS IS WHAT MAKES STUFF EASIER FOR ME. IT DOESN'T HAVE TO APPLY TO EVERYONE.
WELL, ONCE YOU PERFORM WELL IN A PARTICULAR SEMESTER I THINK YOU CAN MAINTAIN IT BY PUTTING IN THE SAME AMOUNT OF HARD WORK AND DEDICATION. YOU YOURSELF WILL HAVE A BETTER IDEA OF
WHAT HELPED YOU AND WHERE YOU SHOULD IMPROVE.

SHREEDA PATTANAIK:
3RD YEAR, ECE

ACCORDING TO ME SCORING IN PHOENIX IS ABOUT A BIT OF SINCERITY AND A LITTLE PRACTICE. IN MY OPINION, ATTENDING CLASSES DOES MAKE A DIFFERENCE. APART FROM KEEPING YOU UP TO DATE WITH THE COURSES, IT HELPS YOU DEVELOP A BETTER

UNDERSTANDING OF THE SUBJECT. MANY OF THE PHOENIX COURSES REQUIRE YOU TO PRACTICE NUMERICALS TO GET A CLEAR PICTURE OF THE VARIATIONS POSSIBLE. I HAVE ALWAYS ENJOYED READING BOOKS AS THEY GIVE A COMPLETE PICTURE OF THE TOPIC, WHICH HELP ME TO UNDERSTAND THE TOPIC IN A MUCH BETTER MANNER.

BEING A NINE-POINTER OBVIOUSLY REQUIRES YOU TO GET A 9 OR A 10 IN ALL THE COURSES WHICH IS ACTUALLY NOT A VERY TOUGH JOB ONCE YOU START BEING A BIT REGULAR WITH YOUR SUBJECTS. WHEN YOU START RESPECTING YOUR COURSES THEY WILL SURELY RESPECT YOU BACK :P.

FOR THOSE WHO FEEL THAT PHOENIX IS NOT MEANT FOR THEM, I SUGGEST JUST STICK WITH IT(AS YOU HAVE NO CHOICE) AND JUST BE REGULAR WITH TUTORIALS. UNDERSTANDING TUT PROBLEMS IS IMPORTANT FROM EXAMINATION POINT OF VIEW. (THIS MUST BE CLEAR TO ALL BY NOW :P).

I WOULD ALSO SUGGEST THAT YOU DO THE LAB EXPERIMENTS OF ALL LAB-BASED COURSES WITH SINCERITY AND UNDERSTANDING. IT ACTUALLY HELPS YOU IN THE THEORY PART.

I FEEL IT'S JUST HYPED THAT PHOENIX IS VERY TOUGH. IT STARTS GETTING EASY ONCE YOU PUT EFFORTS TO MAKE YOUR BASIC FOUNDATIONS STRONG.

PRADICTO:
TAKING THE "WISDOM OF THE CROWD", ONLINE.

WITH A VISION TO COLLECT THE PUBLIC OPINION ON EVERY SINGLE TRENDING EVENT AND USE THE COLLECTED DATA TO DO A PREDICTIVE ANALYSIS, I STARTED TO WORK ON PRADICTO IN 2-1 IN AUG 2017. TO TEST THE IDEA AND THE MARKET RESPONSE, THE FIRST PROTOTYPE WAS A FACEBOOK GROUP NAMED 'PREDICTO' WHICH DEALT WITH TRENDING EVENTS IN THE CAMPUS LIKE MIDSEM AVG. , TV SERIES POSSIBILITIES..ETC. THE FB GROUP HAD A DIRECT/INDIRECT PARTICIPATION OF AROUND 400 STUDENTS WITHIN A MONTH AND 3 GROUP POSTS. THE VALUE OF THE COLLECTED DATA ON PUBLIC OPINION WAS INESTIMABLE, AS WE WERE ABLE TO PREDICT THE MIDSEM AVG. BY ANALYZING THE DATA.

AFTER GETTING A VALIDATION OF THE IDEA AND A GOOD MARKET RESPONSE, IT WAS TIME TO START THE WEB DEVELOPMENT.

THE TOUGHEST PART OF A STARTUP IS PUTTING TOGETHER A TEAM BECAUSE OF THE DIFFICULTY TO FIND PEOPLE AS ENTHUSIASTIC AND MOTIVATED AS THE FOUNDER. AFTER WORKING WITH 4 PEOPLE, ONE AFTER THE ANOTHER, IN THE PERIOD OF OCT-DEC, THINGS WERE NOT WORKING OUT. FINALLY, ANSHUMAN PADHI JOINED PRADICTO AS A TECH CO-FOUNDER. IN FEB 2018 WE LAUNCHED THE BETA VERSION OF THE WEBSITE PRADICTO.COM WHICH DEALS WITH COLLECTION AND ANALYSIS OF PUBLIC OPINION ON TRENDING NEWS VIA GIVING INSTANT GRATIFICATION TO THE USERS.AS EXPECTED, BETA VERSION GOT AN AMAZING RESPONSE FROM STUDENTS. CURRENTLY, WE ARE A TEAM OF TWO FOUNDERS AND 5 INTERNS, WORKING ON THE FEEDBACK WE GOT FROM THE BETA USERS. OUR VISION IS TO RAISE PUBLIC OPINION ON EVERY SINGLE DAY TO DAY LIFE EVENTS AND USE THE DATA FOR PREDICTIVE ANALYSIS. IF YOU FEEL THAT THE IDEA AND THE TEAM HAVE POTENTIAL TO DO SOMETHING MEMORABLE, WE WILL BE MORE THAN HAPPY TO HAVE YOU ON THE TEAM.

WHAT WAS THE MOST MEMORABLE EXPERIENCE THAT YOU HAD AS A PHOENIX STUDENT?

ASK ANYONE AND EVERYONE WOULD SAY THE SAME THING. SS DAN SIR'S LECTURES. THEY ARE REALLY AWESOME AND YOU ENJOY THE THING A LOT. THOUGH IT MIGHT SEEM INTIMIDATING AND WEIRD AT THE BEGINNING OF THE CLASSES, EVENTUALLY THE SUBJECT STARTED MAKING MORE SENSE AND I REALLY GOT A GREAT LIKING TO THE CLASSES. THIS WAS ONE OF THE REASONS WHY I STARTED ATTENDING PHOENIX LECTURES AS WELL.

BESIDES THIS, IT IS THE LABS IN PHOENIX. I DON'T KNOW ABOUT THE FUN PEOPLE GET WHILE DOING AN EXPERIMENT, BUT THE FRIENDSHIP YOU GET TO MAKE WITH YOUR GROUP MATES OF LAB IS MEMORABLE. AND EVEN MORE, IF YOU START DOING SHIT AND GET RANDOM UNEXPECTED RESULTS AND NEITHER OF THE PEOPLE.IN THE GROUP KNOWS ABOUT THE REASON, THE LOOKS YOU GIVE TO EACH OTHER AND TAKE A LAUGH IS WHAT IS MEMORABLE.

ONE SUCH MEMORABLE INCIDENT OF BEING A PHOENIX STUDENT IS THE ASSIGNMENTS. THEY ALWAYS HAPPEN AT THE LAST MINUTE AND THE EFFORTS YOU PUT INTO TRYING TO SOLVE THE QUESTIONS WITH BUDDIES IS MEMORABLE.

ONE LAST THING. PHOENIX STUDENT ALWAYS AND WILL ALWAYS HAVE THIS ONE MEMORABLE, THE FEELING THAT HE/SHE IS IN PHOENIX. WHEN YOU ARE IN YOUR FIRST YEAR, YOU GET "INTERACTED", AND WHEN SENIORS ASK YOU THE BRANCH AND YOU REPLY IT TO BE PHOENIX, THE 'YOU ARE SCREWED' LOOK YOU GET FROM THEM WHICH STAYS WITH YOU TILL YOU GRADUATE IS THE MEMORABLE THING THAT ANYONE WON'T EVEN DARE TO FORGET.
A.GURU RAJ VAISHNAV
2015AAPS0255H

I TOOK QUALITY CONTROL AND RELIABILITY AS AN OPEN ELECTIVE. THE ASSIGNMENT WAS TO WRITE MATLAB CODE FOR PLOTTING GRAPHS OR CHARTS BASED ON ANY OF THE TOPICS MENTIONED IN THE TEXTBOOK. I HAD AN ADVANTAGE OVER MECHANICAL STUDENTS IN A MECHANICAL DISCIPLINE ELECTIVE BECAUSE I USED MATLAB DURING SIGNALS AND SYSTEMS LABORATORY.
S SURESH
2014A3PS0164H

WHEN I WON INTERNATIONAL ARMENIAN MICROELECTRONICS OLYMPIAD AND WHEN I GOT AN OFFER IN QUALCOMM (OFF CAMPUS)
BHAVANAGIRI SHIVA KUMAR
2013A3PS452H

IF YOU COULD DESCRIBE PHOENIX IN A LINE OR TWO ,WHAT WOULD THAT BE?

"NA HO PAYEGA"

ANONYMOUS

" PHOENIX: THE BIRD THAT RISES UP FROM ITS ASHES".

A.GURU RAJ VAISHNAV

"A WHOLE LOT OF MYSTERIES.! "

JAYA SUNDEEP K

"TOUGH BUT VERY INTERESTING AND CHALLENGING. START LOVING IT YOU'LL LOVE EVEN MORE".

BHAVANAGIRI SHIVA KUMAR

"THE SUBJECTS CAN BE FRUSTRATING AT TIMES, BUT,IN THE END, IT WILL ALL BE WORTH IT! " :

SHREYAS RAVISHANKAR

A JACK OF ALL TRADES!

S SURESH

" IT IS A FREE BIRD. HOLD IT AND IT MAY TAKE YOU BEYOND THE 7 SEAS AND THE SKY"

ARCHIT MITTAL

ANY FUNNY MOMENTS/MEMORIES/ADVICE/ANYTHING ELSE THAT YOU WOULD LIKE TO SHARE WITH YOUR FELLOW PHOENIX FRIENDS?
FUNNY MOMENT AND ONE OF THE GOOD MEMORIES WERE FROM EM LAB. IT WAS MY LAB TEST AND I DIDN'T PREPARE SHIT FOR IT. IT WAS LAST MINUTE CRAMMING UP THE FORMULAE AND PROCEDURES ON HOW TO PERFORM THE EXPERIMENTS. I WAS SHIT SCARED AS MY PRE COMPRE SCORES TOO WERE NOT THAT GREAT. BUT MUCH TO MY SURPRISE,THE ONLY ADVANTAGE OF LAB WHICH INVOLVES ELECTRICITY IS WHEN POWER GOES OUT, YOU CAN'T RUN THE DAMN THING. AND SO LUCKY ENOUGH, ON THE DAY OF LAB EXAM, DUE TO CONSTRUCTION WORK OF THE NOW VALMIKI AND GAUTAM BHAWAN POWER IN THE ENTIRE CPUS WAS DOWN AND MY LAB GOT POSTPONED. SO,YEAH THOUGH IT WAS DOUBLE WORK TO PREPARE FOR LAB TEST, IT WAS FUN TO FEEL HAPPY TO GET ANOTHER CHANCE IN LIFE (THOUGH I SCREWED UP MY EM LAB VIVA, THE RESCHEDULING OF LAB EXAM WAS ONE OF THE FUNNY INCIDENTS)

ADVICE TO JUNIORS: PLEASE, PLEASE PLEASE ATTEND ALL THE CLASSES WITHOUT FAIL. LAST MINUTE CRAMMING UP WON'T WORK FOR PHOENIX PEOPLE. AT LEAST MAKE SURE YOU ATTEND THE TUTORIALS. ALSO, FO TALK TO YOUR SENIORS ON HOW TO APPROACH THE SUBJECT AND TO YOUR FACULTY AS AND WHEN REQUIRED.

IN CONCLUSION, AT THE END OF THE DAY, YOU DON'T KNOW WHAT WILL BE THE DIFFICULTY OF THE QUESTION PAPER YOU'LL GET. SO, BE PREPARED TO FACE THE ULTIMATUM AND DON'T GET UPSET IF PAPERS ARE HARD. AFTER ALL, IT'S NOT ONLY YOU WHO WILL GET SCREWED AFTER ALL. :)

(AND YEAH, CODING SEEKH LO :P)

PEACE\V/
A.GURU RAJ VAISHNAV
2015AAPS0255H

DROP ALL THE PRECONCEIVED NOTIONS OF PHOENIX ,WAIT FOR THE SUBJECT TO SOAK IN AND DECIDE FOR YOURSELF.
SHREYAS RAVISHANKAR
2016AAPS0180H

DON'T SEEK JOY IN GETTING MARKS IN EXAMS, BUT IN KNOWLEDGE. REMEMBER ANSWERS DON'T MAKE US DIFFERENT, QUESTIONS DO. SO KEEP ASKING THE QUESTION, 'WHY?'.
ARCHIT MITTAL
2015B5AA0620H

I WAS ALLOTTED ADANI POWER, TIRORA FOR PS 1, WHICH WAS MY 5TH PREFERENCE. 99% OF THE PEOPLE WHOM I TOLD THIS HAD NEVER HEARD OF THE PLACE. TIRORA RESEMBLES THUMKUNTA BUT HAS A BUS STAND AND RAILWAY STATION. WE WERE PROVIDED AC ACCOMMODATION IN THE COMPANY GUEST HOUSE WHICH WAS 1 KM FROM THE POWER PLANT. CASUALLY I ASKED MY PS MATES, " AT WHICH PREFERENCE DID YOU KEEP THIS STATION?" THEY WERE SURPRISED AND REPLIED," WE DID NOT INCLUDE THIS AMONG THE TOP 30. SEEMS THAT IT WAS ALLOTTED ACCORDING TO ALPHABETICAL ORDER."

DURING THE FIRST WEEK I CHOSE TO STUDY EXISTING TECHNOLOGIES IN THE POWER PLANT LIKE ULTRASONIC LEVEL SENSORS, BULGE WAGON DETECTION AND ELECTROSTATIC PRECIPITATORS ALONG WITH MY PARTNER. HE WAS ALWAYS GRUMBLING ABOUT THE FOOD, COMPANY NOT ARRANGING A VEHICLE FROM GUEST HOUSE TO THE POWER PLANT AND LACK OF OPTIONS FOR ENTERTAINMENT.WHENEVER I WAS FREE I USED TO READ MAGAZINES AND BOOKS RELATED TO THE POWER SECTOR IN THE POWER PLANT LIBRARY.

AFTER A MONTH WE WERE ASSIGNED A NEW PROJECT BASED ON INVENTORY MANAGEMENT. INITIALLY IT SOUNDED EXCITING BUT LATER I REALIZED THAT IT INVOLVED JUST FILTERING AND CONDITIONAL FORMATTING IN EXCEL WHICH COULD BE DONE BY ANY 5TH CLASS GUY. BOTH OF US FELT VERY FRUSTRATED AS IT DID NOT INVOLVE ANY ORIGINALITY OR LEARNING OPPORTUNITY AND MY PARTNER TOLD ME TO COMPLETE IT ON MY OWN AS HE PLANNED TO LEARN PYTHON. THEN I RECALLED THAT THE PERSON WHO HAD GIVEN A LECTURE ON THE SCENARIO OF THE POWER SECTOR IN INDIA DURING THE FIRST WEEK TOLD US THAT ANYONE WHO WISHED TO A DO A PROJECT BASED ON OPTIMIZATION COULD CONTACT HIM.

ON THE BASIS OF THE WORK DURING THE LAST WEEK I PRESENTED THIS MATHEMATICS PAPER DURING ATMOS 2016:

HTTPS://DRIVE.GOOGLE.COM/FILE/D/0B4SH6OS0FB51DZZQN1NZCLJTZU0/VIEW?USP=SHARING
EVEN THOUGH I DID THE INTERNSHIP AT A REMOTE LOCATION WHICH MAJORITY OF PEOPLE HAD NEVER HEARD OF, NONE OF MY PS MATES HAD OPTED FOR, WITH A PERPETUALLY COMPLAINING PARTNER, I WAS ABLE TO MAKE THE BEST USE OF THE OPPORTUNITY BECAUSE OF MY POSITIVE ATTITUDE.

S SURESH

FUNNY MOMENTS WHEN I SLEPT IN THE CLASS AND LATE ON ALMOST EVERY DAY FIRST CLASS.

FEW MEMORABLE MOMENTS ARE FIELD TRIP TO SOLAR PLANT BY ALIVELU MADAM, GATHERING OF MOST OF PHOENIX STUDENTS IN LIBRARY TO COPY ASSIGNMENTS,SALSA DANCE BY ME AND MANOJ(EEE) WHEN WE WON BEST COUPLE AWARD IN PHOENIX FAREWELL, COMBINED STUDIES BEFORE EXAM END UP US SOME RANDOM CHATS.

THERE WERE ALSO FEW DARK MOMENTS WHEN I HAD NO OFFER IN MY HAND BY THE END OF GRADUATION.

WITH MY EXPERIENCE I WANT TO GIVE SOME ADVICE WHICH MAYBE HELPFUL,
FOR THE PEOPLE THOSE WHO ARE INTERESTED IN FURTHER STUDIES IN EITHER MBA OR MS CG IS TOP MOST PRIORITY AND EVEN MORE IMPORTANT THAN GRE AND CAT SCORE. TRY TO AIM FOR ABOVE 9CG OR IN WORST CASE 8.5. TRY TO DO AS MANY AS PROJECTS EACH AND EVERY SEMESTER AND DEVELOP YOUR PROFILE.
GUYS WHO WANT TO SIT FOR PLACEMENTS MAKE A DECISION FOR WHICH DOMAIN YOU WANT TO GET INTO EITHER CORE OR NON CORE IN THE EARLY 3RD YEAR ITSELF AND WORK ON IT. THOSE WHO WANT GO WITH CORE PLACEMENTS BE VERY STRONG WITH BASICS OF ANALOG,DIGITAL AND COMPUTER ARCHITECTURE,C PROGRAMMING. ALSO TRY TO SOLVE APTITUDE QUESTIONS FROM WEBSITES LIKE INDIABIX.COM WHICH ARE VERY HELPFUL TO CLEAR EXAM IN FIRST ROUND AND SHORTLIST FOR INTERVIEW ROUND. 90% OF COMPANIES ONLY ASK QUESTIONS FROM BASICS ELECTRONICS AND PROJECTS IN YOUR RESUME .
PRACTICE SCHOOL 2 IS ALSO VERY IMPORTANT AS IT IS MORE PROBABLE TO GET PLACEMENTS (PPO) OVER THERE COMPARED TO ON CAMPUS ESPECIALLY FOR PHOENIX STUDENTS AND GOOD PROJECT IN GOOD COMPANY IN PS2 ADD A LOT TO YOUR PROFILE AND HELP FOR FURTHER STUDIES AS WELL. SO TRY TO MAINTAIN MINIMUM CG TO GET PS2 DESIRED BY YOU.

FINALLY, TRY TO ATTEND MORE THAN 80% OF CLASSES WHICH REDUCES LOT OF EFFORT YOU NEED TO PUT IN YOUR ACADEMICS AND GIVE YOU GOOD AMOUNT OF FREE TIME TO ENJOY. WITH FLEXIBLE BITS CURRICULUM ALONG WITH STUDIES , TRY TO INVOLVE IN EACH AND EVERY EXTRA CURRICULAR ACTIVITY,FESTS,AND GO OUTINGS AND TRIPS WITH FRIENDS.

THESE 4 OR 5 YEARS OF ENGINEERING IS BEST PHASE OF YOUR LIFE WHERE YOU LEARN,ENJOY AND GROW.

BHAVANAGIRI SHIVA KUMAR

THANK YOU NOTE

"GRATITUDE IS NOT ONLY THE GREATEST OF VIRTUES, BUT THE PARENT OF ALL OTHERS." –CICERO

SO, HOW WOULD SOMETHING BE COMPLETE WITHOUT A FEW WORDS OF THANKSGIVING?

WE WOULD FIRST EXTEND OUR HEARTFELT THANKS TO OUR HEAD OF THE DEPARTMENT, DR.SANKET GOEL, FOR HIS CONSTANT SUPPORT AND WORTHY SUGGESTIONS THROUGHOUT THE YEAR. WE ARE DEEPLY INDEBTED TO ALL THE FACULTY MEMBERS ESPECIALLY CHETAN SIR, ANIL KUMAR SIR, ALIVELU MANGA PARIMI MA'AM, RAMAKANTH SIR WHO HELPED US ORGANIZE MANY EVENTS BY COMPRISING THE JUDGE PANEL FOR MOST OF THEM.

A BIG CHEER TO ALL THE PHOENIX ALUMNI AND SENIORS WHO TOOK THEIR TIME OUT TO GIVE THE MOST NEEDED PLACEMENT TALKS AND GUIDE THEIR JUNIORS ON CAMPUS. THANKS TO ABIDISLAM SHAIK, MOHIT PRASAD, SAI AKHIL, RAVI TEJA, ROHIT KATTEKOLA AND SAMUEL PAKALAPATI . WE ALSO THANK HARSHIT SONI AND YOHAN FOR SHARING THE EXPERIENCES IN THEIR WONDERFUL JOURNEY WITH US. OUR SINCERE THANKS TO ALL THOSE WHO CONTRIBUTED THEIR PART FOR THE MAGAZINE. WE THANK GANESH VARMA, PRESIDENT OF PHOENIX ASSOCIATION AND OTHER OFFICE BEARERS FOR ALL THEIR LOGISTIC ASSISTANCE AND ESPECIALLY THE EDITORIAL BOARD FOR KEEPING THIS WIRE LIVE. ALL THIS WOULDN'T HAVE BEEN POSSIBLE WITHOUT THE AMAZING PARTICIPATION OF THE STUDENTS, OUR CORDIAL GRAMERCY TO ALL OF THEM.