Amarendra Singh,
B.Tech. (5th semester),
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Area of Interests

Design of machines, CAD/CAM, Mechanized assembly, Automobiles, Mobile robotics, Bio-inspired robotics, Thermodynamics, Fluid mechanics

Educational Qualification

Year	Level	Institute	CPI/Percentage
2014	B.Tech, Mechanical Engineering	IIT Patna	8.84/10
2013	Indian School Certificate Examination	Seth M.R. Jaipuria School, Lucknow	93.75%
2011	Indian Certificate of Secondary Education Examination	Seth M.R. Jaipuria School, Lucknow	94.4%

Academic Achievements

- Currently **ranked 3rd** in Department of Mechanical Engineering, B.Tech., IIT Patna with a CPI(Cumulative Performance Index) of 8.84 after 4 semesters.
- Represented our institute at SUPRA SAEINDIA Student Formula 2015, held at Madras Motor Race Track, Chennai, at the national level as a captain of the team.
- Qualified for interview of **Indian Statistical Institute**, B.Stat admission 2013. Selected among one of the four students in entire state (U.P.).
- Secured highest marks in Mathematics and Computer Science in Indian School Certificate Examination, 2013.

PROJECTS UNDERTAKEN

- **ROBOTIC FISH:**
  GUIDE: Dr. Atul Thakur, Assistant Professor, Department Of Mechanical Engineering, IIT Patna

  The main aim of the project is to design and fabricate an automated robot based on biological design of fish which will be capable of diving in and swimming in underwater. This robot will be useful in deep sea and river explorations for exploration of oil, collecting samples for water quality testing, etc. The basic CAD of the robot was developed using **Auto-CAD and Solidworks** and analysis of center of mass and buoyancy was done on Auto-CAD. Further different links of the robot was developed of ABS using **3D printer** which were connected using different servos. Its basic programming is being carried on Arduino. We are still working on waterproofing of the robot and on the mechanism of fins using shape memory alloy.

- **SUPRA SAEINDIA:**
  FACULTY ADVISOR: Dr. Manabendra Pathak, Assistant Professor, Department Of Mechanical Engineering, IIT Patna

  SUPRA SAEINDIA Student Formula competition challenge teams of university undergraduate and graduate students to conceive, design, fabricate and compete with small, formula style, autocross vehicles. The basis of the competition is that a fictitious company has contracted a group of engineers to build a small formula car which can be sold in the market. Cars are expected to perform very high in acceleration, braking, handling, aesthetics, ergonomics, manufacturing and maintenance etc. within minimum manufacturing cost with no compromise on driver safety. In SUPRA 2015, being part of the Team SUPRA IIT Patna, I was mainly involved in **manufacturing process** which involved a rigorous process of assembling different automobile parts such as steering, suspension and engine on the advice

of the senior members of team. In SUPRA 2016, being **a core part of the Chassis department** of the team, I am involved in designing chassis and impact attenuator whose basic CAD is being developed on Solidworks and its **Finite Element Analysis** is being carried out on ANSYS.

- **MECHANIZING THE PRODUCTION OF *KHAJA*:**
  GUIDE: Dr. Mayank Tiwari, Associate Professor, Department of Mechanical Engineering, IIT Patna

  Khaja is a dessert of India. Refined wheat flour with sugar is made into layered dough, with or without dry fruit or other stuffing, and lightly fried in oil to make *khaja*. *Khaja* of Silao, Bihar has been identified as a cluster by MSME with 31 number of functional units in the cluster having an annual turnover of 983.00 lakhs without any investment in machinery and plant. Export capability is nil because of high demand in local market and insufficient manual production. Problems and constraints as identified by MSME is that they use traditional technology. The main aim of the project is to fill this technological gap and prepare a design that can mechanize its production. We have started our work using basic design **conveyer belts and rollers**. During this course, we have to work on the stability on a continouosly moving belt.

- **ADJUSTABLE UNIFIED MULTI NUT OPENER:**
  GUIDE: Dr. Probir Saha, Assistant Professor, Department of Mechanical Engineering, IIT Patna

  It is a special purpose tool made to open/close many nuts of any device in one time with less effort. Although various methods are used for opening nuts, they require a lot of effort to open a single nut. The main objective of work was to develop a single tool with multiple mechanisms, which can be made use during assembling and dismantling of various components of machines. This tool uses **bevel gears** to transmit power from one central shaft axis to multiple shafts to open multiple nuts at a time. We fabricated this tool as a part of our workshop project using some of manufacturing processes including Wire-EDM and Laser cutting.

SKILLS

- **APPLICATION SOFTWARE:** Auto-CAD, Solidworks, PTC Creo, Arduino, ANSYS
- **OPERATING SOFTWARE:** Microsoft Windows 7/XP/vista/8
- **PROGRAMMING LANGUAGES:** C, JAVA, MATLAB
- **ADVANCE MANUFACTURING MACHINES:** Had a hand on experience with many machines including rapid prototyping, laser cutter, wire-EDM and computer integrated manufacturing systems.
- **MECHANICAL TESTING MACHINES:** Good touch with experimental setups such as universal testing machines, brinell hardness testing, torsion testing, impact testing and DAQ. Also have experience of other fluid and metallography experiments.

Extra-Curricular Achievements

- Successfully served as a Secretary – Technical Affairs, Student Gymkhana, IIT Patna as a representative of second year for the academic year 2014-15.
- Serving as a Secretary – Technical Affairs, Student Gymkhana, IIT Patna as a representative of third year and coordinating CELESTA, the annual techno-management fest of IIT Patna for the academic year 2015-16.
- Worked as event organizer in CELESTA, the annual techno-management fest of IIT Patna and in ANWESHA, the Annual Techno-Cultural Festival of IIT Patna.
- Serving as a Project Manager, Rural Technology Development Club, IIT Patna for the academic year 2015-16.
- Active as volunteer for collegiate clubs such as SAE and SCME (Student Council of Mechanical Engineering).
- Member of SAE – India (Membership No.: 7140222776).
- Member of Team SUPRA of IIT Patna for SUPRA SAEINDIA Student Formula 2015.
- Captain of Team SUPRA of IIT Patna for SUPRA SAEINDIA Student Formula 2016.

I hereby declare the information given above is true to the best of my knowledge, as of September, 2015.

AMARENDRA SINGH