Enclosure 2

MIRANDA HOUSE
UNIVERSITY OF DELHI
DBT Star College Project

List of minor projects implemented with name of students

2016-2017

1. Wilson Cloud Chamber and Data Analysis from Quarknet; Simran Malik, Shefali, Swayamsiddha Joshi, AmomLanchenbiChanu, Jyoti and AashnaGuta, (Miranda House)
2. Analysis of Quarknet DAQ Data from Muon Detector, Shubhangi (Miranda House)
3. Savant Stick: Electronic Eyes of a Visually impaired person; Shubham Khokhar, Viul Mishra (K. M. College), Manjeet, AyekamMalemnganbi and Arti Konjengban (Miranda House)
4. Touch Keyboard Arduino Piano, Nishtha, Manisha, Jyoti Rani, Nupur Patel, Kanchan Pandey (Miranda House), Abhishek (Class XII, Cambridge International School)
5. Bluetooth Controlled Car through Android Smartphone and Adruino, Richa Sharma, Sakshi Jain (Miranda House) and Abhishek Pandey (B.Tech, Northern India Engineering College)
6. The Arduino: Some Interactive sense and control experiments, Nisha Kumari and Shalini Dubey, (M. Sc. Banasthali Vidyapeeth)
7. Interfacing a sensor with an Arduino, Preeti Malik, Neha Roze (M. Sc. National Institute of Technology, Rourkela) and Rekha Rani (M. Sc. D. A. V. College, Chandigarh)
8. Robotics: White Line Followinr with Gripper using Fire Bird V, Deepali Shukla, Mahima, Nishi Sharma, Avantika Gautam and Kritika Sharma (Miranda House)
9. Mobile Phone Detector, Neeru Yadav (Miranda House), Vaibhav Budhalani (B.Tech, Maharaja Suraj Mal Institute of Technology) and Pramod Verma (B. Tech, Jamia Milia Islamia)
10. Application of Natural Dyes on Different Textile Materials through Sustainable Processes, Sparsh Gupta (Amity University)
11. Application of Bioactive compounds derived from Triphala and Clove for Antimicrobial Finishing of Cotton, Rashim Malhotra, Sandipana Chakraborty(Miranda House) and Pooja (Gargi College)
12. Use of Plant-based Dyes for imparting colour to Hand-made Paper: An Eco-friendly Approach Arshia Bhat, Bhavya Sirohi and Avni Gupta (Miranda House)
13. Protein Sequence Analysis of DOSR Regulon in different Mycobacterium tuberculosis Strain Ekta Dagar (Banasthali University), Mansi Singh (K. M. College), Divya, Rakhi

Sharma, (DeshBandhu College) Laxmi Mishra, Sarika Bhati (Gargi College), Sonika Bhatnager and Pragya (M. Sc.; Dr. B.R. Ambedkar Centre for Biomedical Research)

14. (i) Soil Analysis from Pesticide Contaminated Fields (NCR).
    (ii) Metagenomics Characterization of Microbial Diversity from Pesticide contaminated Soils. Payal, Sunidhi Chauhan, Aishwarya Khare, Komal (Miranda House), Pooja Jhangra (Bhaskaracharya College) and Vivek (Hindu College)
15. To Study the Effect of Henna Extract on the Biofilm Formation; Vidhi Yadav, Niharika, Sakshi Sharma and Nupur Vimal (Miranda House)
16. A Study of Pollar Grains, Rashmi (Miranda House), Prabha (Daulat Ram College), Richa (K. M. College), Bushra (Gargi College) and Manmeet Singh (Hansraj college)
17. Algal Culture Techniques and Extraction of AGAR and Carrageenan Eroh Important Seaweeds, Snehlata, Neha Yadav (Daulat Ram College)
18. Microwave assisted Synthesis of Osazones of some Sugars, Rishabh Kumar, Aditya Nagaich, Ishu Sharma, Ashi Jain and Sourabh (Shyamlal College)
19. Synthesis and Characterisation of Green Copper Nanoparticles, Puneet Gola (Shyamlal College), PriyanshiVerma,Nishtha(Miranda House)
20. Green Synthesis of Iron Nanoparticles and their Characterisation, Anushka Rastogi, Samridhi Bajaj, Anju and Megha Pant (Miranda House)
21. Green Synthesis of Zinc Nanoparticles and their Characterisation, Ekta, Divya Mahajan and Deeksha (Miranda House)
22. Green Synthesis of Zinc Oxide Nanoparticles and their Characterisation, Anandita, Manisha, Shruti (Miranda House) and Simran (Punjab University)
23. Design of an affordable Polarimeter, Sana Mehta, Harshita, Aakansha, Khushboo, Aashi Tayal (Miranda Hose), Dishendra (Shaheed Sukhdev College of Business Studies)
24. Synthesis and Characterization of Carbon Nanoparticles, Manisha and Manisha Dabla(Miranda House)

Basic Instrumentation Skills Project

August to November 2017

1. Study of RF Transmitter and Receiver; Isha, Itisha, Mitali, Laxmi
2. Infrared Detector, Anjali, Anu, Km. Komal, Nidhi Patel
3. Smart Drone: Nikita Gahlawat, Bharti, Ashi Jain, Komal Verma, Khushboo Gupta
4. Electronic Eye Controlled Security System; Charu, AmbikaNongthombam, Ankita Garg, NingthanpuiluThaimei
5. Automatic Rain Sensing Wiper System; Aditi, Deeksha, Karthika, Mansi Chaudhry
6. Study of AM Receiver, Arpna, Muskan, Km. Sonia, Manikarnika
7. H-Bridges (as a DC Motor Controller); YS Sochuiwon, Priscilla Khapai, Sweta Joshi, PrishaGagneja
8. Toy Piano Circuit; Usha, Poonam

9. Electronic Eye Controlled Security System; Km. Vaishali, Snehi Khandelwal, Shivani Sharma
10. Solar Panel Mobile Charger; Pragati, Pooja Rattewal, Tanu, Babina
11. Generation of High Voltage DC from low AC using Diodes & Capacitors in Ladder Network; Rakhi Verma, Ruby Verma, Sangeeta, Shruti Gupta
12. 5 V Mobile Phone Charger; Radhika Singla, Shreya Giri, RebikaOinam
13. Audio Amplifier; Priyanka, Ritu, Sapna, Rachana
14. Self-Switching Power Supply; RashmiYadav, Sheetal, Riya Sharma, Premlata
15. Electrical Black Box; Pratibha, Rajdeep Kaur, Rajnandini Mukherjee, Sahaja Kanuri
16. Power Supply using Transformer; Pooja, Richa Sharma. Riddhi Tiwari, Tanya Khullar
17. To Make an Inverter using IC 555 Timer that converts 12 V DC Suppy to 220 V AC; Shubhi Jain, Sunita Khod, Sonam, Tanuja
18. Multi Range DC Voltmeter; Smriti, ShiwaniChhikara, Shipra Aswal
19. Infrared Heartbeat Sensor; RiddhimaPuri, Shipra Verma, Tamanna Sharma
20. Measuring Magnetic Field of a Solenoid using Search Coil; Rashmi, Shreya Mishra, Suchita Agarwal, Yachika
21. Wireless Data Communication using Radio-Frequency Transmitter and Receiver; SamreenRahmani, Shivani Singh, Tamanna Dalal, Priyamvada Dwivedi
22. Plant Moisture Detector with Calibration; Anmol Batra, Anukool Yadav, Bhawna, KeshviTuteja
23. Electronic Letter Box; Mrinal Pandit, Kritika Mundeja, Khushbu, Ananya Kumari
24. Arduino Weight Measurement using Load Cell and HX711 Module; Astha Bansal, Komal(1616)
25. Construction of Hybrid Bridge; Astha Shrivastava, Namita Bhandari, Ankta Mathur, Anushvi Panwar
26. Sound Operated Flip-Flop; Vinita Banga, Priya Yadav, Shreyashi Shukla, Shayaluxmi Devi Thingom
27. Security Systems; Gitika, Kriti Mahajan, Lucky Chaudhary, Manisha
28. Panic Alarm-using 555 timer IC; Ankita Yadav, Deepali Gupta, Aakansha Shri
29. To make a Low Light Dectecting Car and to study the relation of Illumination with Voltage and Resistance; ChinkeyChachra, Himani, Komal(930), Ksh. Glenna Devi

2017-2018

1. Student Projects (July – December 2017) Students of B. Sc. (H) Physics II Year did projects in Instrumentation under the Skill Enhancement course in Semester III in groups of 3 to 4. In all there were 29 projects undertaken. Currently in Semester IV (January – April 2018) these students are carrying out projects on Renewable Energy and Energy Harvesting as part of Skill Enhancement course

2. Summer Workshop for Undergraduate Science Students, Flavor of Research: Investigative Projects in Multidisciplinary Contexts from 5 June to 15 July 2017. Nearly 40 Physics students participated in the workshop and carried out projects in interdisciplinary fields.
3. Student Projects beyond the regular classroom study in (i) Robotics and (ii) Quarknet (iii) 3D Printer applications in Optics and Mechanics experiments throughout the year.
4. Summer Workshop for Undergraduate Science Students, Epitopic analysis of *Mycobacterium tuberculosis* genes for vaccine development through immunoinformatics approach
5. Summer Workshop for Undergraduate Science Students, Analysis of Soil and exploring biodiversity from the soil samples collected from Jakrem, the Hot Water Spring, Meghalaya, India

Basic Instrumentation Skills Project

August to November 2018

1. Inverter; Tamanna,Sanjana Yadav, Priya, Neha
2. Black Box, Rashi Wadhwa, Srishti Jaglan , Shikha Yadav, Sudarshana
3. Light & Sound: A Symbioses; Sakshi Lohan, SochannoMachinao, Shivani Yadav
4. Metal Detector; Preeti, PoojaMeena, Poonam Devi, SanjeetaAhirwar
5. Digital Thermometer using LM35 Temperature Sensor; Sambhavi Nigam, SonalDingra, G Vishupriya
6. Electronic Eye; Shikha Singh, SimranMeena, Sandra R Babu, ShriyaNayak
7. Traffic Light Violation Monitoring & Detection System; MuskanSanyal, HimshikhaPathak, HimaniDothai
8. Temperature Regulator; Manya, Kirti
9. Railway Gate Control System; KushiJagarwal, MamtaKurray, Mukta Rajput
10. Arduino Wattmeter; Kanika, Krishna Chaudhary, Krishnananda, Manshi Rani, Kalpana
11. Smart Street Lighitng; Harsha, KritikaBansal, Madhuri Prasad, MonalisaPatra, LavanyaAgrawal
12. Automatic Waster Segregator; Komal, Komal, Mahima, Monika, Mukta
13. Automatic Light Sensor; GarimaChaudhary, Anjali, AimanMustaq, AnmolreetKaur
14. Fire Alarm System; Anu Sharma, Bhoomika, ApurvaMahajan, DevikaBhatnagar
15. Interactive Traffic Light; Aditi Singh, Dipika Sharma, Aditi Singh, Ananya
16. Solar Tracker, Amitha P V, HinaniLatheef, C Jayashri, Amrutha Suresh
17. Wireless Transmission through Tesla; Aayushi Sharma, Anshul Singh, ArtiMeena
18. Automatic Water Level Indicator & Pump Controller; Anju, Aarti, Alka, Amrita

Renewable Energy Projects

January to April 2018

1. Thermal Energy Harvesting; Kriti Mahajan, LaxmiBai Meena, Mani Karnika, Mitali Sharma
2. Electricity from Walking; Ambika Nongthombam, Ankita Garg, Anukool Yadav, Anmol Batra
3. Solar Car with Piezo Electric Cells Road; Anu Verma, Ankita Yadav, Komal Yadav (515), Muskan, Soniya
4. Piezoelectric Generator; Charu, Anu, Komal (1616), Khusboo Gupta
5. To design a Smart Home Automation System to save Energy; Bhawna, Himani, KeshviTuteja, Ksh. Glenna
6. Concept of Green Building; Itisha, Gitika, Chinkey, Komal(930)
7. Smart Road System; Lucky Chaudhary, Manisha
8. Wind Energy to Electrical Energy, Usha, Shruti, Tanya, Shivani Sharma
9. Sound Energy Harvesting, Vinita Banga, Subhi Jain, Tanuja, Km. Vaishali
10. Piezoelectricity Generator; Sheetal,ShipraAswal, ShiwaniChhikara, Smriti
11. Solar Car and Electricity Generation; Tanu, Sunita, Sonam, Snehi
12. Gravity Wheel, Shivani Singh, Shivi Saini, Shreya Giri, Tamanna Dayal
13. Study of Thermoelectric Properties of Doped Polymer, Shipra Verma, Shreya Mishra, Suchita Agarwal, Tamnna Sharma, Yachika
14. To demonstrate the working Mechanism of a Linear point Absorber (as a Wave device; YS Sochuiwon, Priscilla Khapai, Shweta Joshi, Babina Devi, ThingomShyaluxmi Devi, Shreyashi)
15. Energy Harvesting from Electromagnetic Induction; Rachana, Sapna, Priyanka, Rakhi Verma, Richa
16. Electricity generation using Roller Mechanism and Piezoelectric Technology (Dual Energy Harvester); Radhika Singal, Riya Sharma, Ritu, PrishaGagneja, Ruby Verma
17. Energy of Vibration; Riddhi, Rashmi Yadav, Sangeeta, Premlata
18. Solar Tracking System; Samreen, Priyamvada, Rebica, Poonam
19. Solar Powered Weather Station; Pratibha, Rajdeep Kaur, Rajnandini Mukherjee, RidhimaPuri, Sahaja Kumari
20. Thermoelectricity and Thermoelectric Materials; Pragati, Pooja Rattewal, Pooja, Priya, Rashmi

2018-2019

Summer Projects

1. Assessment of Immunogenecity of Mycobacterium tuberculosis DOSR Genes by In-SilicoAnaysis, Molecular Cloning and PBMC Stimulation; Yamini Gupta, Anuradha, ShriaMattoo, AmishaSanwaria, Pragya Kamal,Radhika Singh, Tamanna, Neha Dixit, Muskan , AnubhaChoudhry (Miranda House), Arvinder Singh (SGTB Khalsa College), LaviBhati, HarshitArya (Hansraj College)
2. Preparation and characterization of metal and mixed metal oxide nanoparticles by Pechini method; Chetna, Pallavi, KomalChoudhary (Miranda House)
3. Preparation and properties of Recycled paper using different additives during pulping; JasleenKaur, Tanya, Varnika, (Miranda House), Aarushi (Gargi College)
4. Green Chemistry and Cosmetics Synthesis; Kanika Sharma, KunikaSaini, Pooja Singh, (G.D.Goenka University, Gurugram), Aman (Miranda House)
5. Arduino Mobile; Himani, Chinkey (Miranda House)
6. Automated Waste Segregator; Automated Waste Segregator; Komal, Monika, Aditi Singh, Mukta (Miranda House)
7. Theremin (Proximity Sensor); Harsha, (Miranda House), AnkitSoni (Hindu College)
8. Automated Farm; MayankNayak, Mani Tyagi, DivyanshuFauzdar, Ramswaroop (Hindu College)
9. IOT Based Home Automation and smart doorbell system; Khushbu, Kritika, Anmol (Miranda House)
10. Classical Mechanics experiments by the use of Tracker; AnanyaKumari, ShikhaYadav, SanjanaYadav, SudarshanaYadav (Miranda House), Poonam, Bharti(GuruJambeshwarUniversity of Science & Technology)
11. Decrease in Oxygen Content due to Microplastics; Mayank Pant (Ramjas College), Aditya Singh, ShreyaDey (Ashoka University)
12. Diffusion Cloud Chamber; AnmolreetKaur, GarimaChoudhary, Anjali, JyotsnaMadan (Miranda House)
13. Quark Net Cosmic Ray Muon Detector; RashmiWadhwa, ShivaniYadav, Sakshi, Shambhvi Nigam, Sonal, G. Vishnupriya, SochannaoMachinao (Miranda House)
14. Fabrication of Low Cost $PM_{2.5}$ Sensor Based on Optical Sensing; Manshi Rani, Krishnananda CP, Kanika, Krishna Chaudhary, ChongthamJayshri (Miranda House)
15. The Intelligent Mirror powered by Raspberry PI; Nirmal Singh, Prashant Kumar, Sandeep Kumar (Hindu College)
16. Hearing Aid Machine; PriyankaRajwani, SeemaKumari (SGTB Khalsa College)
17. A Study on Anthocyanins and Analysis of Drinking Water Quality.
18. Acetone Sensor; RajdeepKaur, Yachika and Manikarnika (Miranda House)
19. Cultural Analysis of Soil and Water samples for Presence of Thermophiles; SakshiSaini (Miranda House)

January to April 2019

1. Student activity project - Darwin' Finches and Evolution; Anubhuti Krishna, Anupama Yadav, Noor, Amisha, Shreyata, Anuradha, Chandrika. B.Sc. Hons. Zoology, 3rd year.
2. Student activity project- Women Nobel Laureates in Physiology and Medicine (1901-2018) Calendar. Shtakshi Sharma, Poonam Singla, Nandini Wadhwa, Shehzar, Rachna Yadav, Devanshee Prakash, Jasmine, Haripriya Malviya, Srijan Singh, Samiksha Uniyal, Ayushi, Monika Devi. B.Sc. Hons. Zoology 1st and 2nd Year.
3. Student activity project- Miranda Campus Bird Count. B. Sc (Hon) Zoology and B.Sc. Life Sciences.18 February, 2019.

Renewable Energy Projects
January to April 2019

1. AC using Peltier Effect; Sakshi Lohan, SochannaoMachinao, Shivani Yadav, Raniya.
2. Thermoelectric Generator; Rashi Wadhwa, Srishti Jaglan, Shikha Yadav, Sudarshana.
3. Gravity Electro-Wheel; Neha, Pinky, Pooja, Priya.
4. Smart Street Lights; Tamanna, Sanjana Yadav, Priya, Neha.
5. Solar Powered Personal Pollution Informant; Sandra R. Babu, Sangeeta Ahirwar, Prachi Mishra, Rekha Meena.
6. Thermoelectric Flashlight; Aiman Mushtaq, Anmolreet Kaur, Anju, Aarti.
7. Smart Park; Preeti, Poonam Devi.
8. Piezoelectric Slippers; Palak Awasthi, Pooja Poonia, Priyanka Yadav, Priyanka.
9. Preparation of Dye Sensitized Solar Cell; Ritu, Priyanshi, Sudesh, Rakshita.
10. Automatic Irrigation System using Solar Energy; Sarita Yadav, Shruti Sharma, Simran, Vaishnavi Verma.
11. Solar Battery Charger; Neetu Vashisth, Shreya Nayak, Simran Meena, Shikha Singh.
12. Climate is Changing: Why Aren't We; Shambhvi Nigam, Shreshthi, Sonal, G. Vishnupriya.
13. Vertical Axis Wind Turbine; Priya, Sanjana Taneja, Nishu, Samiksha.
14. Wind Turbine Project; MamtaKurrey, Mukta Rajput, Khushi Jagarwal.
15. Earthquake Detection and Energy Harvesting (EDEH); HimaniDobhal, Himshikha Pathak, MuskanSangal.
16. Solar Heater and Cooler; Komal, Komal, Mukta, Mahima.
17. Wind Powered Electric Vehicles; Kalpana, Kirti Bhatia, Manya, Monika
18. Thermoelectric Generator; Kanika, Krishna Chaudhary, Manshi Rani, Krishna Nanda.
19. Electricity Production by EMI usingTrain; Kritika Bansal, Madhuri Prasad, Monalisha Patra, Lavanya Agrawal.

20. Power Generation using Speed Breakers; Aditi Singh, Aditi Singh, Annanya, Deepika Sharma.
21. Generation of Hydroelectric Energy; Anjali, Garima, Apurva, Bhoomika.
22. Power Generative Fan; Aayaushi Sharma, Amrita N S, Anshul Singh, Arti Meena.
23. Solar Thermal Rocket; Amitha PV, Hanan Latheef, ChongthamJayshri, Amrutha Suresh
24. Energy Harvesting from Electro Magnetic Waves; Anu Sharma, Alka Yadav, Harsha Yadav, Devika Bhatnagar.