CRIP 2018

Event Report

RUTONOMI

Faculty Advisor: Prof Shobha Bagai

CRIP

CIC Robotics Internship Programme

CRIP

CRIP 2018
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CIC Robotics Internship Programme, abbreviated as *CRIP*, is an initiative taken by AUTONOMI, the Robotics Society of Cluster Innovation Centre, University of Delhi.

A two month summer internship opportunity was offered to the undergraduate students to work under the mentorship of experienced Roboticists with guidance of expert Professors, Industrialists and Researchers.

About CRIP
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CRIP is a two months-long programme, where students choose and hence develop the projects (in a team), specialized in Robotics, which are submitted by mentors who in turn will guide them to achieve their set targets. These projects are also under the supervision of professors and industrialists, who have an eminence and deeper understanding of industry. These experts are available to our students for interaction during the crucial breakpoints of their project.

The aim of CRIP was to create an opportunity for students to work on practical projects in Robotics under the mentorship and guidance of expert professors, industrialists and researchers.

The main objectives of this programme was to:

- ❖ Provide a platform for students for summer internships in robotics.
- ❖ Create a bridge between our mentor's practical experience and depth of knowledge, and budding roboticists in the community.
- ❖ Promote Robotics and Autonomi @ CIC.

CRIP Timeline
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The CRIP timeline was as follows:

Request for Mentor Proposal Issued	06/04/2018
Mentors can begin submitting their proposal	06/04/2018
Final Date for notification of mentor's participation	15/04/2018
Deadline for mentor proposal application	22/04/2018
List of accepted Mentors and Projects published	24/04/2018
Student proposal application Start Date	25/04/2018
Student proposal application Deadline	17/05/2018
Accepted students announced	25/05/2018
Bonding period: Students get to know about project and discuss it with mentors	25/05/2018 - 31/05/2018
Internship Starts	01/06/2018
Mid-summer evaluation	30/06/2018 - 31/06/2018
Summer Internship Ends: Project Deadline	19/07/2018
LIst of successful projects published and certificates distribution	05/08/2018

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In learning you will teach, and in teaching you will learn

-Phil Collins

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Mentors @ CRIP
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Mentors were individuals who proposed the projects and provided guidance and assistance to the students during the development of the project. These mentors were experienced Roboticists of Autonomi.

The programme was also a brilliant opportunity for mentors to gain a rich experience in improving their character as a teacher as well as gaining experience in managing a project team. This was also a great opportunity for individuals who are active in Robotics and looking out for a team either for a specific project or for a community to work with.

Projects @ CRIP
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❏ Swarm Robotics and Formation Control

Mentors :-

1. **Akanshu Mahajan** – Research Associate (iGloble Software Solutions)
2. **Ridhwan Luthra** – 3rd year Student (CIC)
3. **Vaibhav Jain** – 2nd year Student (CIC)

Students :-

1. **Harry Karwasra** (B. Tech Computer Science and Engineering, BENNETT UNIVERSITY, Noida)
2. **Pranav Kumar** (B.E. ECE, UIET, Panjab University, Chandigarh)

ABSTRACT

Swarm robotics is an approach to the coordination of multirobot systems which consist of large numbers of mostly simple physical robots. In this project we will focus our work on understanding and implementing the formation control of swarm robots.

GOALS

A. Develop localisation method for swarm
B. Implement various motion planning algorithms for single robot
C. Implement various motion planning algorithms for swarm robots
D. Explore dynamic planning for active swarm

❏ Lab Automation System

Mentors :-

1. **Peeyush Aggarwal** – Software Engineer (Retention Nine Technology)
2. **Lakshay Juneja** – 3rd year Student (CIC)
3. **Vikas Kamboj** – 2nd year Student (CIC)

Students :-

1. **Akanksha** (B.Sc. Computer Science, Aryabhatta College, University of Delhi)
2. **Mohd Abis** (B.Sc. Electronics, Maharaja Agrasen College, University of Delhi)
3. **Bharat Sardana** (B.Sc. Computer science, Keshav Mahavidyalaya, Delhi University)

ABSTRACT

Laboratory autonomation is aimed at improving the efficiency of the lab and everyone working within the lab. In this project we will be building a complete autonomation system which will have intelligent lighting system, person detection and tracking, implementing user defined preferences, etc.

GOALS

A. Control all the electronics in the lab online
B. Count number of people in the lab and switch on or off electronics based on that
C. Track people and switch on electronics only in their vicinity
D. Recognise people
E. Implement various user defined preferences like temperature control, lighting control, etc.

❏ Person Tracking and Following Robot

Mentors :-

1. **Rishab Grover** – Design Engineer (JTEKT India Ltd)
2. **Ridhwan Luthra** – 3rd year Student (CIC)

Students :-

1. **Prakhar Gupta** (B.Tech Mechanical Engineering, Jamia Millia Islamia)

ABSTRACT

Object detection and tracking is a widely researched field. In this project we will be building 2 robots; one which is stationary and uses a manipulator to track a person or object; second, which is a mobile robot capable of following the person around a room. The application for this project can be many but our design will be targeted towards bloggers, youtubers, speakers, etc. who want to record themselves with ease.

GOALS

A. Implement Face detection
B. Implement Face tracking
C. Implement Face recognition
D. Design both robots
E. Test and improve real time applicability

AEGIS

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AEGIS is a pool of seasoned professionals, to lend a helping hand to the students at CRIP. These individuals own an eminence and deeper understanding of industry, and they were available to our students for interaction during the crucial breakpoints of their project and to give guidance to the students and even the mentors.

Members of AEGIS:

From Outside CIC

Mr. Janu Verma - Data Scientist, Hike Messenger

Prof. Dattatraya Vishnu Kodavade - Assistant Professor in Computer Sc. & Engg, Faculty Board Of Studies Computer Sc. & Engg, Shivaji University

Dr. A K Sinha - Retd. Scientist DTRL Lab, DRDO

Dr. Parveen Panday - Associate Professor, Maharaja Agrasen College University of Delhi.

Prof. Sangita Kansal - Professor and HOD, Department of Applied Mathematics, DTU, Delhi.

Dr. Amit Pundir - Associate Professor, Maharaja Agrasen College University of Delhi.

Prof. Nayan Kakoti - Associate Professor, Department of ECE, School of Engineering, Tezpur University

Prof. Kalpdrum Passi - Department of Mathematics & Computer Science, Laurentian University

Dr. Dhananjay Gadre - Associate Professor, Electronics and Communications Engineering

Dr. Nikhil Rajput - Assistant Professor, Ramanujan College, University of Delhi, Delhi.

Prof. Vasudha Bhatnagar - Professor, Department of Computer Science, University of Delhi.

From CIC

Prof Shobha Bagai - Professor and Programme Coordinator (B.Tech - IT and MI)

Prof. Pankaj Tyagi - Professor and Programme Coordinator (M.Sc. - Math. Education)

Dr. Jyoti Sharma - Associate Professor

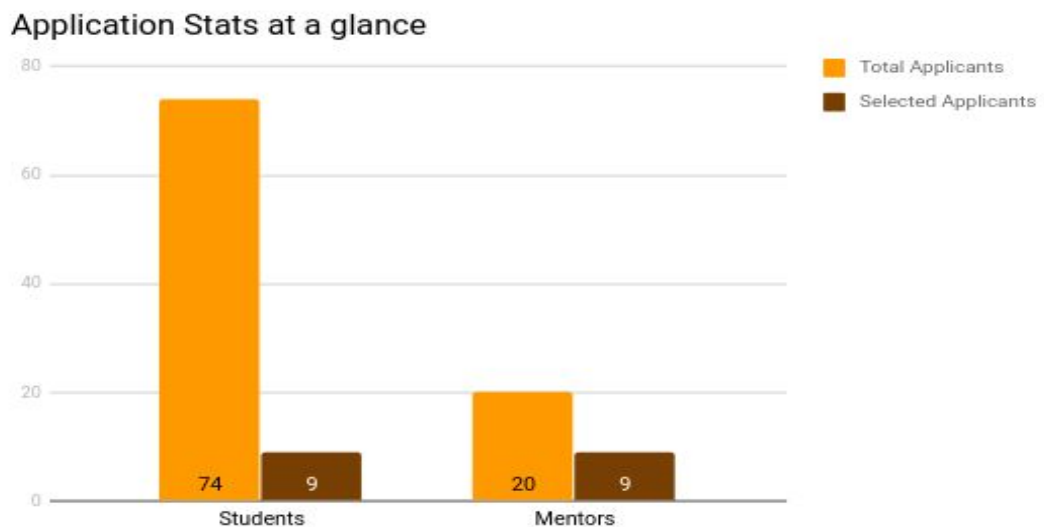**Dr. Dorje Dawa** **-** Assistant Professor

Dr. Mahima Kaushik - Associate Professor

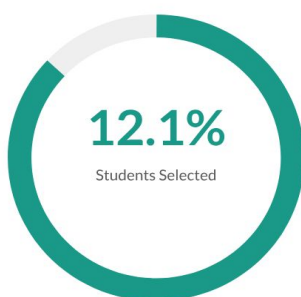**Mr. Sachin Kumar -** Assistant Professor

Application statistics at a glance
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The first ever edition of CRIP saw a huge turnout of students as well as mentors.

Application Stats at a glance

Application Statistics @ CRIP 2018

Of the 20 proposals we received, 9 were selected as mentors after a round of interview and discussion.

12.1%
Students Selected

The overwhelming number of applications we received for students showed that there was an immense interest among the students seeking opportunities in the field of Robotics. We received 74 applications, in a window of about 3 weeks, out of which **9** students were accepted after a round of interview and discussion with the mentors of the respective projects.

Gallery
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Students @ CRIP 2018

Our Team:

Vaibhav Jain (B.tech in IT&MI – 3rd year – CIC)

Vikas Kamboj (B.tech in IT&MI – 3rd year – CIC)

Upasana Singh (B.tech in IT&MI – 3rd year – CIC)

Shreyas Sachan (B.tech in IT&MI – 3rd year – CIC)

Shashwat Yashaswi (B.tech in IT&MI – 3rd year – CIC)

Gaurav Saini (B.tech in IT&MI – 2nd year – CIC)

Ravikesh Yadav (B.tech in IT&MI – 2nd year – CIC)

Ashish Priyadarshi (B.tech in IT&MI – 2nd year – CIC)

*For more information, visit <**http://www.crip.ml**>*
*Or reach us at <**crip@ducic.ac.in**> or <**autonomiducic@gmail.com**>*