

IPRO 321 | ResearchWeb

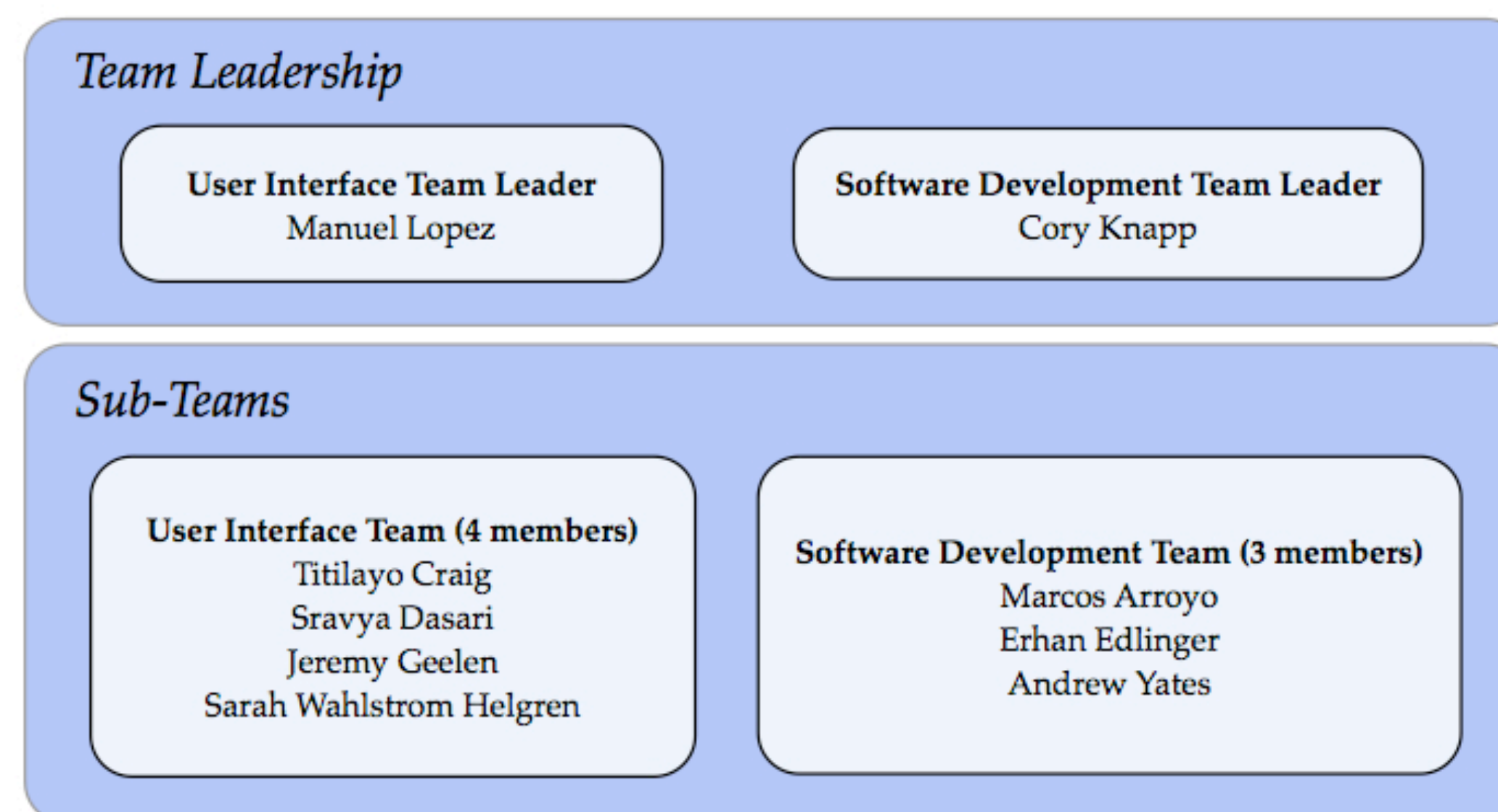
Introduction

Connecting students with research positions has had no unified solution used by most students and stakeholders. Thus, it is difficult for undergraduate students to obtain and benefit from research positions.

The purpose of the IPRO 321 team is to facilitate the performance of undergraduate research at Illinois Institute of Technology for the benefit of undergraduate students and faculty by developing a robust website. More specifically, the ResearchWeb team strives to connect undergraduate students to resources for performing research here on the IIT campus including opportunities, funding, laboratory equipment, and expertise. The team aims to assist the student researcher in all phases of research: connecting, performing, and presenting.

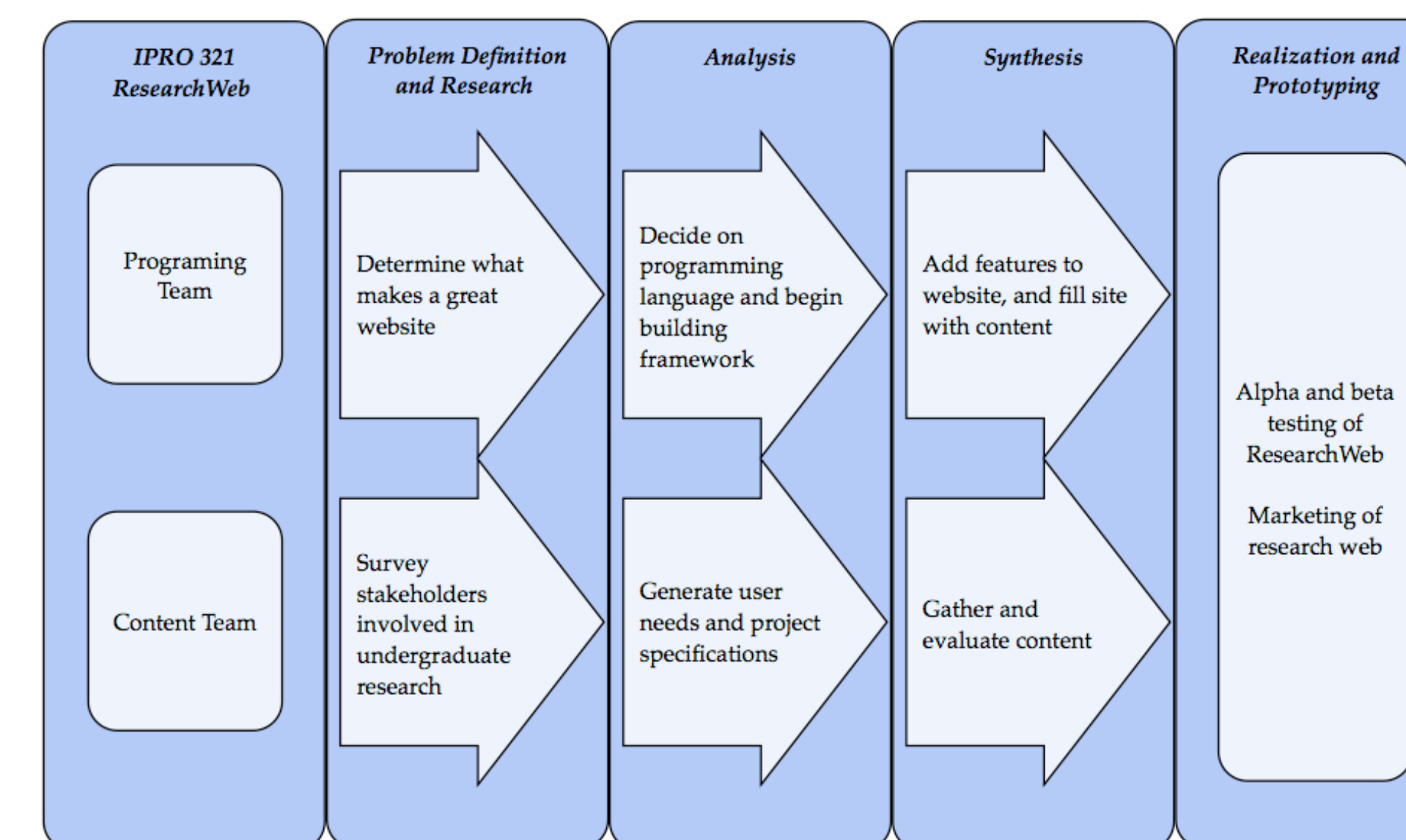
Methodology

Team Structure



The programming team focused on the actual building of the website; whereas, the content team focused on deciding on and generating the content.

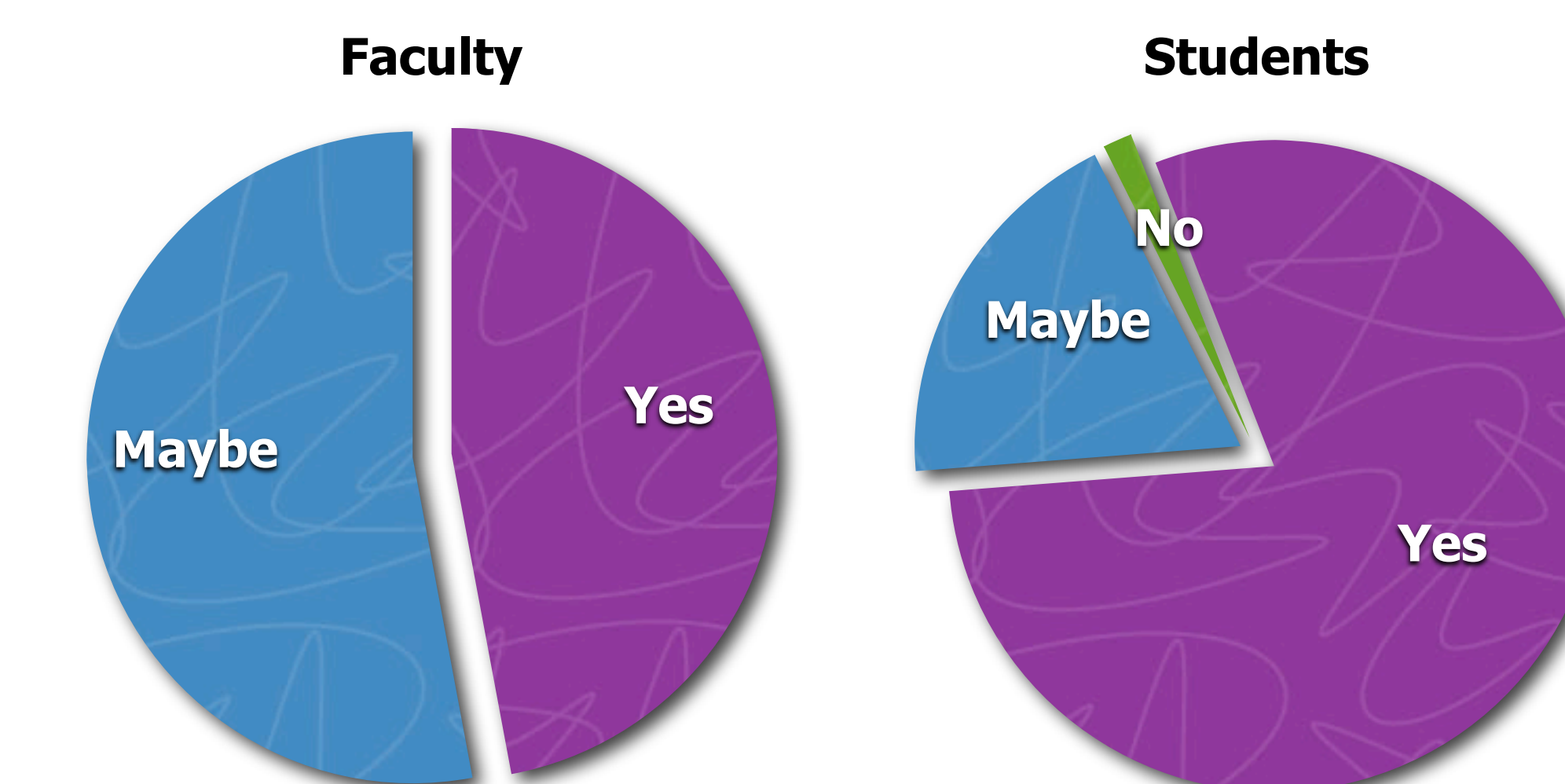
Problem Solving Approach



This is the problem solving approach our team used this semester. Each stage shows tasks that were completed by the sub-teams.

Results: Surveys

Interest in a Website for Undergraduates to View and Apply for Research Positions



Interest in Undergraduate Research Positions

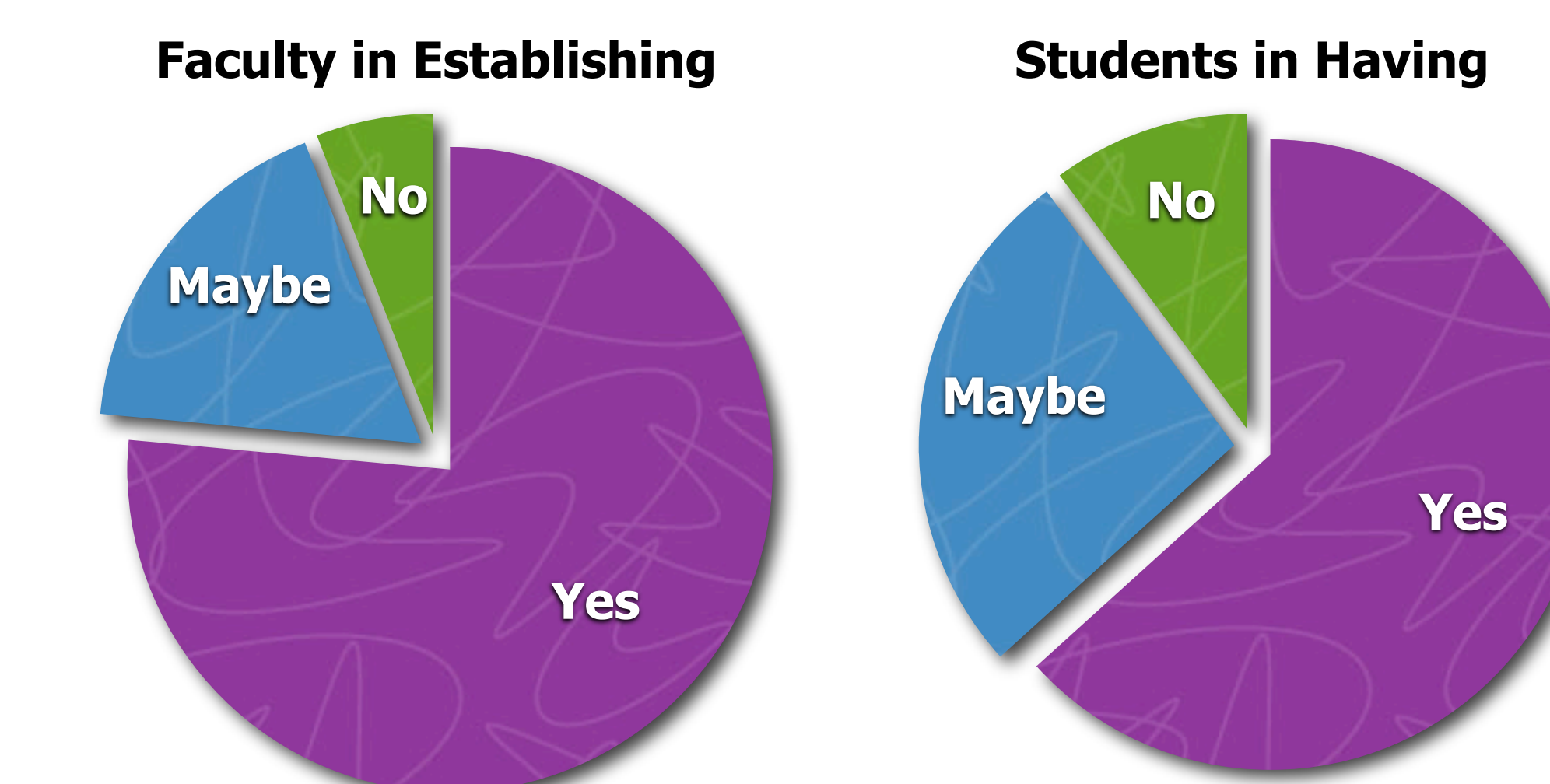


Figure 1. Interest in a website for Undergraduates to View and Apply for Research Positions and Interest in Undergraduate Research Positions -- Results were gathered from 79 student surveys and 17 faculty surveys.

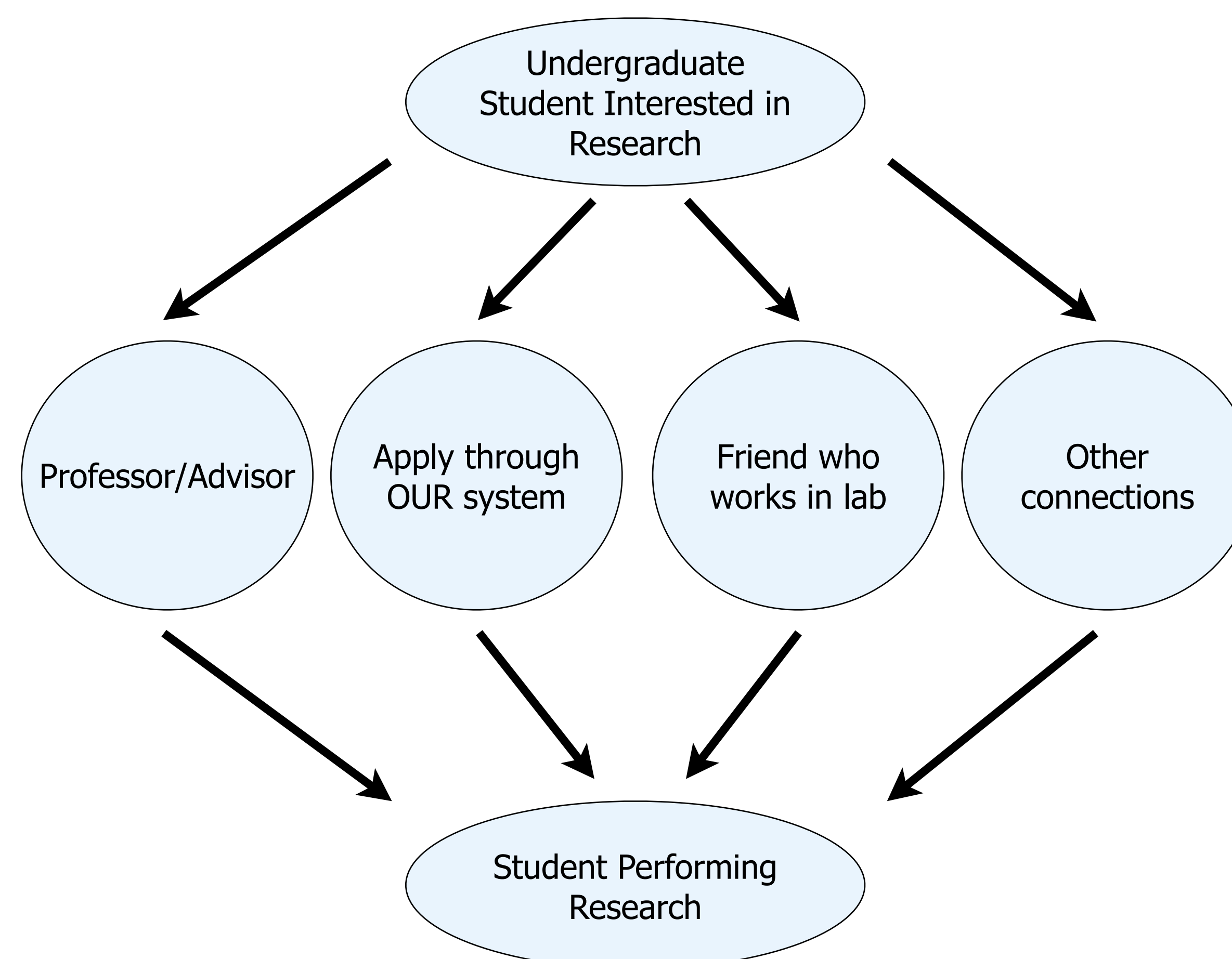
According to the survey results, the IIT community is also interested in the following features:

- ★ Research Position Database
- ★ Laboratory Profiles
- ★ Conference Database
- ★ Tutorials

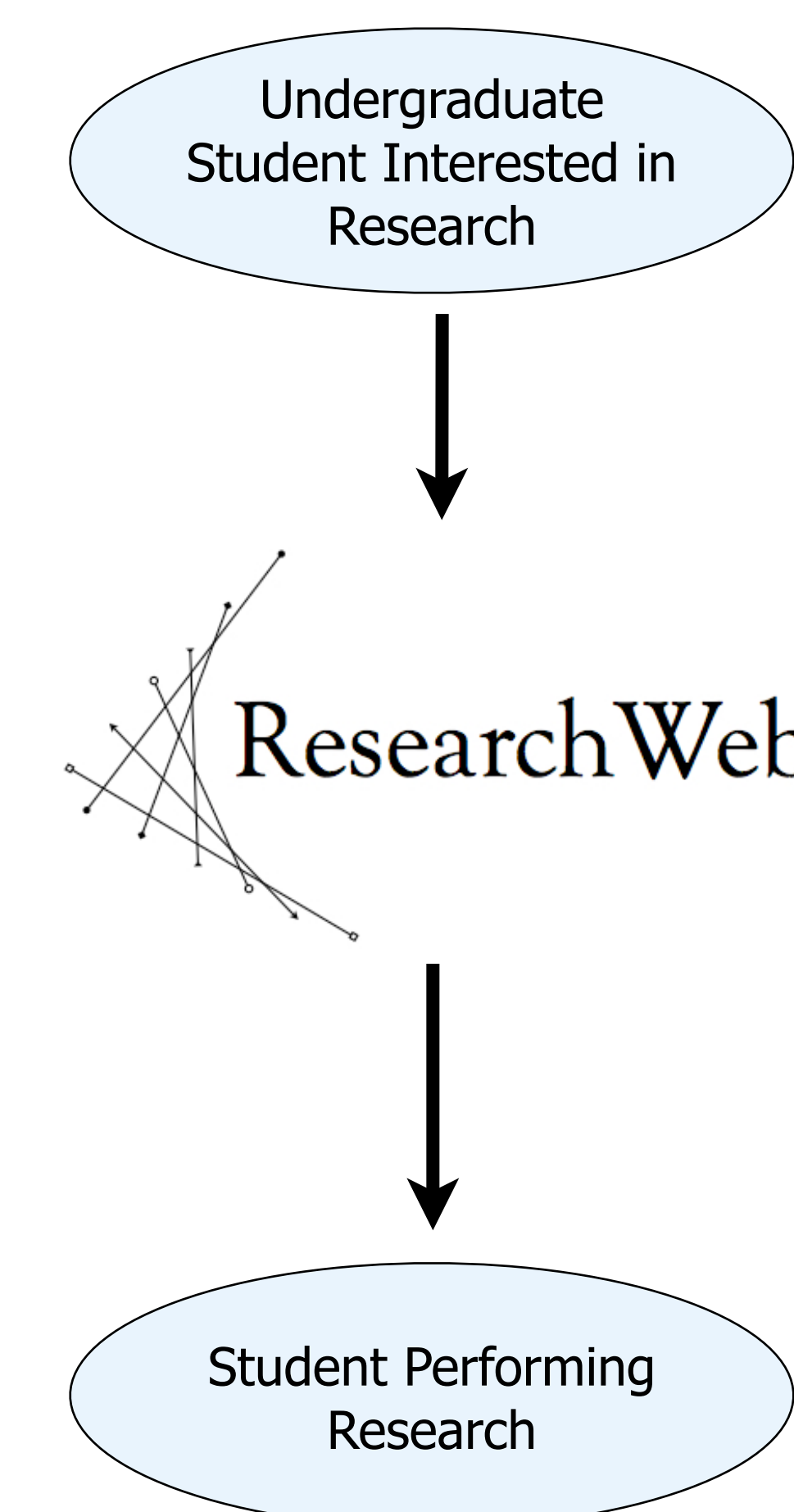
Objectives

- ★ Increase communication of research opportunities to IIT students
- ★ Ease the undergraduate research hiring process for faculty
- ★ Enhance collaboration between current undergraduate researchers
- ★ Disseminate information about upcoming research conferences
- ★ Enhance communication between current student researchers and interested students not involved in research
- ★ Implement ResearchWeb
- ★ Advertise ResearchWeb

Current Solution



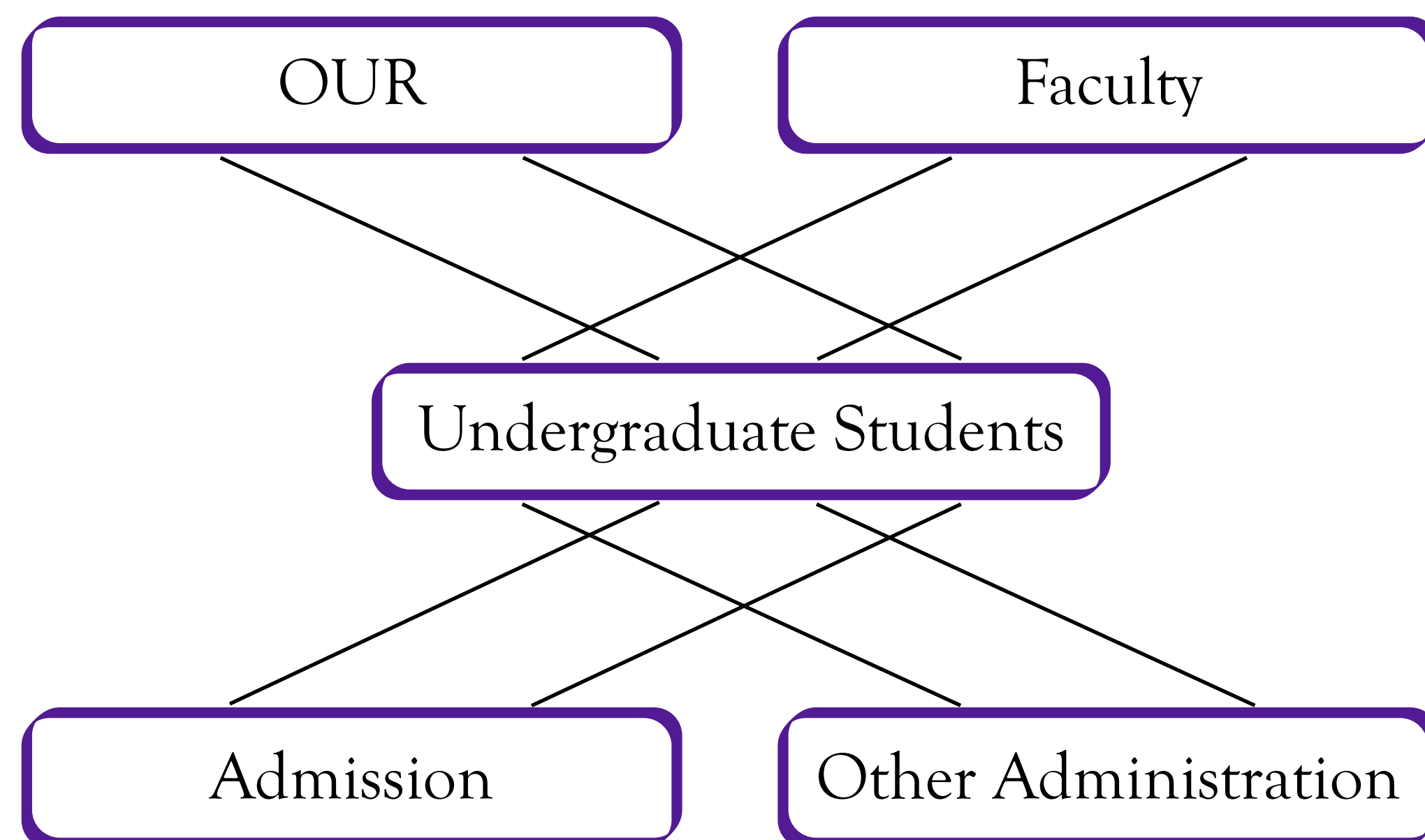
ResearchWeb Solution



IPRO 321 | ResearchWeb

Results: Stakeholders

ResearchWeb Stakeholders



Identifying key stakeholders helped the team prioritize tasks and understand the impact of the project.

Results: Integration

Connect through MyIIT

The screenshot shows the 'Academic Affairs Student System' with a red circle around 'NEW Undergraduate Research Projects'. An arrow points to the ResearchWeb homepage, which features a 'Welcome to ResearchWeb' message and a 'Dates' section listing various events.

Results: ResearchWeb

Research Position Database

Position	Lab	Department	Deadline	Professor	Available?
Computational Study of a Differentiable Variational Problem	Security Applied Mathematics research group	Applied Mathematics	2010-05-07	Robert Ellis	Yes
Fast algorithms for Embedded Computing Error Control	Scalable Computing Software	Computer Science	2010-05-15	Ziling Lan	Yes
Flow Physics	Flow Physics Group	Biological, Chemical & Physical Sciences	2010-04-14	Shawn Shadden	No
Non-regularization of Regenerative Medicine and Diabetes	None	Biomedical Engineering	2011-12-01	Eric Bray	Yes
Researcher - Summer 2010	Computer-assisted graph theory	Computer Science, Applied Mathematics	2010-05-01	Michael Paterman	Yes
X-ray Crystallography	None	Biological, Chemical & Physical Sciences	2010-08-01	Joseph Orger	Yes

The research position database allows students to find available research positions. It also allows faculty to post new positions as they are available.

Laboratory Profiles

Openings	Name	Department	Contact
★	Computer-assisted graph theory	Computer Science, Applied Mathematics	Michael Paterman
★	Discrete Applied Mathematics research group	Applied Mathematics	Robert Ellis
★	Flow Physics Group	Biological, Chemical & Physical Sciences	Shawn Shadden
★	Scalable Computing Software	Computer Science	Ziling Lan

The laboratory profiles feature allows laboratory administrators to post information about research projects happening in their lab. Research positions available in these labs will also appear on their profiles.

Conference Database

Name	Date	Location	Topic
★ 2010 Annual Meeting of the American Mathematical Society	2010-04-09	Pack Island, IL	Math
★ 2011 Joint Mathematics Meeting	2011-01-05	New Orleans, LA	Math
★ ACM International Conference on Information and Knowledge Management	2010-10-26	Toronto, Canada	Computer Science
★ ACM Special Interest Group on Information Partners	2010-07-19	Denver, Colorado	Computer Science
★ ACM Symposium on Theory of Computing	2010-06-05	Cambridge, MA	Computer Science
★ Advanced Computing Systems Association	2010-08-23	Boston, MA	Computer Science
★ Aerospace Propulsion Through Postgraduate Research Conference	2010-03-01	Santa Fe, NM	Aeronautics
★ American Institute of Chemical Engineers	2010-11-07	Salt Lake City, UT	Chemical Engineering
★ American Psychological Association	2010-08-12	San Diego, CA	Psychology
★ American Society of Civil Engineers Annual Conference	2010-10-21	Las Vegas, NV	Civil Engineering
★ Annual Behavioral Research for Liberty Conference	2010-11-10	Charlotte, NC	Biomedical and behavior students includes Math
★ Association for Psychological Science Annual Conference	2010-05-27	Boston, MA	Psychology
★ Biolog, Chemistry, and Physical Sciences Poster Day	2010-04-09	Chicago, IL	Biolog, Chemistry, Physics, Biochemistry, Molecular/Biochemistry/Electronics
★ Biomedical Engineering Society	2010-10-08	Austin, TX	Biomedical Engineering
★ European Conference on Information Retrieval	2010-09-28	Malaga, Spain	Computer Science
★ Grace Hopper Conference	2010-08-26	Atlanta, GA	Computer Science
★ IF National Academy of Engineers Grand Challenge	2010-04-21	Chicago, IL	Engineering
★ International Conference on Design and Visual Processing and Computer Vision	2010-07-12	Orlando, FL	Mathematics, Computer science, Social Science

The conference database allows students to post and find available research conferences. Conferences with activities specifically for undergraduates are marked.

Tutorials

The screenshot shows the 'Equipment Tutorials' page with a list of resources: 3D Printer, Closed Circuit Wind Tunnel, CNC Milling Machine, Digital Oscilloscope, and GPUACE LabVIEW.

The tutorials feature allows users to look-up and post information about useful laboratory techniques, software, and equipment.

Obstacles

Securing exchange of information between MyIIT and ResearchWeb

★ Solution: ResearchWeb and MyIIT exchange a secret password as they pass information.

Administrative backlog in the Office of Undergraduate Research (OUR)

★ Solution: ResearchWeb is doing a crowdsource.

Generating content for the research position database

★ Solution: An easy Google form was created and emailed to faculty both directly and through department administrators. The team also met with several department heads inspiring them to encourage faculty to open positions to undergraduates.

Project Future

★ IPRO 321 will continue in the fall of 2010. The main objective of the team will be the development of an undergraduate research journal specifically for IIT students.

★ The ResearchWeb maintenance is expected to transition to a work-study student.

★ ResearchWeb envisions expansion of its reach beyond IIT allowing professors from outside institutions to establish labs and post positions.