Information System Design
IT60105

Lecture 2

Basics of Information System Design

Lecture #2

- Information System and its Concepts

- Formulation of Information Systems

What is an Information System?

Information

+

System

=

Information System

Definition of Information

Information?

=

Creating data

Collecting data

Managing data

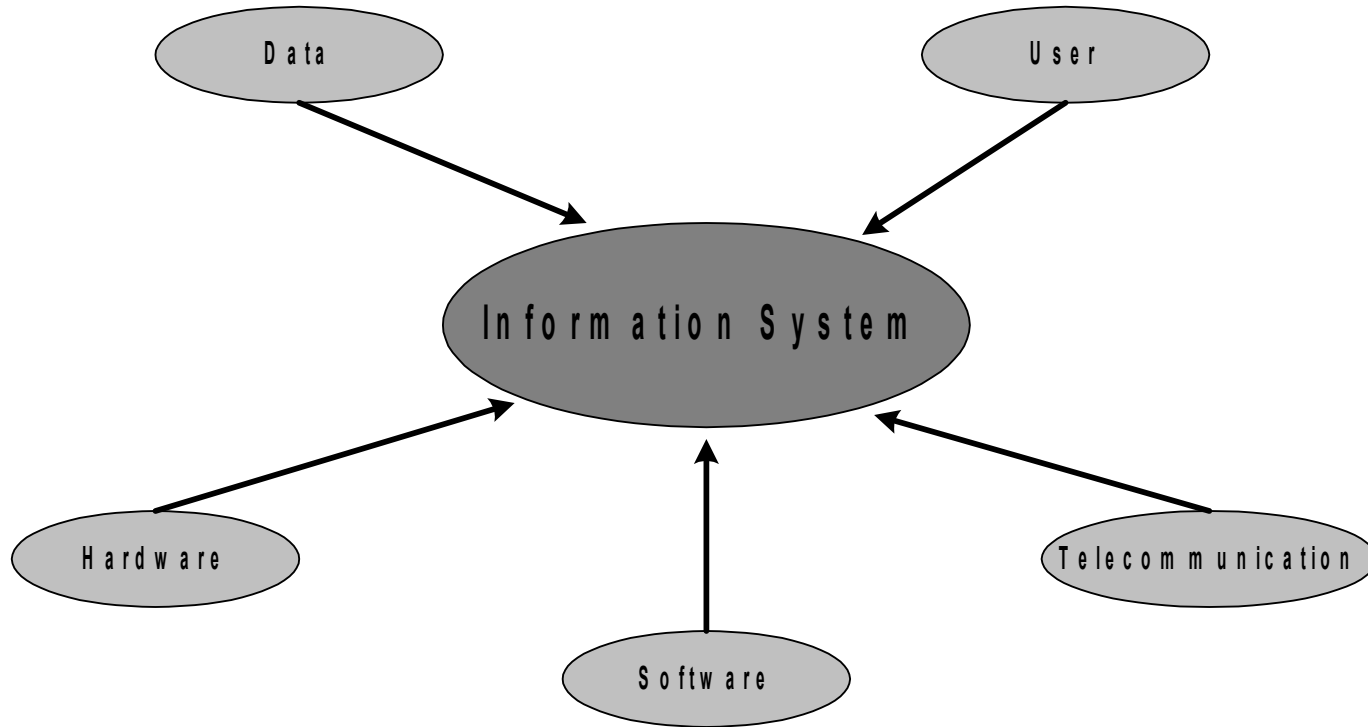Processing data

Definition of Information

System?

=

What is an Information System?

- An Information System is a combination of
  - Hardware
  - Software
  - Telecommunication networks (Internet)

- Which people build and use to
  - Collect
  - Create
  - Distribute data

- Typically in
  - Organizational setting

Components of an Information System

Example of Information Systems

- Library Information System
- Students Enrollment System
- Geographical Information System
- On-line Business Transaction (e-Commerce)
- Microsoft Office
- www.iitkgp.ernet.in
- MatLab

Example of Information Systems

- ? 5 Examples: Systems, which are not ISs

Problems to Ponder

- Identify the different components in the following systems

  - Library Information System

  - Microsoft Office

  - Cellular Phone

How we can specify an Information System under development?

An Example: SANJOG

Internet access to underdeveloped communities in India

- In recent years, with the exponential growth of Information Technology (IT), Internet has spread almost in all applications. However, the Internet advantages are confined to the limited communities only in our country. The majority communities, who have some inherent limitations such as illiteracy, unfamiliarity with foreign languages, cyber ignorance, low-bandwidth communication links etc. are still unable to participate in the IT revolution. An IS can be planned to give a solution that transcend these barriers and bring Internet services to everyone.

ICT to Rural India

* Title of the Information System

SANJOG: An Interface to WWW for Rural India

Objectives of SANJOG

- Support Internet access to backward communities in India in their mother languages.

- Design and development of Indian languages (Hindi and Bengali) compatible user interface (browser).

- Providing multi-modal interactions facilities for user-friendly interaction to Internet, so that people of varieties level of experience can enjoy the system.

Specification of SANJOG

- **System:**

  - An integrated systems meeting all the objectives of the project.

- **Subsystems:**

  - Browser interface compatible with Hindi
  - Browser interface compatible with Bengali
  - Voice enabled interface and information retrieval
  - Icon-based man-cyber interaction
  - Dialogue-based information access

  - E-mail based off-line Internet access

Type of SANJOG

- Research, Development & Engineering (R, D & E) leading to production capability

- **Application oriented Research, Design and Development (R, D&D) having production potential**

- Basic R&D

Typical End User of SANJOG

- Rural communities in the belt of Hindi and Bengali languages

- Other relevant applications in state and central government offices

- Research communities

Technical Details of SANJOG

- Urgency of the proposed system

- Aim and Challenges

- Solution
  - Architectural level

- Work plan
  - Planning, Analysis, Design, Implementation and testing

Urgency of SANYOG

The spectacular growth in Internet, which becomes synonymous with the World Wide Web (WWW), makes a rapid advancement in Information and Communication Technology (ICT). However, the explosive growth of ICT and its many applications in education, science, services and other activities etc. are confined within a limited number of so called privileged people, who live in digital pockets. In fact, the rural people in our country are yet to be included in this ICT revolution. It is not so worth to mention that the overall growth of the country depends on the growth of the rural human resources in India. Further, the rural population is 76% of the overall population in India and with reference to the intellectuality they are also no way inferior compared to their urban counterparts. In order to diminish the imbalance it is therefore an urgent need to make an info-communications bridges between Rural India and the Internet. There are so many odds to achieve this like computer illiteracy, language barrier, low-bandwidth communication connectivity, inadequate training facilities etc. are some reasons. It therefore makes a challenge for us to extend it towards the underprivileged community in India. This issue need to be addressed and find a solution in ICT for Rural India. This system will be an indigenous effort to design and develop an integrated framework with which the Indian people in general and the rural people in particular will be able to share the WWW in their mother languages. Otherwise some digital revolution takes place, it is not expected to get any breakthrough in the existing telecommunication infrastructure in the present decade and anticipating this scenario a novel solution has been proposed to overcome the low-bandwidth communication limitation to access the Internet by rural mass.
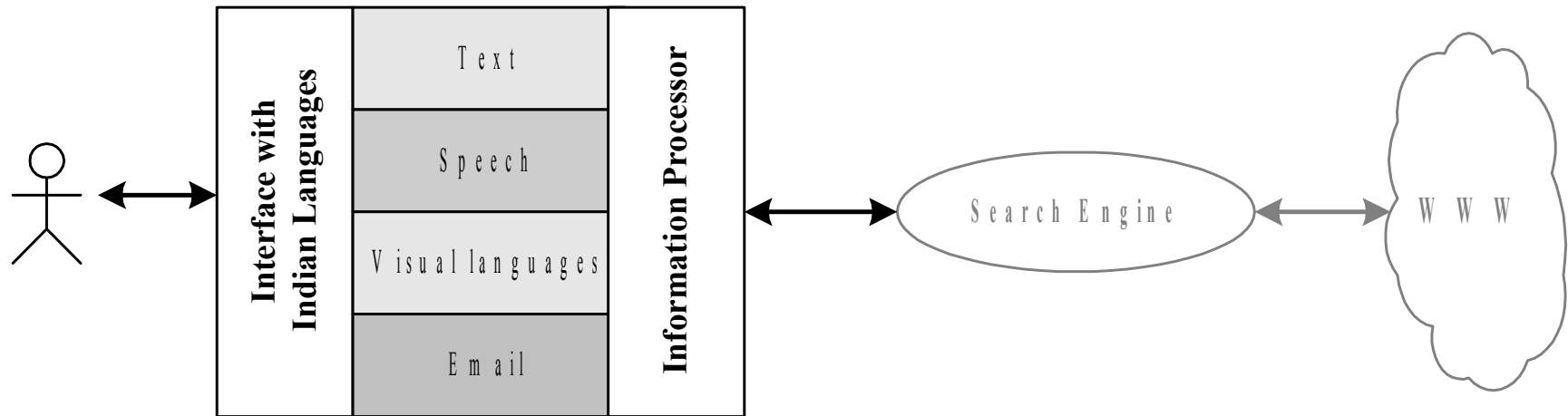
Aim and Challenges in SANJOG

Currently Internet becomes synonymous with World Wide Web (WWW). The popularity of WWW is largely dependent on the search engines. Search engines are the access point of the huge information repository at the internet. The user interface of the existing search engines takes a query string as an input from the user. Based on the keywords present in the query string they search for relevant documents. This type of interface works fine for well literate people. But for illiterate people or those who has not enough proficiency and expertise to construct a good query strings cannot use this. The rural communities in India are a perfect example of this category of users. Hardly, they have the proficiency of constructing a good query strings in English to extract their information from WWW. These problems are compounded when novice users come into the consideration. These categories of computer illiterate users have a huge gulf between "search and information". Another, limitations for rural users is having very slow rate of information access, because of the low-bandwidth connectivity to the Internet, which severally discourages them to be associated with the cyber world.

SANJOG is proposed to give a solution that transcend these barriers and bring Internet services to everyone in Rural India.
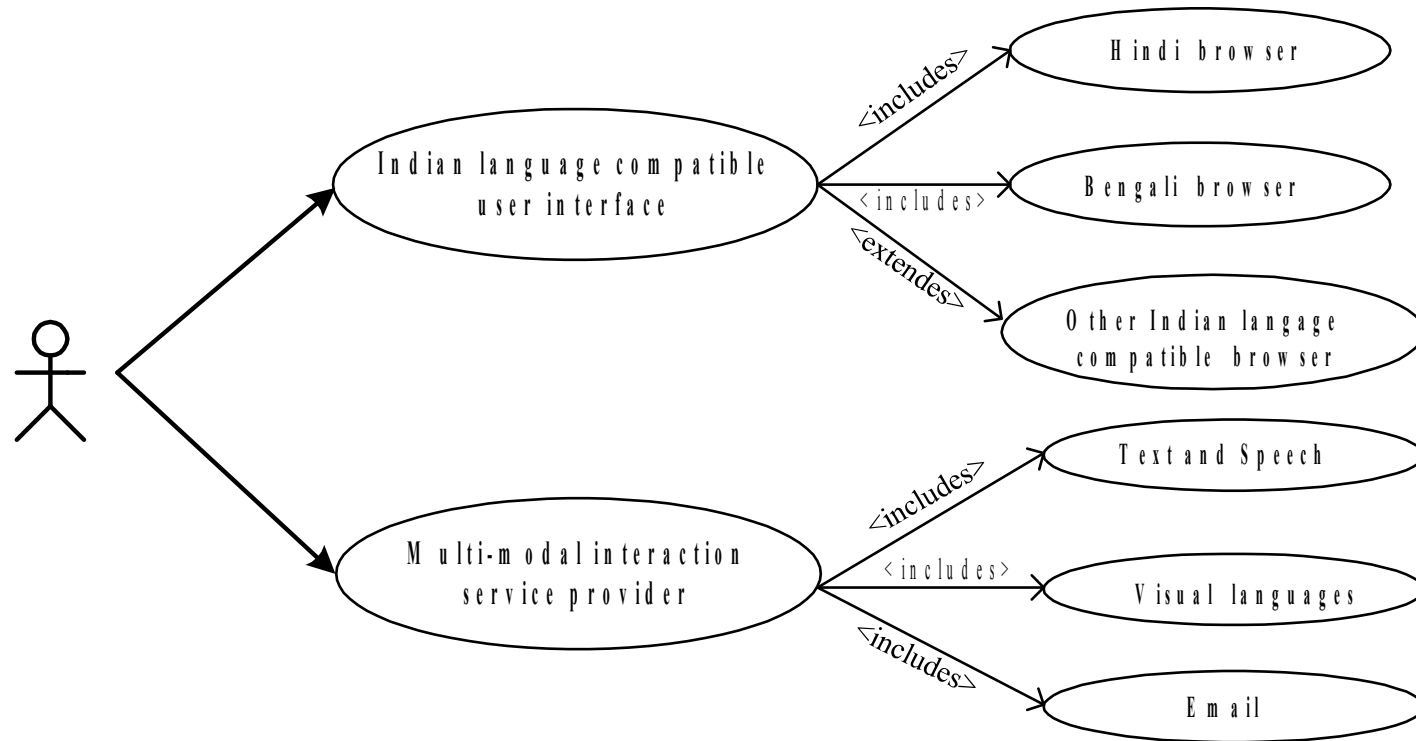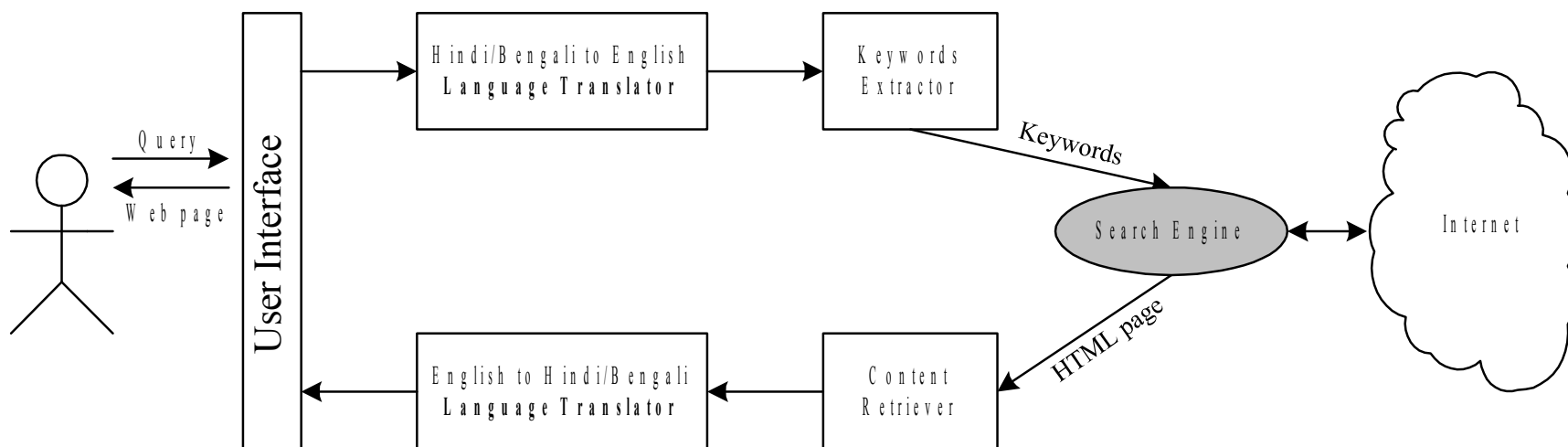
Blue Print of SANYOG
(An architectural level solution)
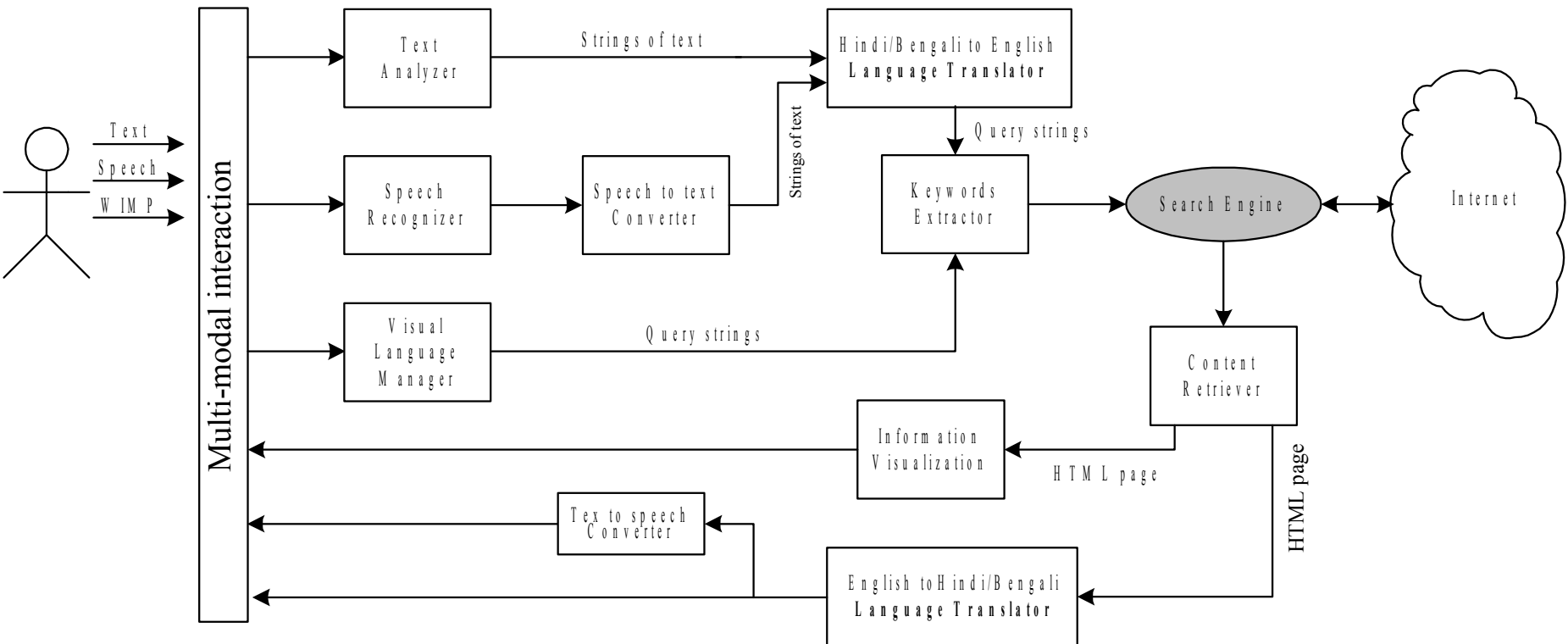
Basic Architecture of SANJOG
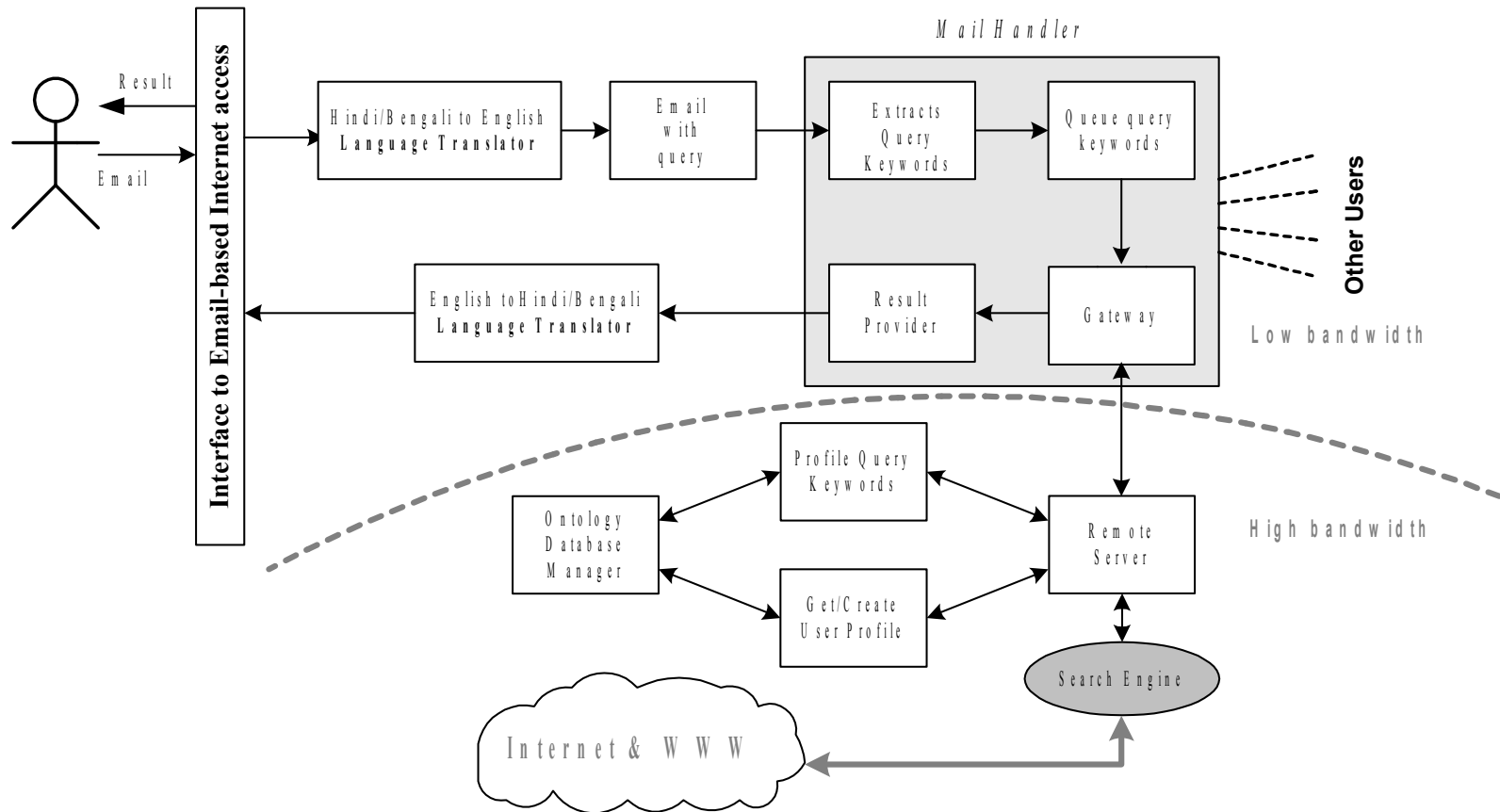
Use Case Diagram of SANJOG

Architecture of Indian Language Compatible Browser

Architecture of the Multi-modal User Interface Component

Architecture of the Component that Access Internet through Email

Work Plan

- Duration of the project: 36x6 PM months

- **Year 1**
  - Browser interface compatible with Hindi
  - Browser interface compatible with Bengali
- **Year 2**
  - Voice enabled interface and information retrieval
  - Icon-based man-cyber interaction
  - Dialogue-based information access
- **Year 3**
  - E-mail based off-line Internet access

Requirements

- Hardware?

- Software??

- Others ???

Towards the deliverables……

- Planning?

- Analysis?

- Design?

- Implementation?

- Testing?

- Deployment?

Problems to Ponder

- Define and understand the term **Information Systems** (IS)

- Explain the technology, people, and organizational components in Information Systems

- Describe the various types of Information Systems

- Merits and demerits of Information Systems