Progress Presentation-I
e-Yantra Summer Internship-2016
Robot State Collector

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Robot State Collector

- Objectives
  1. To collect data about Robot State (sensor values, velocity etc.) as the robot is being used.
  2. To experiment with different transfer mechanisms for transferring State Information from Robot to Laptop/PC.
  3. To develop a Java based GUI for:
     1. Receiving State Information from the Robot.
     2. Encrypting collected State Information.
     3. Sending Encrypted data to e-Yantra Servers.
  4. To implement Decryption of State Information sent by Client on Server Side.

Overview of Project (Cont.)

- Deliverables
  1. State Collection Code for Robot and associated Tutorials.
  2. GUI with all the functionalities mentioned in Objectives.
  3. Documentation of state collection, encryption and decryption process.

Overview of Tasks

List of Tasks

Task	Deadline
Study and set up Linux and understand problem statement	3 days
Relevant Reading and Getting started	4 days
Interrupt based state collection	6 days
Exploring other possibilities	6 days
Creating a GUI for fetching collected state	6 days
Encrypting and sending data to server	3 days
Testing and Debugging	4 days

Tasks Completed

- Relevant reading about ATmega2560 microcontroller.
- Interrupt based State Collection has been achieved.
- Transmission of State Information from Robot to Laptop via XBee module.
- In the process of finalizing the GUI.
- Decryption of received data.

Major Challenges

- Minimizing the Interference between State Collection Code and User Code.
- Dealing with the Unreliability of Wireless Communication via XBee.
- Storing the Encryption key to be shared with the e-Yantra servers.
- Dealing with Block Level Padding for File Decryption.

Tasks Remaining

- Adding Checksum to preserve Integrity of Received file.
- Uploading collected data to e-Yantra servers.
- Testing State Collection code for different time periods.
- Making the code more secure.
- Proper documentation.

Thank You!