***Speech Processing ROBOT***

A workshop on speech recognizing robot was conducted on 16th and 17th of this November by LI2 team of 4 members. The workshop mainly focused on robot control using speech processing and other different protocols. The workshop began with an introduction to what a robot is? Can the robot be said intelligent? And many more things.

Pratap from Li2 gave us a very good start on these topics. After understanding the basics we were given a kit to build the robot ourselves. It included MSP430 launch pad with Ic2555. This was the controller for our bot. We then had a session on H-bridge which made us understand the concepts of its working and how actually the motor is driven by a controller. Later we were taken into software part of the syllabus. ENERGIA was the ice that we used to code the controller. we were given a very good introduction about the language. Later we assembled the bot and tried playing over the code to move the bot as we liked. Next came the task of controlling the rpm of the motors using codes. PWM came into picture. Theory on pwm for a couple of minutes by Pratap helped us to understand the concept of pwm and its application to manage the speed of both. We were given with a few mindtricklers to understand the concept with a better perception. After a few try over’s on PWM, then came the serial communication. A little bit of theory on baud rate simplex half duplex and duplex sufficed us to have control over the bots using serial communication, that is we tried controlling our bot using computer. As and when we pressed corresponding keys on our keyboard the bot moved in its respective direction that was meant to move in. Further, we had to try sending a set of letters or in other words a "word" serially to make the bot move. By the end of day we tried quite a few methods of controlling the bot.

On the second day we had this speech processing. It was quite tough to understand. Large number of questions and doubts filled the ambience. Nevertheless, Pratap answered all of them patiently and quite convincingly. Theory on speech processing included the Moarkov chain rule, Grammar file, HMM module, search engines etc. After having a glimpse on speech processing we were given with a headphone and were asked to control the bot using speech recognition. This was quite exiting and tough as well. Speech templates were given to us which did not make our task a tedious one. After the lunch session we started making the speech recognizing bot. After having a lot of confusions and frustration on the accent we finally managed to control the bot just by our voice commands. We were on cloud nine to see the robot listening to us. This two day workshop was indeed a worth investment of time and money. It was very informative and illustrative with practical understanding of several concepts which we had learnt and looked only in a theoretical perspective.

We thank the Li2 team for coming over to our college and helping us go through a series of robotic stuffs. Thanks for conducting this worship. We would also like to thank the telecommunication department for arraigning and organizing all the requirements for the workshop. From the day break snacks, lunch, lab facilities etc were taken care off. We are indeed grateful for that. We would also like to thank Prof. Dr. Manikandan J for taking over the responsibilities of this workshop. Last but not the least we thank TEQIP for sponsoring the workshop.

Thank You