

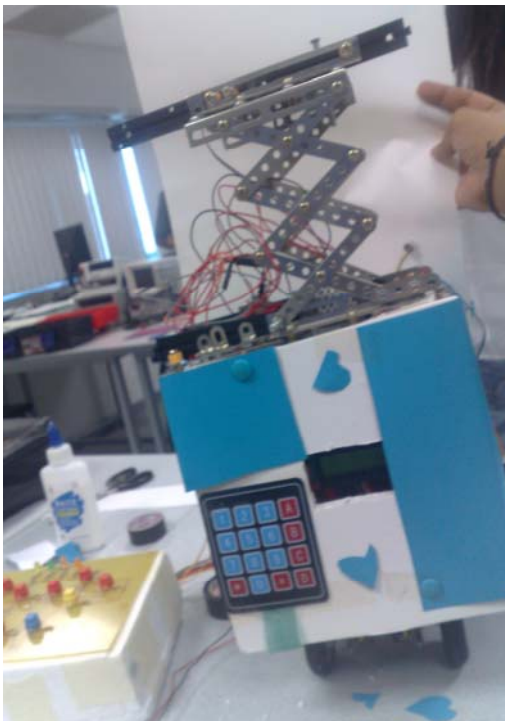
EE2001: Project: Team 1-7

The Empowerer

The Empowerer aims to be the champion of the cause for Physically challenged individuals. The motivation behind the same comes from the fact that everyday, there are hundreds of such individuals who are unable to continue their intellectual pursuits due to this disability. Therefore, the Empowerer shall **empower** these individuals to be able to navigate, access and retrieve books in libraries and bookstores in an easy and simple way using just a trolley with a myriad of features embedded into it.

The Empowerer contains a **mechanical lift and an extendable arm** made from scratch using only mechanical train set components. These lifts and arms enable the user to elevate the **RFID reader** and position it in front of a book high up in the bookshelf so as to be able to scan the book. The details of the book are then displayed on the **LCD** panel on the Empowerer so that the user can make an informed choice as to whether he shall retrieve the book or not. If he decides to retrieve the book, the horizontal arm contains a hook that shall hook onto the book from behind and pull it down to return it to the user.

Further, the user is able to use the Manual Control of the Empowerer to move the trolley around without exerting himself in anyway. When the user decides to **logout**, he just needs to press a button and the **Automated Motion** of the trolley comes to life. It is able to calculate the external environment settings and find the difference between the external threshold and a black line using 4 LDRs. It takes the trolley back to the **Burglar Alarm** parking space with no external assistance whatsoever.



The **Burglar alarm** works such that if an unauthorized user (detected by not scanning his membership card) tries to take the trolley, it sends a transmission using the **RF transmitter** module and also asserts a buzzer. Further, if an **authorized** user needs to use the trolley, he/she needs to **scan a card and** enter the **authorization code** provided on the **Keypad** so as to use the trolley. Thus, these complete the security features of the trolley.

External features include an **emergency button** that transmits using the **RF Transmitter** to a **GUI** at the librarian desk to alert the librarian of the need. Also, a **Noise Sensor** warns the user in the event excessive noise is detected. Thus, we believe that the Empowerer is the ultimate champion of the Physically Challenged Cause and a credit to society.