

Progress Presentation-I

e-Yantra Summer Internship-2017

Fi – PiAdapterBoardforFirebird – VusingRaspberrypi

Milanpreet Singh

Tejaswani Anand

Mentor: *Ms.Rutuja and*

Ms.Deepa

IIT Bombay

June 5, 2017

Overview of Project

Progress
Presentation-I

Milanpreet

Singh

Tejaswani

Anand

Mentor:

Ms. Rutuja and

Ms. Deepa

Overview of
Project

Overview of Task

Task Accomplished

Task Accomplished
(continued...)

Task Accomplished
(continued...)

Task Accomplished
(continued...)

Challenges Faced

Future Plans

Thank You

- Project Name :-Fi-Pi Adaptor Board for Firebird-V using Raspberry pi
- Objective :- Making of Adaptor board with R-Pi for firebird-V Robot
- Deliverables :-1.Adaptor board with required features
2.Related Experiments and Documentation

Overview of Task

Progress
Presentation-I

Milanpreet
Singh
Tejaswani
Anand
Mentor:
Ms. Rutuja and
Ms. Deepa

Overview of
Project

Overview of Task

Task Accomplished

Task Accomplished
(continued...)

Task Accomplished
(continued...)

Task Accomplished
(continued...)

Challenges Faced

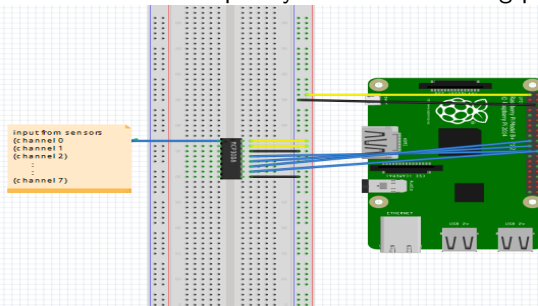
Future Plans

Thank You

Task No.	Task	Deadline
1.	Understanding Firebird-V robot	2 days
2.	Learning Raspberry pi	2 days
3.	Mapping of pins on firebird and pi	2 days
4.	Working on i/o connections	2 days
5.	Powering of raspberry pi	3 days
6.	ADC	2 days
7.	Communication	3 days
8.	PCB Designing	4 days
9.	Extra peripherals	6 days
10.	Documentation	4 days

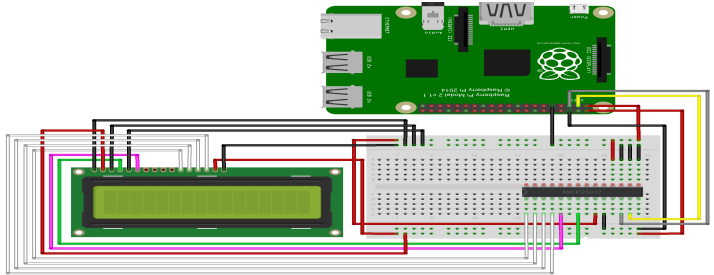
Task Accomplished

- Manual of Firebird analysed properly and numbering of some pins on main board was recorded
- Raspberry pi was interfaced with the Laptop using Wifi adapter and Mobaxterm was used for the secure shell session
- IR sensors and Sharp sensors readings were recorded using MCP3008 ADC Ic as Raspberry donot have Analog pins



Task Accomplished

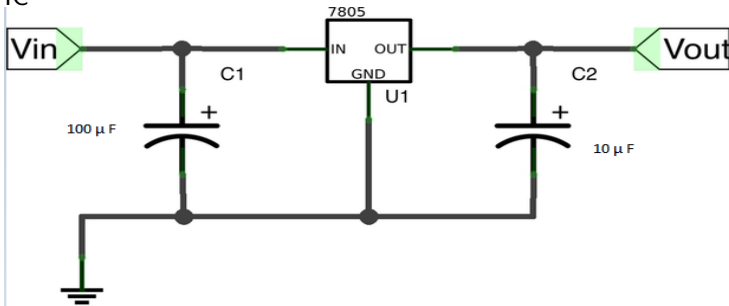
- As no. of GPIO pins on Pi is only 15 in number so they were extended using MCP23017 port expander .We can use 8 such IC's for increasing the pins.



- Wheel encoders were interfaced with pi using threading.
- LCD was interfaced with Raspberry pi
- Zigbee communication for sending and receiving data from Firebird

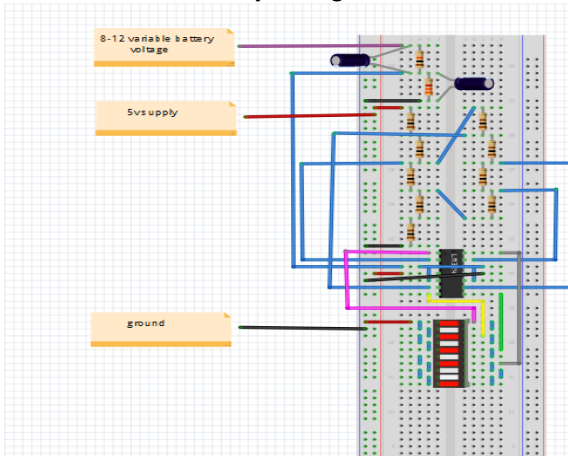
Task Accomplished

- For Powering the pi a stable 5V system was designed Using 7805 IC



Task Accomplished

- Battery voltage sensing Circuit was designed which will sense the voltage and accordingly glow the no. of LED's on Bargraph Led.
- All 10 LED's will glow on Bargraph whwn battery voltage is 12V
- 8 Led's for 10V Battery voltage and so on..



Progress
Presentation-I

Milanpreet
Singh
Tejaswani
Anand
Mentor:
Ms. Rutuja and

Ms. Deepa

Overview of
Project

Overview of Task

Task Accomplished

Task Accomplished
(continued...)

Task Accomplished
(continued...)

Task Accomplished
(continued...)

Challenges Faced

Future Plans

Thank You

Challenges Faced

Progress
Presentation-I

*Milanpreet
Singh
Tejaswani
Anand
Mentor:
Ms. Rutuja and
Ms. Deepa*

Overview of
Project

Overview of Task

Task Accomplished

Task Accomplished
(continued...)

Task Accomplished
(continued...)

Task Accomplished
(continued...)

Challenges Faced

Future Plans

Thank You

- Pins on Firebird were listed wrong in hardware manual so it was a bit difficult to trace them on the main board.
- Wheel encoders value were a bit difficult to calculate because even a print statement gave a delay and we didnt get exact encoder value.It was eliminated using threading.
- While assembling the circuit on breadboard sometimes we get messed up with the wires and we need to do it from beginning.

Future Plans

Progress
Presentation-I

Milanpreet

Singh

Tejaswani

Anand

Mentor:

Ms. Rutuja and

Ms. Deepa

Overview of
Project

Overview of Task

Task Accomplished

Task Accomplished
(continued...)

Task Accomplished
(continued...)

Task Accomplished
(continued...)

Challenges Faced

Future Plans

Thank You

- Communication using USB and RS232 cable
- Pcb Designing and Printing
- Documentation
- Theme implementation using Raspberry pi based Firebird-V

Thank You

Progress Presentation-I

*Milanpreet
Singh*

*Tejaswani
Anand*

Mentor:

Ms. Rutuja and

Ms. Deepa

Overview of Project

Overview of Task

Task Accomplished

Task Accomplished (continued...)

Task Accomplished (continued...)

Task Accomplished (continued...)

Challenges Faced

Future Plans

Thank You

THANK YOU !!!