

Progress Presentation-I

e-Yantra Summer Internship-2015

8051 & ARM7 based learning modules on Fire Bird V Robot

Bhumika Varshney

Dinesh J

Mentor: Deepa and Rutuja

IIT Bombay

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Overview of Project

Progress
Presentation-I

Bhumika
Varshney
Dinesh J
Mentor: Deepa
and Rutuja

Overview of
Project

Overview of Task

Task
Accomplished

Challenges Faced

Future Plans

Thank You

- Project Name: 8051 & ARM7 based learning modules on Fire Bird V Robot
- Objective:
 1. Design and develop learning modules based on 8051 & ARM7 which is mapped with university curriculum.
 2. Make documents and video tutorial of required module.
- Deliverables: Folders containing experiment file, documentation and step by step video tutorial.

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Future Plans

Thank You

Task No.	Task	Dead line
1	Learn 8051 microcontroller interfaced with Fire Bird V Robot.	3 days
2	Prepare experiments based on the modules given.	20 days
3	Challenge Day- Design a small theme where you cover the concepts of 8051	4 days
4	Make report and folder containing proper documentation, experiments and video tutorial of each activity.	3 days
5	Learn ARM7 microcontroller interfaced with Fire Bird V.	3 days
6	Prepare experiments based on the modules given.	19 days
7	Challenge Day- Design a small theme where you cover the concepts of ARM7	4 days
8	Make report and folder containing proper documentation, experiments and video tutorial of each activity.	3 days

Task Accomplished I

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Overview of Project

Overview of Task

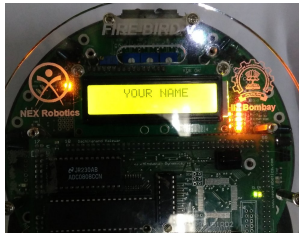
Task Accomplished

Challenges Faced

Future Plans

Thank You

- All experiments related to 8051 has been completed.
- All documentation part is done related to 8051 except few topics.
- List of all topics completed:
 - 1 IO Interfacing
 - 2 LCD Interfacing



Task Accomplished II

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Overview of
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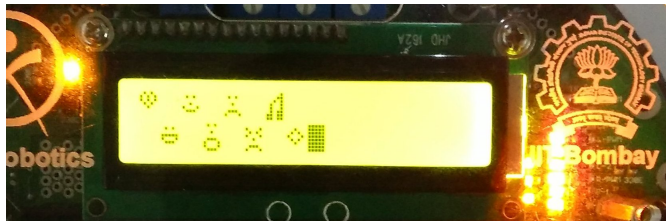
Overview of Task

Task
Accomplished

Challenges Faced

Future Plans

Thank You



Task Accomplished III

contd...

Progress
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Overview of
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Overview of Task

Task
Accomplished

Challenges Faced

Future Plans

Thank You

3 Interrupts

- ✓ External interrupt
- ✓ Timer overflow interrupt
- ✓ Serial interrupt

4 Position encoders (use of external interrupt)

5 USB to serial communication

- ✓ Loading Hex file into firebird V
- ✓ USB to serial communication(using USB)

6 Wireless communication using zigbee

Task Accomplished IV

contd...

Progress
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Overview of
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Overview of Task

Task
Accomplished

Challenges Faced

Future Plans

Thank You

7 Interfacing Motors

8 PWM technique

9 Interfacing ADC

10 Interfacing White line sensors

11 Interfacing Sharp GP2D12C Infrared range sensor

12 Interfacing IR Proximity sensors

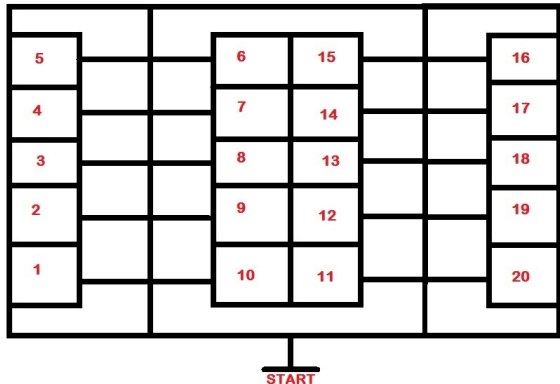
13 Battery voltage sensing

- All the tasks are completed within the given deadlines.

Task Accomplished V

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- Here is an idea for a small theme covering all concepts given above.
 - **Theme name-** Automatic Car parking system
 - **Description-** Robot will trace the arena and search for an empty slot, when it finds one it will automatically park itself.



Task Accomplished VI

contd...

Progress
Presentation-I

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Overview of
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Task
Accomplished

Challenges Faced

Future Plans

Thank You

- **Concepts covered**

- 1 Line following
- 2 Obstacle detection and avoiding
- 3 LCD interfacing
- 4 Zigbee(serial interrupt)
- 5 Buzzer
- 6 Timer and External Interrupts

Task Accomplished VII

contd...

Progress
Presentation-I

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Overview of Task

Task
Accomplished

Challenges Faced

Future Plans

Thank You

■ Few more ideas for theme are

- **Automatic newspaper distributor:** The robot will traverse the paths of a society and distribute correct newspapers and magazines to the required houses.
- **Farmhouse robot:** The robot will traverse the given path of a farmhouse and check if eggs are present at each node, if an egg is detected it will fetch it and send the message to the owner of farm.

Challenges Faced

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Challenges Faced

Future Plans

Thank You

- Interfacing LED or any other IO device was a challenge as there is no expansion slot available.
- Because of the difference in speed of DC motors, motors based experiments seemed difficult.
- As P89V51RD2 supports only 3 proximity sensors that too in the front part so we were not able to make a perfect wall follower.

Future Plans

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Challenges Faced

Future Plans

Thank You

- Designing a small theme covering all the concepts of 8051.
- Learn ARM7 based Fire Bird V Robot.
- Preparing the experiments for ARM7 based Fire Bird V Robot on the given modules.
- Designing a small theme covering all the concepts of ARM7.
- Making report, documentation and video tutorial of each module.

Thank You

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Future Plans

Thank You

THANK YOU !!!