Presentation on Industrial Attachment

at *Roboment Research & Development Lab*

Presented by

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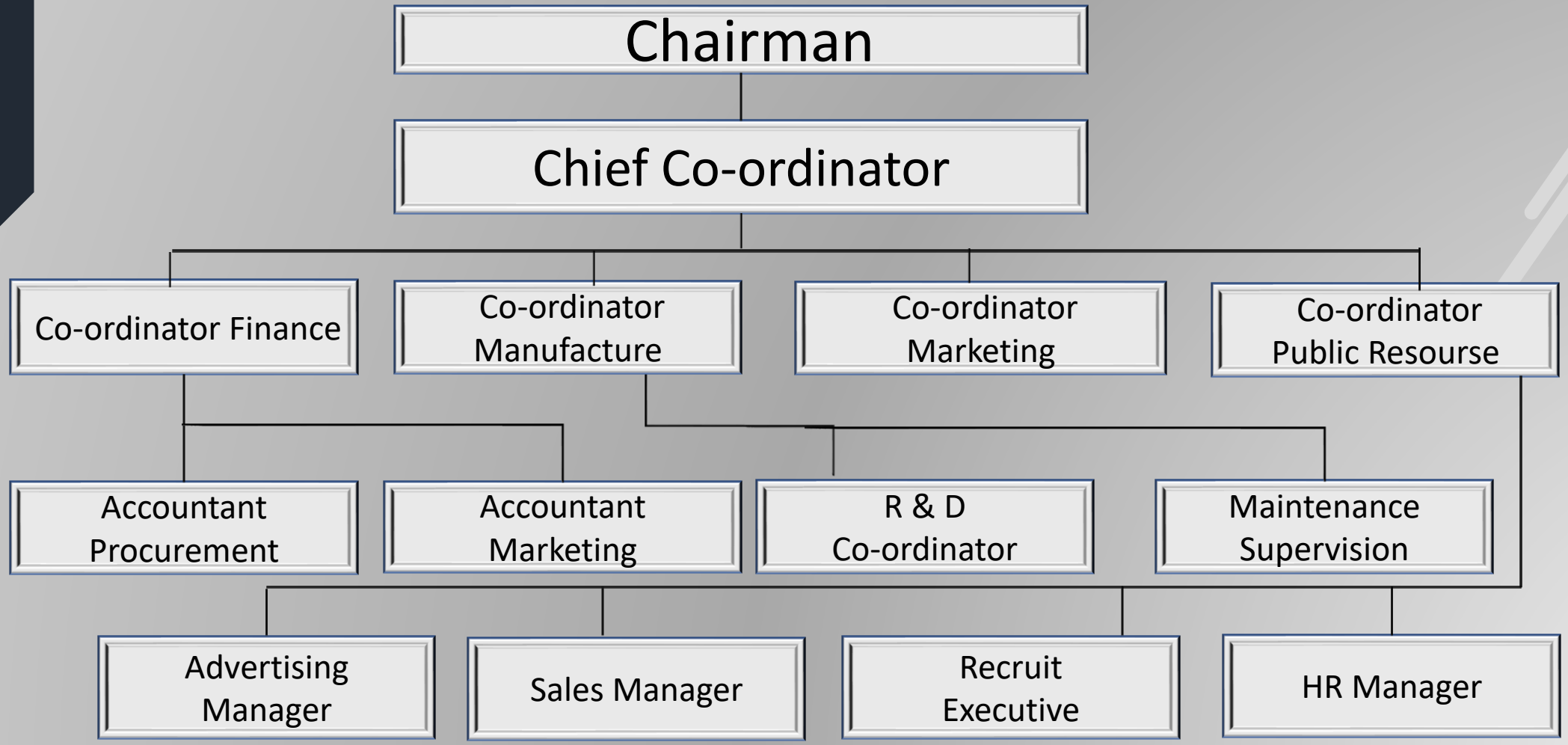
Organization Details

Information

- **Name:** “Robomentt Research & Development Lab”
- **Address:** Vai-Vai tower, Fakirbari, BIDC Bazar, Gazipur
- **Website:** www.robomentbd.com
- **Types of product and services:** Engineering consultancy, Robotics & Automation module production etc., **Training on Automation and Robotics.**
- **Capacity:** According to the market demand.

Organization Details

Organogram



Introduction

- We've completed our industrial attachment in Roboment RnD Lab, Gazipur.
- During our training, we saw the assembling of various sensor modules, trainer boards, process flow, operation of dc output loads, IoT operation using google firebase, Easier Series trainer Board, Arduino Uno, Mega, Conversion of Analog Sensors to digital sensor modules.
- We've learned PCB design.
- Illustration of tracing paper of PCB.
- We've learned how PCB design could be simplified.
- Programming of Arduino using Arduino IDE Software

Objectives of the Internship

- To acquaint practical knowledge.
- To explore academic knowledge in the respective industries.
- To be prepared for the dynamic and real-life work field.
- To cultivate professionalism, aptitude and adaptiveness.
- To enrich interpersonal communication and collaboration.
- To build a good relationship between the Industry and University.

Technical Summary of the Internship

Product Study

Fig.01: Easier LDR module

Fig.02: Easier motion sensor

Fig.03: Easier water sensor

Fig.04: Easier Buzzer

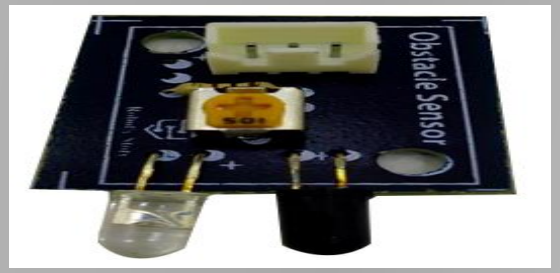


Fig.05: Easier obstacle sensor

Fig.06: Easier Switchboard

Fig.07: Easier LED lamp

Fig.08: Easier Pro

Technical Summary of the Internship

PCB Design & Development

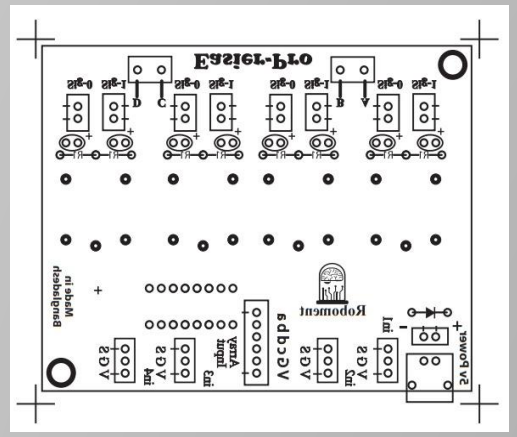


Fig.02: PCB Design (Top view)

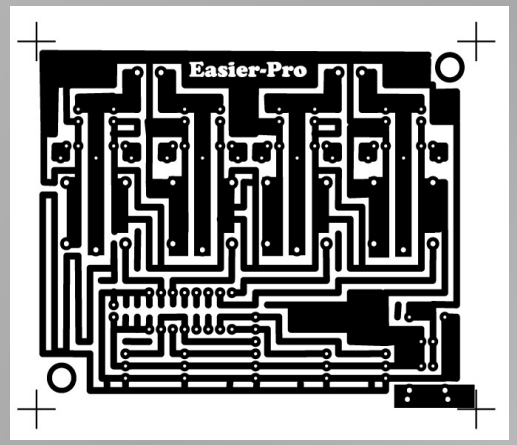


Fig.01: PCB Design (Bottom view)

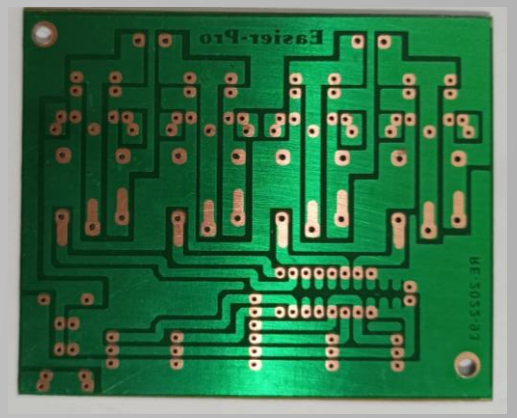


Fig.03: PCB Implement (Top view)

Fig.04: PCB Implementation (Bottom view)

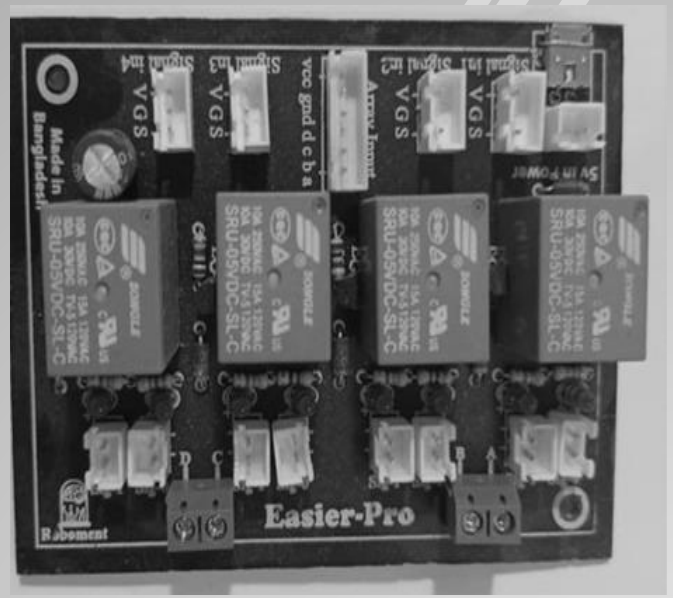


Fig 05: Complete Instrument setup

Technical Summary of the Internship

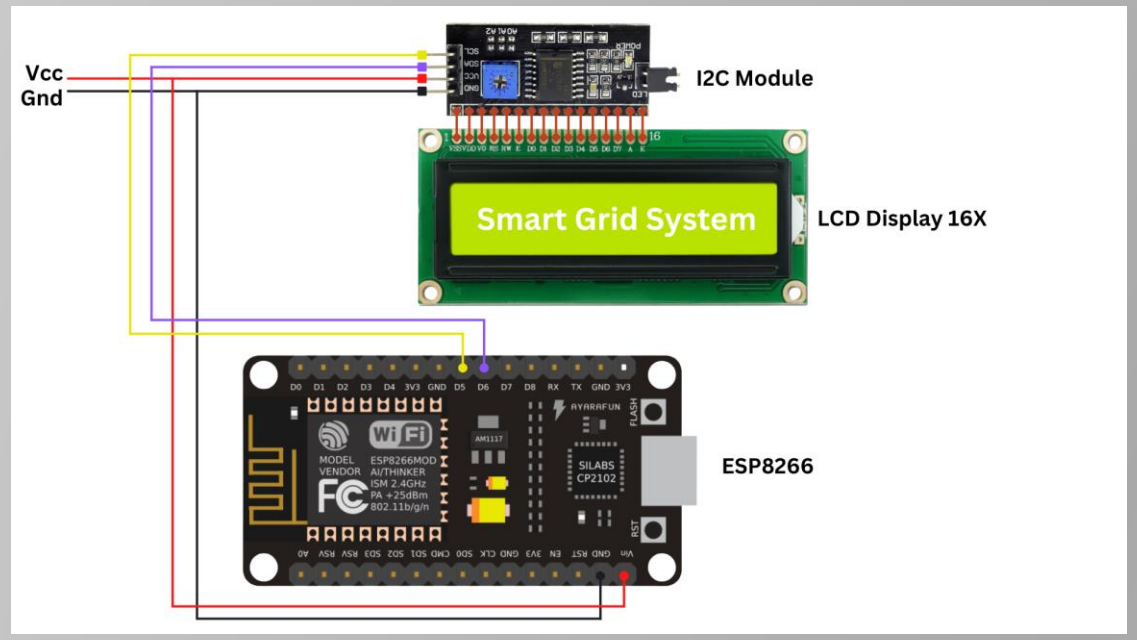


Fig 01: I2C Module Connection with Display

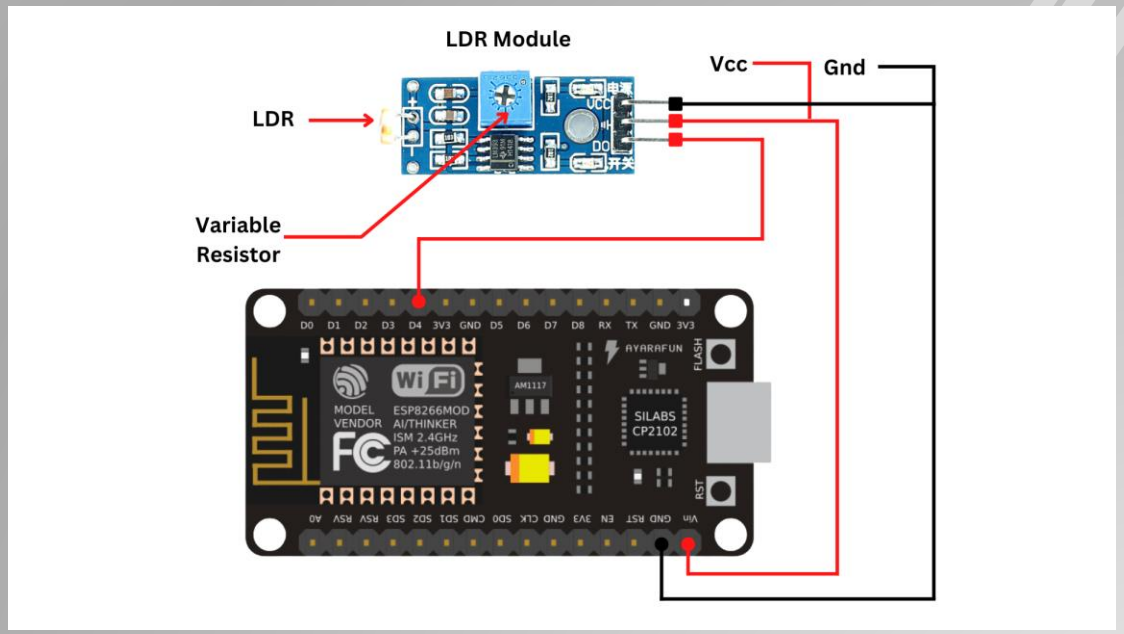


Fig 02: LDR Module Connection with ESP8266

Ethics and Code of Conduct

a) Employee rights

All employees are voluntarily hired for manufacturing positions and must be at least 18 years of age. Student workers under the age of 18 will not perform work that is likely to jeopardize their health or safety.

Workweeks are not to exceed the maximum hours set by local country law. Workers shall be allowed at least one day off every seven days. All employees are compensated in compliance to wage laws, and for each pay period, employees will receive a comprehensible wage statement. Under no circumstances will an employee ever be docked in base pay as a disciplinary measure.

b) Employment

Robоment RnD Lab recognizes that diverse, talented and engaged employees are a key competitive advantage. Robоment RnD Labs committed to building a workforce that consists of the characteristics and attributes that best serve our markets and the communities in which we do business. The varied experiences, skills and qualifications of our people enhance the company's overall effectiveness. We promote an environment where each employee is valued, respected, and treated with dignity. We believe a wide array of perspectives, resulting from a diverse culture, promote innovation and build success.

c) Communication /Open Door Policy

We believe that to be successful, the free exchange of ideas, information and discussions with all employees is critical. Open, honest, non-defensive communication facilitates the continuous improvement of our company. Employees are encouraged to express their ideas, concerns, suggestions and comments on a personal basis with anyone in management at any time and without fear of retaliation.

d) General Conduct

Robоment RnD Lab believes that all employees deserve to work in an environment that strives to be respectful, values diversity, is safe, and promotes effective teamwork. Good judgment, responsible conduct and respect for others are basic expectations of all employees. Each employee is responsible for performing to those expectations. Employees are also expected to comply with any business unit/location-specific conduct policies. Misconduct is addressed through counseling, coaching and/or progressive discipline, up to and including separation.

Management Aspects

- A lot's of Robotics component are sold by this company via sensorbazarbd.com and roboshopctg.com and they enlarge their market by doing some free workshop on "Robotics Camp". They also sells their products in the local market.

- **Management Steps**

1. Planning,
2. Marketing,
3. Finance,
4. Human Resources,
5. Technology & Equipment, and
6. Operations

Individual and Team Works

Project tasks	Chief Co-ordinator	Co-ordinator Finance	Co-ordinator Manufacture	Co-ordinator Marketing	Co-ordinator Public Resourse	R & D Co-ordinator	Maintenance Supervision	Advertising Manager	Sales Manager	Recruit Executive	HR Manager
Phase1:Research	C,I					A	R				
Econometric model		C,I		A					R		
Strategic framework			C,I		R	A					
Risk factor				R	C,I	A					
Phase2:Structure	C,I					R	A				
Product specs						C,I		R	A		
Design wireframe			C,I			R				A	
User Journey								C,I	R	A	
User experience testing				A				C,I	R		
Evaluation framework	C,I		A			R					
Development backlog	C,I	R			A						
Delivery roadmap			C,I		R	A					

Societal & Environmental Impacts

- A major impact of this industry has been on employment generation.
- The environmental impact of electronics manufacturing is a global ecological issue, which is not just limited to the creation of rubbish. It raises concerns about air pollution, water and soil contamination.
- When e-waste is exposed to the heat, toxic chemicals are released into the air damaging the atmosphere
- Those toxic materials can then seep into the groundwater, affecting both land and sea animals. Electronic waste can also contribute to air pollution.

Societal & Environmental Impacts

SDG Goals

Addressed KP, CEP & CEA

Knowledge Profile

	Attribute
K1	A systematic, theory-based understanding of the natural sciences applicable to the discipline
K2	Conceptually based mathematics, numerical analysis, statistics and the formal aspects of computer and information science to support analysis and modeling applicable to the discipline
K3	A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline
K4	Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline
K5	Knowledge that supports engineering design in a practice area
K6	Knowledge of engineering practice (technology) in the practice areas in the engineering discipline
K7	Comprehension of the role of engineering in society and identified issues in engineering practice in the discipline: ethics and the engineer's professional responsibility to public safety; the impacts of engineering activity; economic, social, cultural, environmental and sustainability
K8	Engagement with selected knowledge in the research literature of the discipline

Addressed KP, CEP & CEA

CEP & CEA

Attribute	**Complex Engineering Problems** have characteristic P1 and some or all of P2 to P7:
Depth of knowledge required	P1: Cannot be resolved without in-depth engineering knowledge at the level of one or more of K3, K4, K5, K6 or K8 which allows a fundamentals-based, first principles analytical approach
Range of conflicting requirements	P2: Involve wide-ranging or conflicting technical, engineering and other issues
Depth of analysis required	P3: Have no obvious solution and require abstract thinking, originality in analysis to formulate suitable models
Familiarity of issues	P4: Involve infrequently encountered issues
Extent of applicable codes	P5: Are outside problems encompassed by standards and codes of practice for professional engineering
Extent of stakeholder	P6: Involve diverse groups of stakeholders with widely varying

Attribute	**Complex activities** means (engineering) activities or projects that have some or all of the following characteristics:
Range of resources	A1: Involve the use of diverse resources (and for this purpose resources include people, money, equipment, materials, information and technologies)
Level of interaction	A2: Require resolution of significant problems arising from interactions between wide-ranging or conflicting technical, engineering or other issues
Innovation	A3: Involve creative use of engineering principles and research-based knowledge in novel ways
Consequences for society and the environment	A4: Have significant consequences in a range of contexts, characterized by difficulty of prediction and mitigation
Familiarity	A5: Can extend beyond previous experiences by applying principles-based approaches

Summary & Conclusion

- **During training period, a lot of experience, knowledge and exposure that we have handy . All disclosures were awaken us in a boost of self-confidence to face life more challenging now. Practical is a complement to the science or theory learned. This is clearly the concept of electronics and Robotics.**

- **However, there are still some weaknesses that can be improved in the future. Therefore those minor flaws that are somewhat disfiguring condition , this weakness can be rectified in the future.**

- **We received a lot of experience in the practical world. I would like to thank also our trainer a lot for train us very helpfully.**

- **We faced real life challenges and that will help us in future.**

THANK YOU