

ACKNOWLEDGEMENT

We would like to take this opportunity to mention a few names, without whom, our project would not be successful. To begin with, we would like to thank our Principal, Mr. V Rajasheakaran for his constant encouragement and words which strike us to do better.

Our Vice Principal Mr. A Palani Kumar for their observation & suggestions. A very vital support from our project Coordinator Mr.Shiju Gangadharan, who continuously helped us by providing us time, place & guidance to complete the project.

A moment to appreciate our project in-charges, who were remarkable with knowledge, patience and wisdom, Mrs.Vijayalaxmi Imandar, Mr. D M Umesh, Ms. Keerthi Basur for their endurance & advices would never let us go down. They provided us with continuous guidance & support.

We would like to thank all of our teaching & non-teaching staffs who have helped us throughout our Mechatronics System Design project within the given time period.



ABSTRACT

This project work modifies a treadmill to better fit the requirements of users as a LOPIFIT (Treadmill bicycle) is designed for those humans who love to run outside. Treadmill equipped on bicycle frame and formulates a big innovation named 'LOPIFIT'. This bicycle has electronic parts and runs perfectly on human momentum. As the rider walks on the treadmill, the belt butts up against the rear wheel propelling the bike forward. Lopifit6 is designed for runners as the ideal treadmill device, this device combines the best exercise running and cycling to deliver a low-impact, high-performance workout outdoors. We believe it is the ideal device for healthy runners. It delivers an exercise experience that is closer to running than anything else available today.



INDEX

SL.NO	CHAPTER	TOPICS	PAGE NO.
1	Chapter 1	Introduction	1
2	Chapter 2	Project in brief	2
3	Chapter 3	Modular block diagram	3
4	Chapter 4	Block diagram description	4
5	Chapter 5	Module1: Charging Circuit	8
6	Chapter 6	Module 2: Battery	13
7	Chapter 7	Module 3: Atmega 328p microcontroller	18
8	Chapter 8	Module 4: DC generator (dynamo)	23
9	Chapter 9	Module 5: GPS module	28
10	Chapter 10	Module 6: GSM module	36
11	Chapter 11	Module 7: LCD Display	44
12	Chapter 12	Module 8: Indicating LED's Array	50
13	Chapter 13	Schematic diagram	55
14	Chapter 14	Mechanical designs	58
15	Chapter 15	Bill of materials	64
16	Chapter 16	Software used for project design	66
17	Chapter 17	Flowchart & Program	75
18	Chapter 21	Advantages and disadvantages	84
19	Chapter 22	Project photograph	87
20		Conclusion	89
21		Bibliography	91
22		Datasheets	93



DATASHEETS

SL.NO	DESCRIPTION	PAGE NO.
1.	Atmega 328p	1
2.	Battery	2
3.	LM 7812	3
4.	LCD Display	4
5.	DC Motors	5
6.	Sim 900A	6
7.	Indicating LED Array	7
8.	Sprocket	8
9.	Chain	9
10.	Spur Gear	10
11.	V Belt	11
12.	Bearing with Bearing Cap	12