

HIGHER TECHNICAL INSTITUTE

ELECTRICAL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

***WATER LEVEL INDICATION
AND AUTOMATIC REFILLING
OF A WATER TANK***

AUTHOR: MICHAEL GOERGE

E.1218

JUNE 2000



Introduction in Water Level Indication and refilling

In Cyprus water has to be stored in tanks because the water supply is not constant due to the fact that there is not enough water in Cyprus.

Water is stored in metallic or plastic tanks, these tanks are placed on top of the roof of every house or factory. These tanks enclose a mechanical system, which is responsible for the refilling of the tank after the water level decreases below a certain point.

The projects main objectives is to solve the problem of the refilling of a tank after the water which is contained inside it reaches a specific minimum level inside the tank and to automatically stop the refilling sequence when a maximum point is reached.

Also visible water level indication is provided which indicates the level of the liquid inside the tank.

These will be achieved using two electronic circuits, one which be responsible for the refilling of the tank and another one for the visible level indication.

When a minimum is reached inside the tank the refilling sequence starts. The electronic circuit is responsible of sensing that point and commanding the pump to start filling the tank.

In chapter 1 that follows the problem of the storage of water in tanks, the filling of the tank and the level indication.

In chapter 2 a brief explanation is provided for the operation of the refilling electronic circuit and in chapter 3 for the level indication digital electronic circuit.

In the final chapter there are comments on the construction of the project and troubleshooting.

Contents

Introduction In water Level Indication and refilling	Page .1
Chapter 1 Water Level Indication and refilling	.1
1.1 Introduction	.2
1.2 The problem of refilling and water level indication	.2
1.3 Existing Systems	.2
Chapter 2 Refilling Circuit	.5
2.1 Introduction	.5
2.2 Circuit Diagram	.5
2.3 Operation of the circuit	.6
Chapter 3 Level Indication Circuit	.8
3.1 Introduction	.8
3.2 The Circuit diagram	.8
Chapter 4 Mechanical Construction	.11
4.1 Introduction	.11
4.2 Operation of the mechanical part	.11
Chapter 5 Hardware configuration and design	.14
5.1 Introduction	.14
5.2 Circuit board for the refilling circuit	.14
5.3 Circuit board of the level indication circuit	.14
5.4 wiring	.15
5.4.1 Level indication circuit wiring	.15

5.4.2 Refilling circuit wiring	.15
5.4.3 Sensors	.15
5.5 Plastic box	.16
Chapter 6 Conclusions	.17
6.1 Introduction	.17
6.2 Conclusions	.17
6.3 Trouble shooting	.18