

# Electronics

Adam Boulton ([www.bou.lt](http://www.bou.lt))

February 10, 2023

# Contents

Preface	2
<b>I Electric circuits</b>	<b>3</b>
1 Batteries, wire and resistors	4
2 Circuit diagrams and parallel and sequential circuits	5
3 Switches and variable resistors	6
4 Diodes and capacitors	7
<b>II Inputs and outputs</b>	<b>8</b>
5 Lights	9
6 Motors	10
7 Audio	11
8 Radio	12
9 Temperature and moisture sensors	13
10 Electric clocks	14
<b>III Intermediate</b>	<b>15</b>
11 Mains electricity	16
12 Circuit boards	17

<i>CONTENTS</i>	2
<b>IV Logic</b>	<b>18</b>
13 Half adder	19
14 More on logic	20
<b>V Integrated circuits</b>	<b>21</b>

# Preface

This is a live document, and is full of gaps, mistakes, typos etc.

## Part I

# Electric circuits

# Chapter 1

## Batteries, wire and resistors

### 1.1 Basics

#### 1.1.1 Batteries

#### 1.1.2 Wires

### 1.2 Basic things

#### 1.2.1 Resistors

#### 1.2.2 Amps

#### 1.2.3 Volts

### 1.3 Circuitry

#### 1.3.1 Sequential resistors

#### 1.3.2 Parallel resistors

### 1.4 More

#### 1.4.1 Capacitors

#### 1.4.2 Transistors

## Chapter 2

# Circuit diagrams and parallel and sequential circuits

## Chapter 3

# Switches and variable resistors



## Chapter 4

# Diodes and capacitors

## Part II

# Inputs and outputs

## Chapter 5

# Lights

### 5.1 Introduction

#### 5.1.1 Introduction

# Chapter 6

## Motors

### 6.1 Introduction

#### 6.1.1 Introduction

# Chapter 7

## Audio

### 7.1 Introduction

#### 7.1.1 Introduction

# Chapter 8

## Radio

### 8.1 Introduction

#### 8.1.1 Introduction

## Chapter 9

# Temperature and moisture sensors

## Chapter 10

# Electric clocks



**Part III**

**Intermediate**

## Chapter 11

# Mains electricity

## Chapter 12

# Circuit boards

## Part IV

# Logic

## Chapter 13

### Half adder

## Chapter 14

### More on logic

## Part V

# Integrated circuits