DAFTAR ISI

LEMBAR PENGESAHAN ..... **I**

LEMBAR PERNYATAAN ..... **II**

ABSTRAK ..... **III**

ABSTRACT ..... **IV**

KATA PENGANTAR ..... **V**

DAFTAR ISI ..... **VII**

DAFTAR GAMBAR ..... **IX**

DAFTAR TABEL **11**

BAB I PENDAHULUAN ..... ERROR! BOOKMARK NOT DEFINED.

1.1 LATAR BELAKANG ..... **ERROR! BOOKMARK NOT DEFINED.**
1.2 IDENTIFIKASI MASALAH ..... **ERROR! BOOKMARK NOT DEFINED.**
1.3 RUMUSAN MASALAH ..... **ERROR! BOOKMARK NOT DEFINED.**
1.4 TUJUAN ..... **ERROR! BOOKMARK NOT DEFINED.**
1.5 BATASAN MASALAH ..... **ERROR! BOOKMARK NOT DEFINED.**
1.6 METODE PENELITIAN ..... **ERROR! BOOKMARK NOT DEFINED.**
1.7 SISTEMATIKA PENULISAN LAPORAN ..... **ERROR! BOOKMARK NOT DEFINED.**

BAB II LANDASAN TEORI ..... ERROR! BOOKMARK NOT DEFINED.

2.1 TARIF AIR MINUM ..... **ERROR! BOOKMARK NOT DEFINED.**
2.2 GOLONGAN PELANGGAN ..... **ERROR! BOOKMARK NOT DEFINED.**
2.3 DEBIT DAN VOLUME ..... **ERROR! BOOKMARK NOT DEFINED.**
2.3.1 Definisi Debit ..... ***Error! Bookmark not defined.***
2.3.2 Teknik Pengukuran Debit ..... ***Error! Bookmark not defined.***
2.4 PERANGKAT KERAS ..... **ERROR! BOOKMARK NOT DEFINED.**
2.4.1 Catu daya ..... ***Error! Bookmark not defined.***
2.4.2 Sensor ..... ***Error! Bookmark not defined.***
2.4.3 Mikrokontroler ..... ***Error! Bookmark not defined.***
2.4.4 Wi-Fi ..... ***Error! Bookmark not defined.***
2.4.5 Water Flow Meter G1/2 ..... ***Error! Bookmark not defined.***
2.4.6 Solenoid Valve ..... ***Error! Bookmark not defined.***
2.5 PERANGKAT LUNAK ..... **ERROR! BOOKMARK NOT DEFINED.**
2.5.1 Arduino IDE ..... ***Error! Bookmark not defined.***
2.5.2 Android ..... ***Error! Bookmark not defined.***
2.5.3 MIT App Inventor ..... ***Error! Bookmark not defined.***
2.5.4 IoT (Internet Of Things) ..... ***Error! Bookmark not defined.***
2.5.5 Ubidots ..... ***Error! Bookmark not defined.***

BAB III PERANCANGAN SISTEM ..... ERROR! BOOKMARK NOT DEFINED.

3.1 BLOK DIAGRAM SISTEM ..... **ERROR! BOOKMARK NOT DEFINED.**
3.2 PROSES KERJA SISTEM ..... **ERROR! BOOKMARK NOT DEFINED.**
3.3 PERANCANGAN *HARDWARE* ..... **ERROR! BOOKMARK NOT DEFINED.**
3.3.1 Catudaya 12V 3A ..... ***Error! Bookmark not defined.***
3.3.2 Step Down DC to DC ..... ***Error! Bookmark not defined.***
3.3.3 Mikrokontroler ..... ***Error! Bookmark not defined.***
3.3.4 Flowmeter ..... ***Error! Bookmark not defined.***
3.3.5 LCD 16x2 dan I2C ..... ***Error! Bookmark not defined.***
3.3.6 Relay ..... ***Error! Bookmark not defined.***
3.3.7 Solenoid Valve ..... ***Error! Bookmark not defined.***
3.4 IMPLEMENTASI RANGKAIAN ..... **ERROR! BOOKMARK NOT DEFINED.**
3.5 PERANCANGAN SOFTWARE ..... **ERROR! BOOKMARK NOT DEFINED.**
3.5.1 Arduino IDE ..... ***Error! Bookmark not defined.***
3.5.2 Ubidots Webserver ..... ***Error! Bookmark not defined.***
3.5.3 MIT App Inventor ..... ***Error! Bookmark not defined.***

BAB IV PENGUJIAN DAN ANALISA ..... ERROR! BOOKMARK NOT DEFINED.

4.1 PENGUJIAN *FLOWMETER* ..... **ERROR! BOOKMARK NOT DEFINED.**
4.2 RESPON PEMBUKAAN KERAN AIR ..... **ERROR! BOOKMARK NOT DEFINED.**

BAB V KESIMPULAN DAN SARAN ..... ERROR! BOOKMARK NOT DEFINED.

5.1 KESIMPULAN ..... **ERROR! BOOKMARK NOT DEFINED.**
5.2 SARAN ..... **ERROR! BOOKMARK NOT DEFINED.**

DAFTAR PUSTAKA ..... ERROR! BOOKMARK NOT DEFINED.

DAFTAR GAMBAR

Gambar 2.3.3 Datasheet At-Mega 328..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 2.3.5.1 *Water Flow Sensor* G1/2 ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 2.3.5.2 *Mechanic* Dimensi *Water Flow* Sensor G1/2**ERROR! BOOKMARK NOT DEFINED.**

Gambar 2.4.1 Tampilan Layar Arduino Ide .. **ERROR! BOOKMARK NOT DEFINED.**

Gambar 2.4.3 Tampilan Layar Mit App Inventor..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 2.4.5 Logo Ubidots ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.1 Blok Diagram Sistem ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.2.1 *Flowchart* Sistem..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.2.2 Flowchart Operasi Sistem ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.3 Blok Diagram *Hardware*..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.3.1.1 Catudaya 12v 3a ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.3.1.2 Rangkaian Catu Daya ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.3.2.1 Step Down Dc To Dc ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.3.2.2 Rangkaian Regulator..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.3.4.2 Skema Rangkaian Waterflow Sensor ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.3.5.1 Lcd 16x2 Ke Arduino Dan I2c ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.3.5.2 Lcd 16x2..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.3.5.3 *Inter Integrated Circuit*..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.3.6.1 Relay..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.3.6.2 Rangkaian Relay ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.3.7 *Solenoid Valve*..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.4.1.1 Skema Perancangan *Hardware*..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.4.1.2 *Hardware* Sudah Di Kemas . **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.5.1.1 Inisialisasi Variabel..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.5.1.2 Set Posisi Awal ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.5.1.3 Proses Perhitungan Flowsensor ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.5.1.4 Menampilkan Di Lcd ..... **ERROR! BOOKMARK NOT DEFINED.**
Gambar 3.5.1.5 Inisialusasi Nodemcu 2 ..... **ERROR! BOOKMARK NOT DEFINED.**
Gambar 3.5.1.6 Program Keran Air ..... **ERROR! BOOKMARK NOT DEFINED.**
Gambar 3.5.1.7 Kirim Data Ke Webserver ... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.5.2 Ubidots Webserver..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.5.3.1 Perancangan Desain Android **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.5.3.2 Perancangan Coding Android..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.5.3.3 Tampilan Aplikasi Android . **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.5.3.4 Halaman Database Android . **ERROR! BOOKMARK NOT DEFINED.**

Gambar 3.5.3.5 Halaman Button On/Off..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 4.1 Pengujian Alat ..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 4.1.1 Grafik Debit Rendah..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 4.1.2 Grafik Debit Rendah..... **ERROR! BOOKMARK NOT DEFINED.**

Gambar 4.1.3 Grafik Debit Tinggi ..... **ERROR! BOOKMARK NOT DEFINED.**

DAFTAR TABEL

Tabel 2.1.1 Tarif Air Minum .....**ERROR! BOOKMARK NOT DEFINED.**

Tabel 2.1.2 Biaya Pemeliharaan .....**ERROR! BOOKMARK NOT DEFINED.**

Tabel 3.3.3 Tabel Perbandingan Mikrokontroler**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.1 Debit Rendah .....**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.2 Debit Sedang.....**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.3 Debit Tinggi.....**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.4 Debit Minimal Alat 0,016 L/S = 1 L/M **ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.5 Debit 0,024 L/S = 1,440 L/M .....**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.6 Debit 0,036 L/S = 2,160 L/M .....**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.7 Pengujian Dengan Volume Penampung 1 Liter**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.8 Pengujian Dengan Volume Penampung 2 Liter**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.9 Pengujian Dengan Volume Penampung 3 Liter**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.10 Pengujian Dengan Volume Penampung 4 Liter .**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.11 Pengujian Dengan Volume Penampung 5 Liter .**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.12 Pengujian Dengan Volume Penampung 10 Liter**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.1.13 Pengujian Dengan Volume Penampung 15 Liter**ERROR! BOOKMARK NOT DEFINED.**

Tabel 4.2 Pengujian Respon Keran Air .....**ERROR! BOOKMARK NOT DEFINED.**