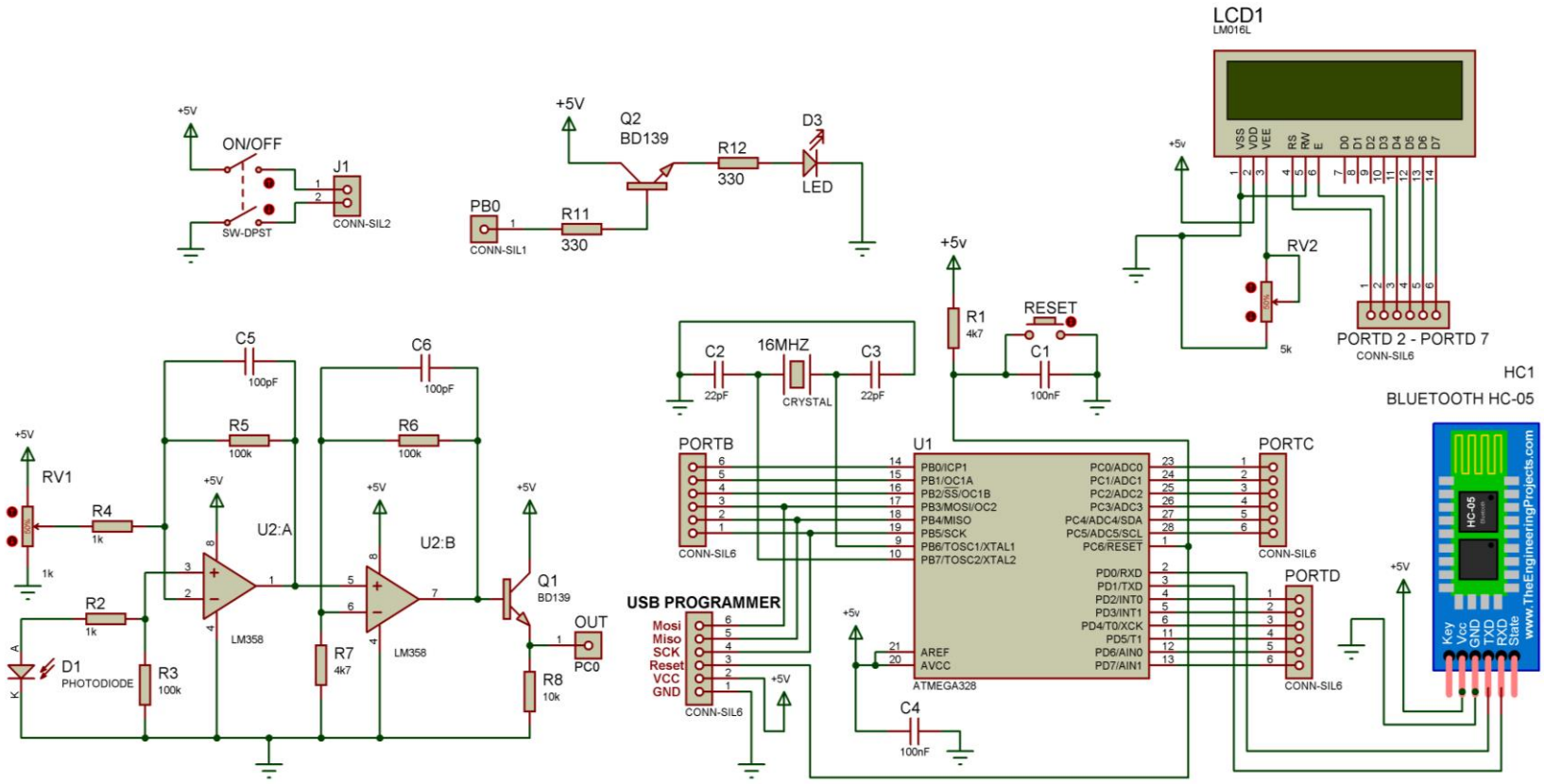
LAMPIRAN – LAMPIRAN

RANGKAIAN KESELURUHAN



PROGRAM ARDUINO KESELURUHAN

```
#include <LiquidCrystal.h>
LiquidCrystal lcd(2, 3, 4, 5, 6, 7);
unsigned long start, finished, elapsed;
long lastButtonPressTime = 0;
long debounceDelay = 50;
int x;
int hasil;
int DataAndroid = 0;
//inisialisasi baca tegangan max dari sini
int value;
int index = 0;
float numReadings = 8;
float readings[8];
int sensorMax;
float maxFix;
float teganganMax; // sampai sini


void(* direset) (void) = 0;
void setup()
{
Serial.begin(9600);
lcd.begin(16, 2); // inisialisasi lcd (16 kolom, 2 baris)
lcd.setCursor(2, 0);
lcd.print("Mengecek...");
```

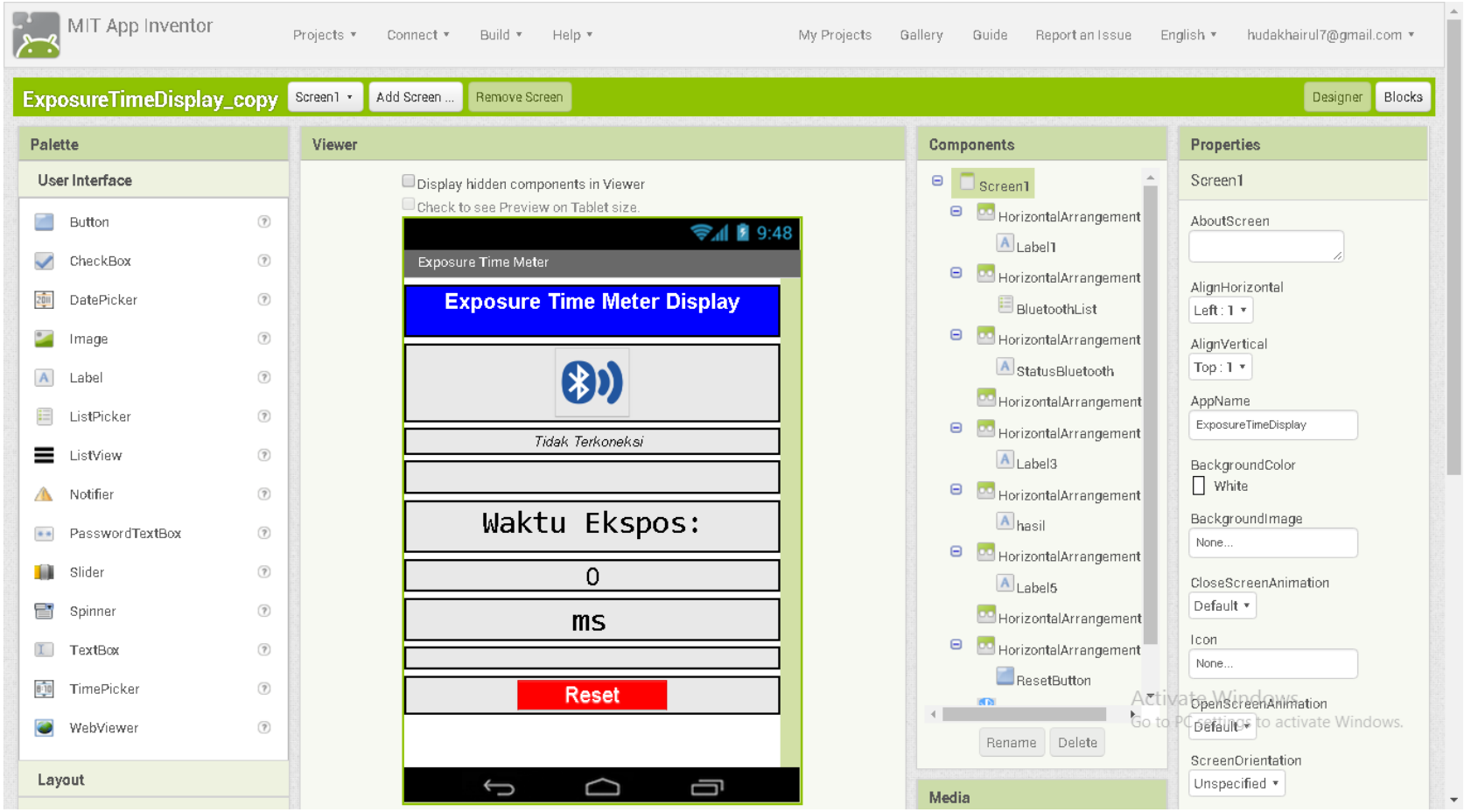
```
delay(1000);
lcd.clear();
lcd.setCursor(0, 1);
lcd.print("READY");
sensorMax = analogRead(0); //variable baca tegangan max

}

void loop()
{
if(Serial.available() > 0){ // Cek data dari serial port
DataAndroid = Serial.read(); // Membaca data dari serial
port
}
CheckStartStop();
Display();
reset();
Vmax();
}

void CheckStartStop()
{
x = analogRead (0);

if (x < 800 && x > 20.46 )
{
if ((millis() - lastButtonPressTime) > debounceDelay)
```

```
{

lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Time:");
start = millis();
}
lastButtonPressTime = millis();
}
if (x < 800 && x > 20.46){
finished = millis();
float h, m, s, ms;
unsigned long over;

elapsed = finished - start;

h = int(elapsed / 3600000);
over = elapsed % 3600000;
m = int(over / 60000);
over = over % 60000;
s = int(over / 1000);
ms = over % 1000;
hasil = ms;
lcd.setCursor(0, 1);
lcd.print(s, 0);
lcd.print("s ");
```

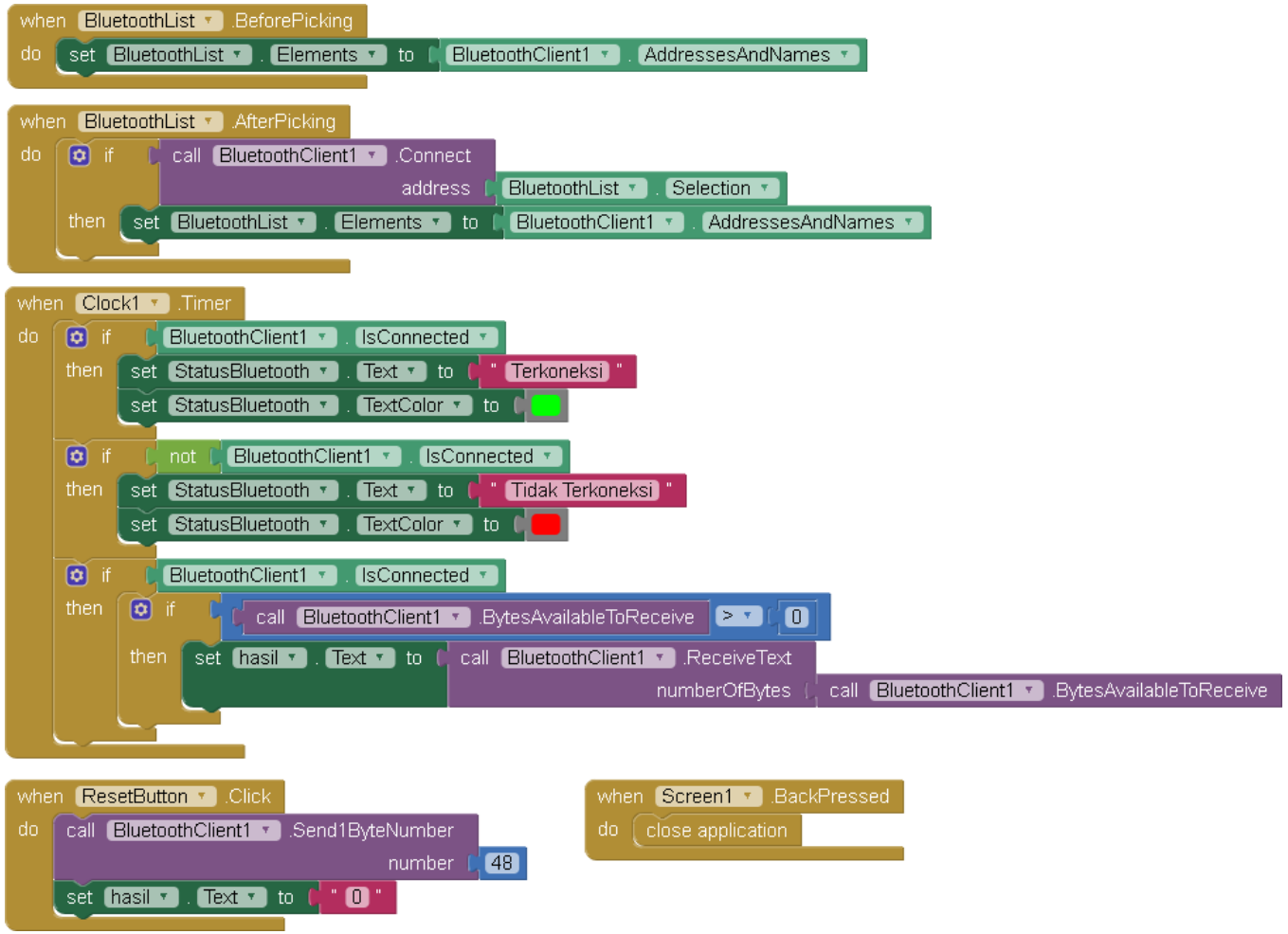
```
if (h < 10)
{
lcd.print(ms, 0);
lcd.print("ms ");
}
}
}
void Display()
{
if (x == LOW)
{
Serial.println(hasil);
}
if (hasil >= 1)
{
digitalWrite(8, HIGH);
}
}

void reset()
{
if (DataAndroid == '0')
{
direset();
}
}
```

```
void Vmax()
{
value = analogRead(0);
readings[index] = value;
index++;
if (index >= numReadings) index = 0;

if (value > sensorMax) sensorMax = value;
teganganMax = sensorMax * (5.0 / 1023.0);
maxFix = teganganMax;

lcd.setCursor(9, 0);
lcd.print("| ");
lcd.print("Vmax");
lcd.setCursor(9, 1);
lcd.print("| ");
lcd.print(maxFix);
}
```

DESAIN PROGRAM ANDROID DENGAN MIT APP INVENTOR



PROGRAM ANDROID KESELURUHAN DENGAN MIT APP INVENTOR



TAMPILAN PROGRAM ANDROID

Tabel ASCII

TABEL ASCII

Dec	Hx	Oct	Char	Dec	Hx	Oct	Html	Chr	Dec	Hx	Oct	Html	Chr	Dec	Hx	Oct	Html	Chr
0	0	000	NUL (null)	32	20	040		Space	64	40	100	@	@	96	60	140	`	`
1	1	001	SOH (start of heading)	33	21	041	!	!	65	41	101	A	A	97	61	141	a	a
2	2	002	STX (start of text)	34	22	042	"	"	66	42	102	B	B	98	62	142	b	b
3	3	003	ETX (end of text)	35	23	043	#	#	67	43	103	C	C	99	63	143	c	c
4	4	004	EOT (end of transmission)	36	24	044	$	$	68	44	104	D	D	100	64	144	d	d
5	5	005	ENQ (enquiry)	37	25	045	%	%	69	45	105	E	E	101	65	145	e	e
6	6	006	ACK (acknowledge)	38	26	046	&	&	70	46	106	F	F	102	66	146	f	f
7	7	007	BEL (bell)	39	27	047	'	'	71	47	107	G	G	103	67	147	g	g
8	8	010	BS (backspace)	40	28	050	(	(	72	48	110	H	H	104	68	150	h	h
9	9	011	TAB (horizontal tab)	41	29	051	)	)	73	49	111	I	I	105	69	151	i	i
10	A	012	LF (NL line feed, new line)	42	2A	052	*	*	74	4A	112	J	J	106	6A	152	j	j
11	B	013	VT (vertical tab)	43	2B	053	+	+	75	4B	113	K	K	107	6B	153	k	k
12	C	014	FF (NP form feed, new page)	44	2C	054	,	,	76	4C	114	L	L	108	6C	154	l	l
13	D	015	CR (carriage return)	45	2D	055	-	-	77	4D	115	M	M	109	6D	155	m	m
14	E	016	SO (shift out)	46	2E	056	.	.	78	4E	116	N	N	110	6E	156	n	n
15	F	017	SI (shift in)	47	2F	057	/	/	79	4F	117	O	O	111	6F	157	o	o
16	10	020	DLE (data link escape)	48	30	060	0	0	80	50	120	P	P	112	70	160	p	p
17	11	021	DC1 (device control 1)	49	31	061	1	1	81	51	121	Q	Q	113	71	161	q	q
18	12	022	DC2 (device control 2)	50	32	062	2	2	82	52	122	R	R	114	72	162	r	r
19	13	023	DC3 (device control 3)	51	33	063	3	3	83	53	123	S	S	115	73	163	s	s
20	14	024	DC4 (device control 4)	52	34	064	4	4	84	54	124	T	T	116	74	164	t	t
21	15	025	NAK (negative acknowledge)	53	35	065	5	5	85	55	125	U	U	117	75	165	u	u
22	16	026	SYN (synchronous idle)	54	36	066	6	6	86	56	126	V	V	118	76	166	v	v
23	17	027	ETB (end of trans. block)	55	37	067	7	7	87	57	127	W	W	119	77	167	w	w
24	18	030	CAN (cancel)	56	38	070	8	8	88	58	130	X	X	120	78	170	x	x
25	19	031	EM (end of medium)	57	39	071	9	9	89	59	131	Y	Y	121	79	171	y	y
26	1A	032	SUB (substitute)	58	3A	072	:	:	90	5A	132	Z	Z	122	7A	172	z	z
27	1B	033	ESC (escape)	59	3B	073	;	;	91	5B	133	[	[	123	7B	173	{	{
28	1C	034	FS (file separator)	60	3C	074	<	<	92	5C	134	\	\	124	7C	174			|
29	1D	035	GS (group separator)	61	3D	075	=	=	93	5D	135	]	]	125	7D	175	}	}
30	1E	036	RS (record separator)	62	3E	076	>	>	94	5E	136	^	^	126	7E	176	~	~
31	1F	037	US (unit separator)	63	3F	077	?	?	95	5F	137	_	_	127	7F	177	&#127;	DEL

Source: www.LookupTables.com

Standar Operasional Prosedur (SOP)

I. SOP Alat Pendeteksi

1. Tekan tombol ON/OFF untuk menyalakan alat
2. Letakkan alat 100cm di bawah (center) dengan tabung x-ray

II. SOP Alat Penampil (Android)

1. Instal aplikasi android untuk penampilnya melalui link atau QRcode
2. Aktifkan bluetooth
3. Tekan tombol bluetooth pada aplikasi dan sambungkan dengan HC-05
4. Jika sudah terkoneksi, maka siap dilakukan pengukuran

Lampiran Aplikasi Android

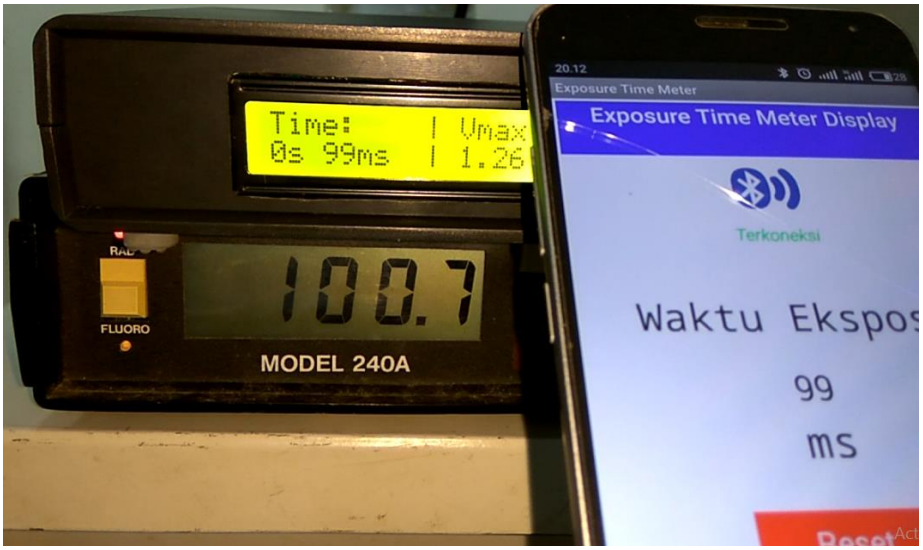
- APK Android (Aplikasi Penampil)

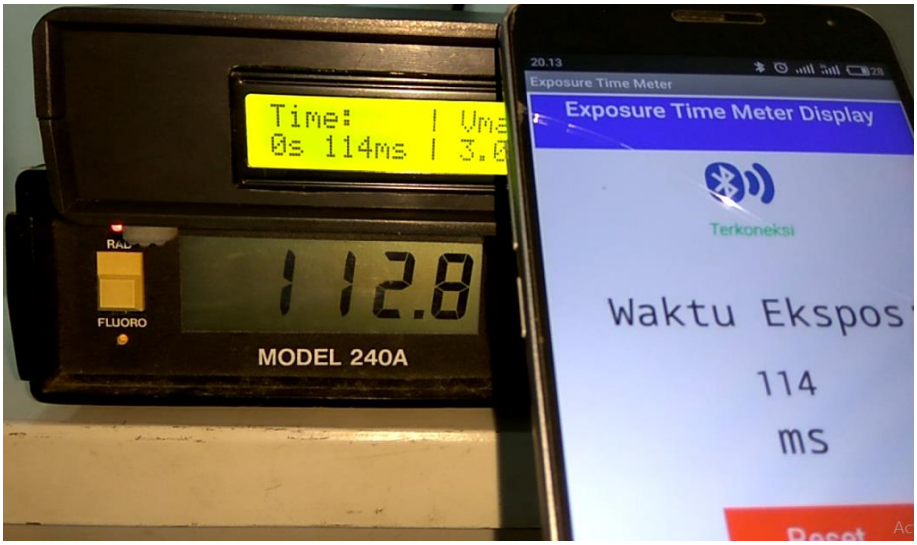
https://drive.google.com/open?id=0B9-7Nu8XH7wET1NpYUxldnk4QlU

- File *project* (MIT App Inventor) aplikasi penampil di android

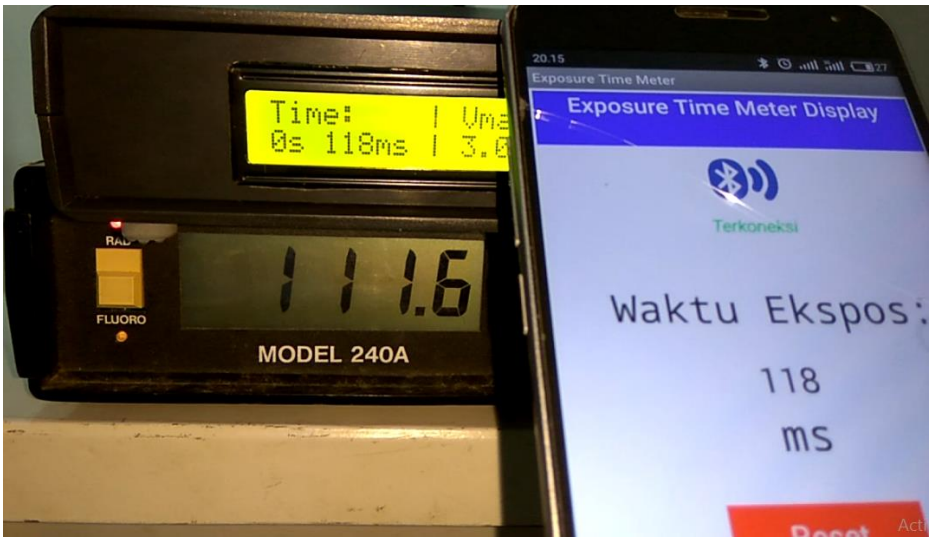
https://drive.google.com/open?id=0B9-7Nu8XH7wERWE2OURjR3FBeHM

Lampiran Foto Hasil Data Pengukuran




Time:
0s 114ms
112.8
FLUORO
MODEL 240A
20.13
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos
114
ms


Time:
0s 114ms
112.9
FLUORO
MODEL 240A
20.14
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
114
ms


Time:
0s 118ms
111.6
FLUORO
MODEL 240A
20.15
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
118
ms


Time:
0s 168ms
161.6
FLUORO
MODEL 240A
20.16
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
168
ms

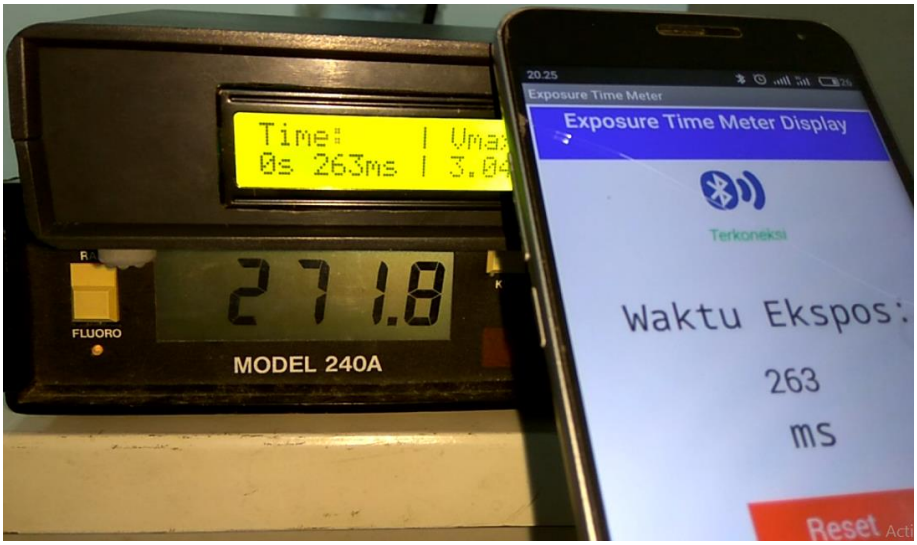

Time:
0s 169ms
172.9
FLUORO
MODEL 240A
20.16
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
169
ms


Time:
0s 168ms
163.4
FLUORO
MODEL 240A
20.20
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspo
168
ms


Time:
0s 209ms
212.2
FLUORO
MODEL 240A
20.21
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
209
ms
Reset


Time:
0s 205ms
213.2
FLUORO
MODEL 240A
20.23
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
205
ms
Reset


Time:
0s 263ms
273.2
FLUORO
MODEL 240A
20.24
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
263
ms
Reset


Time:
0s 263ms
271.8
FLUORO
MODEL 240A
20.25
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
263
ms
Reset


Time:
0s 263ms
273.2
FLUORO
MODEL 240A
20.25
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos
263
ms
Reset


Time:
0s 307ms
312.9
FLUORO
MODEL 240A
20.26
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
307
ms
Reset


Time:
0s 416ms
423.7
FLUORO
MODEL 240A
20.27
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
416
ms
Reset


Time:
0s 426ms
433.5
FLUORO
MODEL 240A
20.28
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
426
ms
Reset


Time:
0s 565ms
564.2
FLUORO
MODEL 240A
20.29
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
565
ms
Reset


Time:
0s 570ms
564.3
FLUORO
MODEL 240A
20:29
Exposure Time Meter
Exposure Time Meter Display
Terkoneksi
Waktu Ekspos:
570
ms
Reset