

# Open Med ECG Proposal

## Objective

Design and create a high quality Electro Cardiograph (ECG) that can be manufactured, maintained and implemented in third world countries with minimal technical training by the end user.

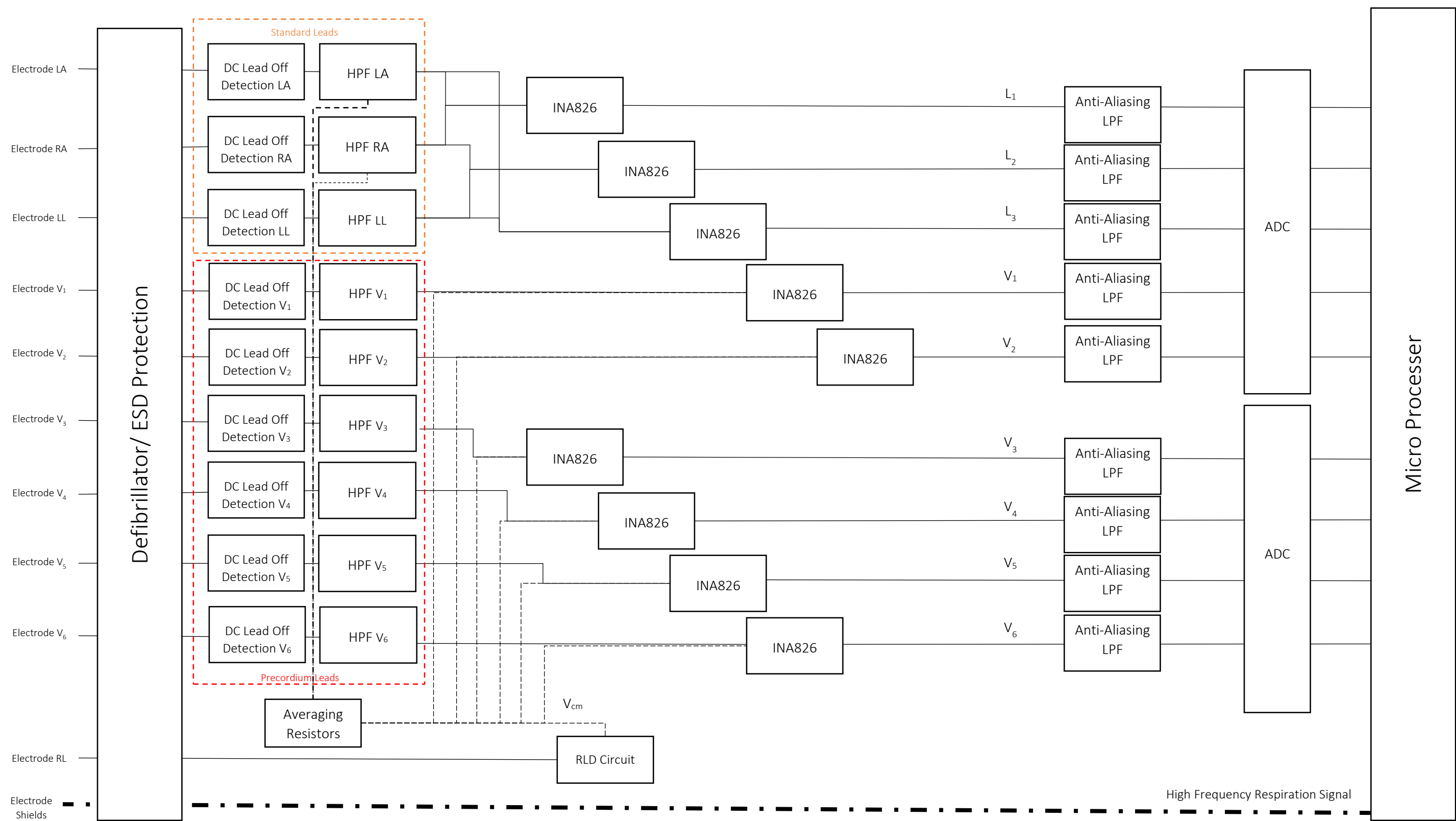
## Basic Specs

- Non inferior to current clinical systems
- Inexpensive
- Implement MSP430 chip
- Low power
- Sampling rate of at least 4kHz
- Easy Maintenance (repair with parts scavenged from old electronics)
- 12 standard leads
- Compact
- RLD circuit
- Battery powered
- Output to USB to be displayed on monitor
- Basic software for interpretation
- Novel Solution for lead attachment
- **DC lead off sensor**
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## Contents

Objective .....	1
Basic Specs .....	1
Preliminary Block Design - Analog Circuitry.....	1
<b>Bill Of Materials</b> .....	2

Preliminary Block Design - Analog Circuitry



## Bill Of Materials

Circuit Block	Component	Value	Quantity	Part Number
<b>Defibrillator/ ESD Protection</b>	$R_1$	$20k\Omega$	X10	
	$R_2$	$10k\Omega$	X10	
	TVS Diode	75V	X10	
	Zener Diode	5V	X10	
<b>DC Lead Off &amp; High Pass Filter</b>	$R_{HPF}$	$100k\Omega$	X10	
	$C_{HPF}$	33pF	X10	
	$R_{current\ Limiting}$	$10k\Omega$	X10	
	$R_{LeadOff}$	$1M\Omega$	X10	
<b>Analog Front End</b>	Op Amp	OPA4171	X15 (9 leads, 2 RLD, 4 averaging buffers )	
	$R_1, R_2$	$15k\Omega$	X20	
	$C_1$	4.7nF	X10	
	$C_2$	9.4nF	X10	
	INA	INA826	X9	
	$R_G$	$500\Omega$	X9	
<b>Right Leg Drive</b>	$R_a$	$10k\Omega$	X4	
	$R_f$	$390k\Omega$	X1	
	$C_f$	$47pF$	X1	
	$R_o$	$390k\Omega$	X1	
<b>Miscellaneous</b>	LEDs		X10	
	MSP430 Launchpad		X1	
	STM32 Cortex- M0s		X1	
	LDO 5V Regulator		X6	
	ADC		X4	