

# Self-Powered EZ Alert System

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## Information

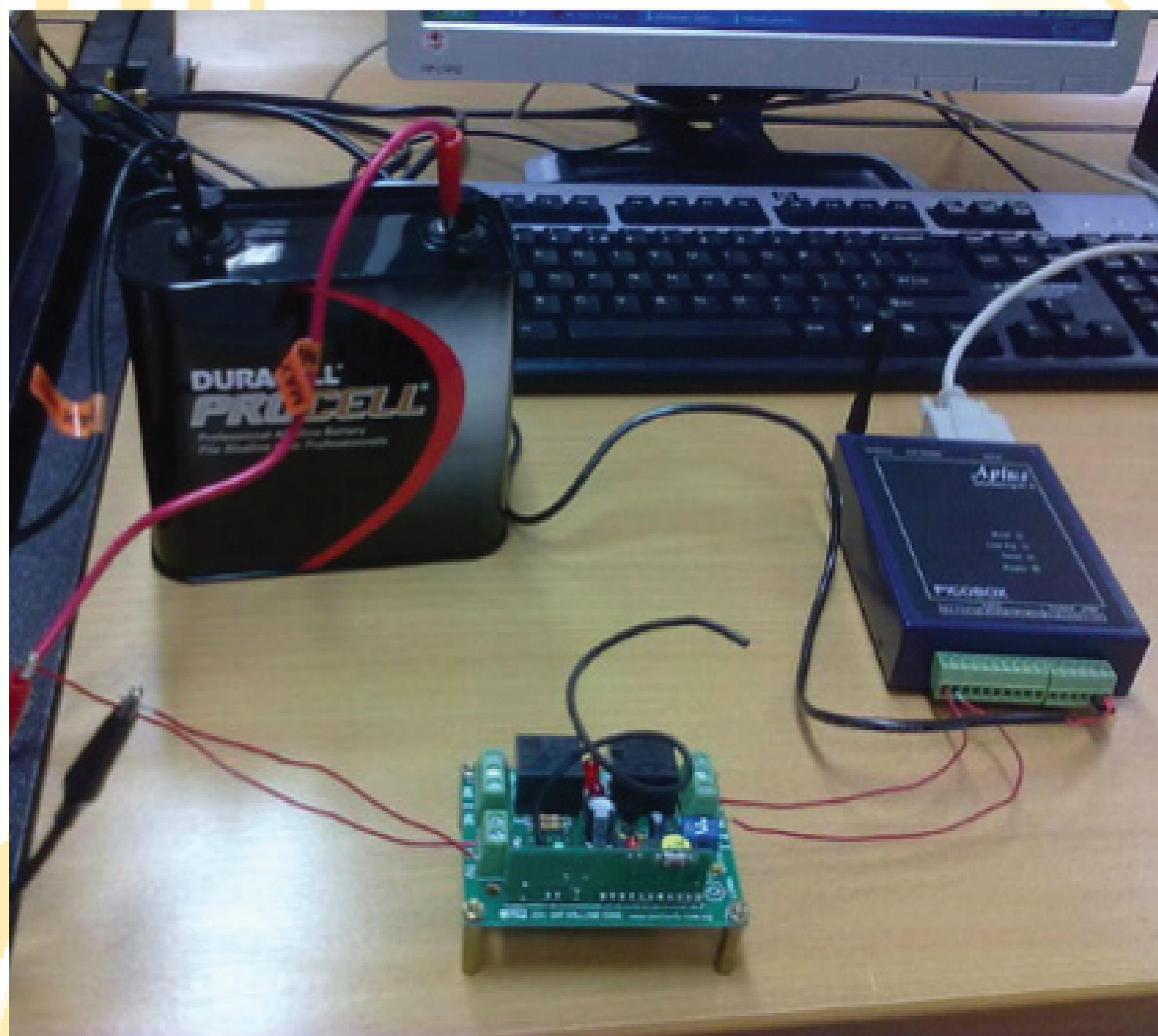
### Abstract

The main objective of this project is to provide a new form of aid for the aging population in Singapore. This EZ Alert System allows elderly who are staying alone to be able to get help from their next-of-kin or friends. This EZ Alert System comprises of a messenger, a receiver and a transmitter. The messenger and the receiver can be installed in the house or a maximum of 500m away from the house. When the elderly needs help, they can press the button on the transmitter and it will send signals to the receiver. The messenger will then send messages to the respective cellphone numbers that have been configured in the messenger. This allows the person who receives the message to know that an elderly is in trouble. This system is able to send messages within split seconds, allowing the elderly to get help as soon as possible. This will minimize the number of serious injuries or death of elderly due to accidents at home.

### Introduction

As the population growth in Singapore is declining, the elderly makes up the majority of Singapore's population. The aging population is becoming one of the most serious problems that the government is facing, for they are extremely susceptible to accidents. To solve this problem, systems have been created to ease the burden of the families which have elderly members. One of these systems is the Self-Powered EZ Alert System.

## Final Product



## Components



Remote transmitter and receiver



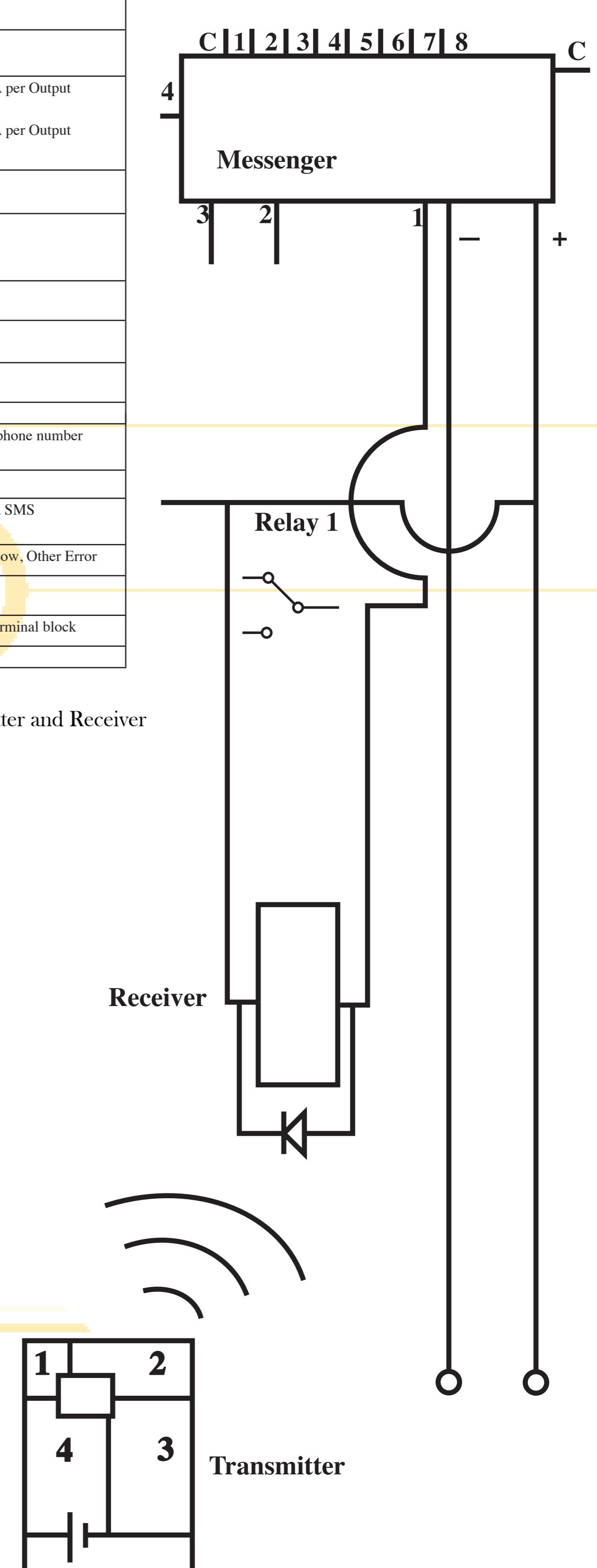
Aplus Messenger

## Specifications of the Product

### Specifications of the Aplus Messenger 2

Item	Description
Model	AM 900 / AM 910
Operating Voltage	9-30 VDC, 2W
No. of Inputs	8 Digital protected Inputs Volts-free / Dry contact
No. of Outputs	2 Current sink Outputs - 500mA per Output (Aplus Messenger) 4 Current sink Outputs - 500mA per Output (Aplus Messenger 2)
Communication Port	Serial Terminal Emulator
GSM Modem	Dual Band GSM 900/1800 Mhz Class 2(W at 900Mhz) Class 1(1W at 1800 Mhz)
Humidity	0-90% non-condensing
Operating Temperature	0 to 55 degree Celsius
Physical Size	82(L) x 25(H) x 110(D) mm
Weight	345gm
Security Features	Password protected access and phone number checks
Real Time Clock	Date time with battery backup
System Health Check	Remote health check feature via SMS
Indicators	Power, Telco Network, Signal Low, Other Error
Repeat SMS of alarms	User configurable
IO Interface	3.8mm pitch pluggable screw terminal block
Remote event log	Yes

### Circuit Diagram



### Specifications of the Remote Transmitter and Receiver

Supply Voltage : RX TX	12 V DC 12V Battery (#23A)
TX: Power	15mW
Quiescent current	0.1 uA
Operating current	<13mA
Transmit range	>50M
RX: Wireless frequency	433.92 MHz
Receiver sensitivity	-95dbm
Receiver time	10ms
Quiescent current	4.5mA
Type of relay	SPDT
Relay	Up to 12A at 28VDC
Switching capability	Up to 6A at 250VAC
Physical size: RX TX	75x51x22mmD 62x39x16mmD

## Survey Results

65% of interviewees felt that the system is reliable.

75% of interviewees would buy the product if they had elderly in their homes.

75% of interviewees agree that the product can reduce the number of elderly accidents at home.

## Conclusion

In conclusion, the Self-powered EZ Alert System is no doubt an efficient communication device in times of need, making it an essential life-saving tool. It allows the desired recipient to be aware of the current situation of the elderly and act immediately. It is self-powered by solar cells and it portrays a clean and green image of communication technology.