

# CAREFREE HEART : a wearable ECG system for real-time heart monitoring

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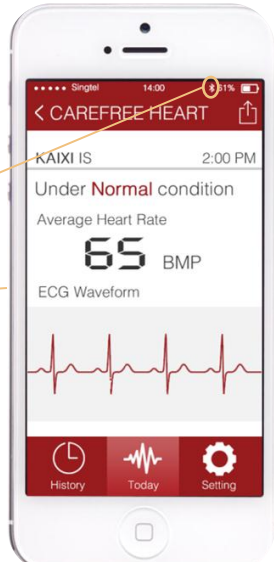









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	<h1>CAREFREE HEART</h1> <h2>A Wearable ECG System for Real-Time Heart Monitoring</h2>		
Problem	 <p>Cardiovascular diseases are the <b>No. 1 health killer</b>, accounting for 1 out of 3 deaths in Singapore</p>	 <p>Current healthcare system cannot accommodate the <b>rising need</b> of our aging population</p>	 <p>Doctors make inaccurate diagnosis because they only see patients during their <b>short hospital visits</b></p>
Solution	<p>To avoid frequent and expensive hospital visits, and to service patients with rapidly changing health states, we introduce <b>CAREFREE HEART</b>, a wearable ECG system that helps a non-medically trained individual monitor his or her heart condition instantaneously with clinical precision. This leads to early detection that dramatically reduces the incidence of fatal heart attacks.</p>		 <p>Electrocardiograph (ECG) is the most popular non-invasive diagnosis test that reveals key information on the heart's electrical activity.</p>
Key Features	 <div> <div>1 <b>Sensing Unit</b> Low-noise electrode in close contact with skin surface collects electrical data.</div> <div>2 <b>Processing Unit</b> Embedded in the wearable fabric is Aduino Uno microcontroller, an open-source architecture similar to the chips in conventional 12-lead ECG devices. It processes data and identifies various health states real time.</div> <div>3 <b>Communication Unit</b> Bluetooth communicates remotely between microcontroller &amp; smartphone.</div> <div>4 <b>Application Unit</b> Smartphone displays information in an intuitive user interface.</div> </div>   		
Highlights	<div> <div>  <p>Embedded system light and comfortable</p> </div> <div>  <p>Real-time data collection and feedback</p> </div> <div>  <p>Instantaneous data transmission</p> </div> </div> <div> <div>  <p>Easy access anytime anywhere</p> </div> <div>  <p>Highly accurate and reliable information</p> </div> <div>  <p>Quick to learn and simple to operate user interface</p> </div> </div>		
Future Development	<div> <div>  <div>Stage 1</div> <p>Customers create personalized health profiles online over time</p> </div> <div>  <div>Stage 2</div> <p>Doctors diagnose and give suggestions based on health profiles</p> </div> <div>  <div>Stage 3</div> <p>Doctors predict impending illnesses using intelligent information systems</p> </div> </div>		