ARRHYTHMIA RESEARCH TECHNOLOGY INC /DE/
Form S-3/A
August 27, 2004
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As filed with the Securities and Exchange Commission on August 27, 2004

Registration No. 333-115251

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM S-3/A#1

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

Arrhythmia Research Technology, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**72-0925679**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

25 Sawyer Passway
Fitchburg, Massachusetts 01420
(978) 345-5000

(Address, including zip code, and telephone number, including area code, of registrant s principal executive offices)

James E. Rouse
Chief Executive Officer
Arrhythmia Research Technology, Inc.
25 Sawyer Passway
Fitchburg, Massachusetts 01420
(978) 345-5000

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies To:
Kathleen L. Cerveny, Esq.
Dilworth Paxson LLP
1818 N Street, NW, Suite 400
Washington, DC 20036
(202) 452-0900

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this Registration Statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box: o

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, please check the following box. ý

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number in the earlier effective registration statement for the same offering. o

If delivery of the Prospectus is expected to be made pursuant to Rule 434, check the following box. o

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be registered	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee(2)
Common Stock, $0.01 par value	500,000	(1)	(1)	$ (3)

(1) The proposed maximum aggregate offering price per share will be determined from time to time by the registrant in connection with the issuance by the registrant of the securities registered hereunder.

(2) Calculated pursuant to Rule 457(c) under the Securities Act of 1933 as amended.

(3) The registrant previously paid the registration fee of $784.91.

PROSPECTUS

ARRHYTHMIA RESEARCH TECHNOLOGY, INC.

Securities Offered for Sale By the Company

Common Stock

We are offering up to 500,000 shares of our common stock, $0.01 par value. Our common stock is traded on the American Stock Exchange, L.L.C. (AMEX) under the symbol HRT. On August 23, 2004, the reported closing transaction price of our common stock was $14.12 per share.

We will provide the specific terms of the offering in one or more supplements to this prospectus. You should read this prospectus, any prospectus supplement and the documents incorporated by reference in this prospectus and any prospectus supplement carefully before you invest.

Investing in our common stock involves a high degree of risk. You should consider carefully the Risk Factors in this prospectus beginning on page 4 before purchasing any common stock.

THIS PROSPECTUS MAY NOT BE USED TO OFFER OR SELL ANY SECURITIES UNLESS ACCOMPANIED BY A PROSPECTUS SUPPLEMENT.

If any underwriters are involved in the sale of any securities with respect to which this prospectus is being delivered, the names of such underwriters and any applicable commissions or discounts will be set forth in a prospectus supplement. The net proceeds we expect to receive from such sale will also be set forth in a prospectus supplement.

N**either the Securities and Exchange Commission, or SEC, nor any state securities commission has approved or disapproved these securities or determined whether this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.**

The date of this prospectus is August 27, 2004.

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PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus. You should read the following summary together with the more detailed information regarding our company, our common stock and the financial statements and notes to those statements appearing elsewhere in this prospectus or incorporated herein by reference.

The Offering

This prospectus is part of a registration statement that we filed with the SEC using a shelf registration process more fully described below. Under this shelf registration process, we may sell up to 500,000 shares of our common stock in one or more offerings. This prospectus may not be used to consummate a sale of securities, however, unless it is accompanied by a prospectus supplement. We urge you to read this entire prospectus carefully, especially the risks of investing in our common stock discussed under Risk Factors and information incorporated by reference in this prospectus from our other filings with the SEC.

Arrhythmia Research Technology

Company Overview

Arrhythmia Research Technology, Inc. (ART) was incorporated under the laws of the State of Louisiana in 1981 and reincorporated under the laws of the State of Delaware in 1987. ART is engaged in the licensing of medical software, which acquires data and analyzes electrical impulses of the heart to detect and aid in the treatment of potentially lethal arrhythmias. ART s patented products consist of signal-averaging electrocardiographic (SAECG) software. In 2002, ART completed an update to a Windows based version of its proprietary Predictor® series. Rather than restore a direct sales force, the intent is to market ART s product through licensing with original equipment manufacturers. No significant sale of the software was recorded in 2002 or 2003. Work continues to establish contracts with original equipment manufacturers for this product.

Sudden cardiac death afflicts over 400,000 individuals in the United States each year. These occurrences are due to sustained ventricular tachycardia (abnormally rapid heartbeat) or ventricular fibrillation (very fast, completely irregular heartbeat), which severely affect the capability of the heart s pumping chambers or ventricles. The electric signals that emanate from the heart are used to detect the presence of late potentials, which indicate the risk of life-threatening ventricular arrhythmias. The SAECG processes enable late potentials to be amplified and enhanced, while eliminating undesired electrical noise in these tests.

ART s wholly owned subsidiary, Micron Products, Inc. (Micron), is a manufacturer and distributor of silver plated and non-silver plated conductive resin sensors (sensors) used in the manufacture of disposable electrodes constituting a part of ECG diagnostic and monitoring instruments. Micron also acts as a distributor of metal snap fasteners (snaps), another component used in the manufacture of disposable electrodes. In 1997, Micron acquired the rights to an assembly machine, which it manufactures and sells or leases to its sensor and snap customers. Micron was incorporated in the State of Massachusetts in 1972, and is located in the same facility with ART in Fitchburg, Massachusetts. The sensors are a critical component of the signal pathway in many different types of disposable electrodes. The disposable electrodes used to capture the electric impulses of the heart and enable the analysis of late potentials require sensors which provide for an accurate, low noise signal to be transmitted to the monitoring device.

Micron is the largest of a few companies providing silver / silver-chloride sensors to the medical device industry. Micron s customers manufacture monitoring and transmitting electrodes which are utilized in a variety of bio-feedback and bio-stimulation applications including, among many others, electrocardiograms (ECG s), electroencephalograms (EEG s), electro-muscular stimulation (EMS), and thermo-electrical neural stimulation (TENS).

The address of our principal executive offices is 25 Sawyer Passway, Fitchburg, Massachusetts 01420, and our telephone number is (978) 345-5000. Our web site is www.arthrt.com. We have not incorporated by reference into this prospectus the information on our web site, and you should not consider it to be a part of this document. Our web site address is included in this document as an inactive textual reference only.

Products

Revenues

The following table sets forth for the periods specified, the revenue derived from the products of ART and its subsidiary Micron (collectively the Company):

	Revenues for the Years Ended December 31,			
	2003	%	2002	%
Canada	$ 3,128,515	41	$ 3,133,890	44
Continental Europe	1,704,150	22	1,239,172	17
United States	1,149,181	15	1,115,941	16
United Kingdom	1,142,132	15	1,430,459	20
Pacific Rim	471,261	6	230,917	3
Other	82,128	1	41,686	-
Total	$ 7,677,367	100%	$ 7,192,065	100%

Sensors and Snaps

Silver Plated Sensors

Micron is a manufacturer and distributor of silver-plated and non-silver plated conductive resin sensors for use in the manufacture of disposable electrodes for ECG diagnostic, monitoring and related instrumentation. The disposable electrode has proven to be more reliable than the reusable electrodes available in the market. Additionally, disposable electrodes are easier, and less expensive to use as compared to reusable electrodes, which require sterilization after each use. The type of sensor manufactured by Micron consists of a molded plastic substrate plated with a silver/silver chloride surface, which is a highly sensitive conductor of electrical signals. Silver/silver chloride-plated disposable electrodes are utilized in coronary care units, telemetry monitoring units and for other monitoring purposes. In addition to the traditional ECG tests, disposable electrodes incorporating Micron s sensor are used in connection with stress tests and a Holter monitor.

Micron also manufactures sensors and conductive plastic studs used in the manufacture of radiotranslucent electrodes. The radiotranslucent electrodes are virtually invisible to X-rays and are preferred in some applications such as nuclear medicine, cath labs, ICU/CCU and certain stress and Holter procedures. Custom designed sensors are manufactured for specific unique applications in the EEG, EMG or TENS markets. Micron s strength in design and low cost manufacturing support the growth by our customers into unique niche medical treatment and electrophysiological monitoring.

Metal Snap Fasteners

Metal snap fasteners are used to attach the disposable electrode to the lead wires of an ECG machine. Micron purchases the metal snap fasteners for resale from a supplier and performs additional quality control tests, repackaging and inventory stocking for its customers who can purchase the snaps along with Micron s sensors.

Other Molded Components

In 2003, leveraging the capabilities of the injection molding department, Micron began the process of expanding into other custom molded precision high volume component parts and does not expect to realize revenues until the summer of 2004. With interest from other companies in the same industry, sales in high quality molded products will diversify the existing product lines while utilizing unused manufacturing capacity.

On May 7, 2004, the Company completed the acquisition of substantially all of the assets of Shrewsbury Molders, Inc. formerly known as New England Molders, Inc. With the addition of the active customer base and the additional custom injection molding capacity, other molded products had an immediate positive impact on revenues.

High Speed Electrode Assembly Machine

Sensor and snap application machines are used by disposable electrode manufacturers in the assembly of sensors and snaps. Manufacturing, leasing, selling, and maintenance parts for service to medical sensor and snap application machines provide Micron with a complimentary product to sell to existing sensor and snap customers.

Signal-Averaging Electrocardiographic (SAECG) Products

Predictor® 7

The Predictor® 7 software is a Windows® compatible version of Arrhythmia Research Technology s analytical program for the detection of Late Potentials. Predictor® 7 utilizes the unique, patented Bi-directional, Four-Pole Butterworth Filtering technique defined as the Standard by the joint AHA/ACC/ESC task force on Signal-Averaging Electrocardiography[1]. All clinically accepted measurement criteria are provided: total QRS duration, duration of the QRS under 40 µV, the RMS voltage of the last 40 msec of the QRS and the noise level. Graphical output of the analysis is presented both on screen and in hard copy. Predictor® 7 also incorporates additional signal processing capabilities for clinical research. The IntraSpect (tm) module permits detection of ventricular late potentials in patients with bundle branch block. Early Potential Analysis software using P-wave triggered SAECG analysis is also available as a research tool for assessing patients at risk for arterial fibrillation and flutter.

RISK FACTORS

In addition to the other information in this prospectus, the following factors should be considered in evaluating the Company and its business. The risks and uncertainties described below are not the only ones facing the Company. Additional risks and uncertainties that the Company does not presently know or currently deems immaterial may also impair the Company s business, results of operations and financial condition.

The Company s operating results may fluctuate significantly as a result of a variety of factors.

Our operating results may fluctuate significantly in the future as a result of a variety of factors, many of which are outside of our control. These factors include: the level of demand for the products that we may develop; our ability to attract and retain personnel with the necessary strategic, technical and creative skills required for effective operations; the amount and timing of expenditures by customers; the amount and timing of capital expenditures and other costs relating to the expansion of our operations; government regulation and general economic conditions. As a strategic response to changes in the competitive environment, we may from time to time make certain pricing, service, technology or marketing decisions or business or technology acquisitions that could have a material adverse effect on our quarterly results. Due to all of these factors, our operating results may fall below the expectations of securities analysts, stockholders and investors in any future period.

If trade secrets are not kept confidential, the secrets may be used by others to compete against us.

Micron relies on unpatented trade secrets to protect its proprietary process. There are no assurances that others will not independently develop or acquire substantially equivalent technologies or otherwise gain access to our proprietary process. Ultimately the meaningful protection of such unpatented proprietary technology cannot be guaranteed. The Company relies on confidentiality agreements with its employees. Remedies for any breach by a party of these confidentiality agreements may not be adequate to prevent such actions. Failure to

maintain trade secret protection, for any reason, could have a material adverse effect on us.

Dependence on a limited number of customers.

In the fiscal years 2003 and 2002, 68% and 75%, respectively of the Company s revenues was derived from three customers. The loss of any one or more of these customers would have an immediate significant adverse effect on our financial results. In an effort to maintain this customer base, more favorable terms than might otherwise be agreed to could be granted. Currently, the Company generally does not receive purchase volume commitments extending beyond several months. Large corporations can shift focus away from a need for our product with little or no warning.

Windows® is a registered trademark of Microsoft Corporation

[1] *AHA/ACC/ESC Policy Statement: Standards for the Analysis of Ventricular Late Potentials Using High Resolution or Signal-Averaged Electrocardiography: A Statement by a Task Force Committee of the European Society of Cardiology, the American Heart Association and the American College of Cardiology. JACC Vol. 17, No. 5, April 1991:999-1006*

The vast majority of revenues have historically been derived from the sale of a single product.

In fiscal years 2003 and 2002, the Company derived 94% and 92%, respectively, of its income from medical electrode sensors for use in disposable electrodes. While the technology in electrode sensors has been used for many years, there is no assurance that a new patented or unpatented technology might not replace the existing market for disposable electrode sensors. Any substantial technological advance that eliminates our product will have a material adverse effect on our operating results. There can be no assurance our efforts to diversify will sufficiently mitigate the effects of possible loss of electrode sensor sales.

The Company is subject to stringent environmental regulations.

The Company is subject to a variety of Federal, state and local requirements governing the protection of the environment. These environmental regulations include those related to the use, storage, handling, discharge and disposal of toxic or otherwise hazardous materials used in or resulting from the Company s manufacturing processes. Failure to comply with environmental law could subject the Company to substantial liability or force us to significantly change our manufacturing operations. In addition, under some of these laws and regulations, the Company could be held financially responsible for remedial measures if its properties are contaminated, even if it did not cause the contamination.

The Company may make acquisitions of companies, products or technologies that may disrupt the business and divert management s attention, adversely impacting our results of operations and financial condition.

The Company may make acquisitions of complementary companies, products or technologies from time to time. Any acquisitions will require the assimilation of the operations, products and personnel of the acquired businesses and the training and motivation of these individuals. Management may be unable to maintain and improve upon the uniform standards, controls, procedures and policies if we fail in this integration. Acquisitions may cause disruptions in operations and divert management s attention from day-to-day operations, which could impair our relationships with current employees, customers and strategic partners. We may also have to, or choose to, incur debt or issue equity securities to pay for any future acquisitions. The issuance of equity securities for an acquisition could be substantially dilutive to our stockholders holdings. In addition, our profitability may suffer because of such acquisition-related costs or amortization costs for other intangible assets. If management is unable to fully integrate acquired businesses, products, technologies or personnel with existing operations, we may not receive the intended benefits of such acquisitions. Other than as disclosed herein or disclosed since December 31, 2003, we are not party to any agreements, written or oral, for the acquisition of any company, product or technology.

If the Company is unable to keep up with rapid technological changes, our processes, products or services may become obsolete and unmarketable.

The medical device and medical software industries are characterized by technological change over time. Although we attempt to expand our technological capabilities in order to remain competitive, discoveries by others may make our processes or products obsolete. If we cannot compete effectively in the marketplace, our potential for profitability and financial position will suffer.

The Company could become involved in litigation over intellectual property rights.

The medical device industry has been characterized by extensive litigation regarding patents and other intellectual property rights. Litigation, which would likely result in substantial cost to us, may be necessary to enforce any patents issued or licensed to us and/or to determine the scope and validity of others proprietary rights. In particular, our competitors and other third parties hold issued patents and are assumed to hold pending patent applications, which may result in claims of infringement against us or other patent litigation. The Company also may have to participate in interference proceedings declared by the United States Patent and Trademark Office, which could result in substantial cost, to determine the priority of inventions.

A product liability suit could adversely affect our operating results.

The testing, manufacture, marketing and sale of medical devices of our customers entail the inherent risk of liability claims or product recalls. If our customers are involved in a lawsuit, it is foreseeable that the Company would also be named. Although the Company maintains product liability insurance, coverage may not be adequate. Product liability insurance is expensive, and in the future may not be available on acceptable terms, if at all. A successful product liability claim or product recall could have a material adverse effect on our business, financial condition, and ability to market product in the future.

Provisions in our charter documents could prevent or frustrate shareholders attempts to replace or remove current management.

Our Certificate of Incorporation provides for staggered terms for the members of the Board of Directors. The Certificate provides that the Board of Directors shall be divided into three classes, each such class to be as nearly as possible equal in number of directors to each other class. Each director shall serve a term of three years. At stockholders meetings only those directors comprising one of the three classes shall have completed their term and be subject to re-election or replacement.

In addition, our Certificate of Incorporation authorizes the issuance of serial blank check preferred stock with such designations, rights, and preferences as may be determined by our Board of Directors. Accordingly, the Board of Directors may, without shareholder approval, issue shares of preferred stock with dividend, liquidation, conversion, voting, or other rights that could adversely affect the voting power or other rights of the holders of our common stock. Blank check preferred stock could also be issued to discourage, delay, or prevent a change in our control, although we do not currently intend to issue any additional series of our preferred stock.

Classifying the Board of Directors and the issuance of blank check preferred stock are traditional anti-takeover measures installed to present obstacles to takeovers. These provisions of our Certificate of Incorporation make it difficult for a majority shareholder to gain control of the Board of Directors and of the Company because, for instance, classification of the Board would delay the time within which a majority shareholder could obtain effective control of the Board. Such provisions may be beneficial to the Company s management and its Board in a hostile tender offer and may have an adverse impact on shareholders who may want to participate in such a tender offer, or who may want to replace the Board of Directors.

Provisions in our by-laws provide for indemnification of officers and directors, which could require us to direct funds away from our business and products.

Our by-laws provide for indemnification of officers and directors. We may be required to pay judgments, fines, and expenses incurred by an officer or director, including reasonable attorneys fees, as a result of actions or proceedings in which such officers and directors are involved by reason of being or having been an officer or director. Funds paid in satisfaction of judgments, fines and expenses may be funds we need for the operation of our business and the development of our products, thereby affecting our ability to attain profitability. This could cause our stock price to drop**.**

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the SEC using a shelf registration process. Under this shelf registration process, we may sell common stock in one or more offerings up to a total of 500,000 shares of our common stock. This prospectus provides you with a general description of the securities we may offer. Each time we sell common stock, we will provide a prospectus supplement that will contain more specific information, as set forth below under The Securities We May Offer. We may also add, update or change in the prospectus supplement any of the information contained in this prospectus. However, no prospectus supplement shall fundamentally change terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of effectiveness. This prospectus, together with applicable prospectus supplements, includes all material information relating to this offering. Please carefully read both this prospectus and any prospectus supplement together with the additional information described below under Where You Can Find More Information.

You should rely only on the information we have provided or incorporated by reference in this prospectus or any prospectus supplement. We have not authorized anyone to provide you with information different from that contained in this prospectus. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus. You must not rely on any unauthorized information or representation. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. You should assume that the information in this prospectus or any prospectus supplement is accurate only as of the date on the front of the document and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus or any sale of a security.

THE SECURITIES WE MAY OFFER

We may offer shares of our common stock from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of the offering. This prospectus provides you with a general description of the securities we may offer. Each time we sell any securities, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities including the aggregate offering price. The prospectus supplement also may add, update or change information contained in this prospectus or in documents we have incorporated by reference. However, no prospectus supplement shall fundamentally change terms that are set forth in this prospectus or offer a security that is not registered and described in the prospectus at the time of effectiveness.

This prospectus may not be used to consummate a sale of securities unless it is accompanied by a prospectus supplement.

We may sell the securities directly to or through agents, underwriters or dealers. We, and our agents or underwriters, reserve the right to accept or reject all or part of any proposed purchase of securities. If we do offer securities through agents or underwriters, we will include in the applicable prospectus supplement:

the names of those agents or underwriters;

applicable fees, discounts and commissions to be paid to them; and

the net proceeds to us.

We may offer shares of our common stock from time to time. Holders of common stock are entitled to one vote per share on all matters submitted to a vote of stockholders. Subject to any preferences of outstanding shares of preferred stock, holders of common stock are entitled to dividends when and if declared by the board of directors.

USE OF PROCEEDS

Except as described in any prospectus supplement, we currently intend to use the net proceeds from the sale of our securities for product development and general corporate purposes. We may also use a portion of the net proceeds to acquire or invest in businesses, products and technologies that are complementary to our own, although we currently are not planning or negotiating any such transactions except for those transactions previously announced. Pending these uses, the net proceeds will be invested in investment-grade, interest-bearing securities.

FORWARD-LOOKING STATEMENTS

In our effort to make the information in this prospectus more meaningful, this prospectus contains both historical and forward-looking statements within the meaning of Section 27A of the Securities Act, Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act), and information relating to Arrhythmia that is based on management s exercise of business judgment as well as assumptions made by and information currently available to management.

Any forward looking statements made herein are based on current expectations of the Company that involves a number of risks and uncertainties and should not be considered as guarantees of future performance. These statements are made under the Safe Harbor Provisions of the Private Securities Litigation Reform Act of 1995. Forward looking statements may be identified by the use of words such as expect, anticipate, believe, intend, plans, predict, or will . The factors that could cause actual results to differ materially include: impact of competitive products and pricing, product demand and market acceptance risks, the presence of competitors with greater financial resources than the Company, product development and commercialization risks, changing economic conditions in developing countries, and an inability to arrange additional debt or equity financing.

Although the Company believes that our expectations are based on reasonable assumptions, we can give no assurance that our expectations will materialize. Many factors could cause actual results to differ materially from our forward looking statements. Several of these factors include, in addition to those contained in Risk Factors, without limitation:

our ability to finance our business;
our ability to maintain our current pricing model and/or decrease our cost of sales;
a stable interest rate market and/or a stable currency rate environment in the world, and specifically the countries we are doing business in or plan to do business in;
management s best estimate on the patient data including patients started and patients completed;
continued availability of supplies or materials used in manufacturing at the current prices;
adverse regulatory developments in the United States or any other country we plan to do business in;
a new entrance of competitive products in our markets;
adverse publicity related to our products or the Company itself;
adverse claims relating to our Intellectual Property;
the adoption of new, or changes in, accounting principles;
the passage of new, or changes in, legislation or legal proceedings;
our ability to maintain compliance with the American Stock Exchange requirements for continued listing of our common stock;
the costs inherent with complying with new statutes and regulations applicable to public reporting companies, such as the Sarbanes-Oxley Act of 2002;
our ability to efficiently integrate future acquisitions, if any;
and other new lines of business that the Company may enter in the future;
other risks referenced from time to time elsewhere in this report and in our filings with the SEC.

The Company is under no obligation and does not intend to update, revise or otherwise publicly release any revisions to these forward-looking statements to reflect events or circumstances after the date hereof or to reflect the occurrence of any unanticipated events.

CAPITAL STOCK

The following description of our capital stock and certain provisions of the Certificate of Incorporation, as amended, and the By-Laws is a summary and is qualified in its entirety by reference to the provisions of the Certificate of Incorporation and the By-Laws, copies of which are filed with the SEC as exhibits to this Registration Statement, of which this prospectus forms a part.

Our authorized capital stock consists of 10,000,000 shares of common stock, $0.01 par value and 2,000,000 shares of preferred stock, par value $1.00 per share. As of July 31, 2004, there were outstanding:

2,646,132 shares of common stock; and

43,000 shares issuable upon exercise of options issued pursuant to our employee benefit plans.

Common Stock

We are authorized to issue 10,000,000 shares of common stock, $0.01 par value per share. Subject to preferences that may be applicable to any preferred stock outstanding at the time, the holders of outstanding shares of common stock are entitled to receive dividends out of assets legally available therefore at such times and in such amounts as the Board of Directors may from time to time determine. Each shareholder is entitled to one vote for each share of common stock held on all matters submitted to a vote of shareholders. Cumulative voting for the election of directors is not authorized.

The common stock is not entitled to preemptive rights and is not subject to conversion or redemption. Upon liquidation, dissolution or winding up of Arrhythmia, the remaining assets legally available for distribution to shareholders, after payment of claims of creditors and payment of liquidation preferences, if any, on outstanding preferred stock, are distributable ratably among the holders of the common stock and any participating preferred stock outstanding at that time. Each outstanding share of common stock is fully paid and nonassessable.

Preferred Stock

The Certificate of Incorporation authorizes us to issue 2,000,000 shares of serial blank check preferred stock, $1.00 par value per share. Blank check preferred stock allows the Board of Directors to create one or more series of preferred stock, and to designate the rights, privileges, restrictions, preferences and limitations of any given series of preferred stock. Accordingly, the Board of Directors may, without stockholder approval, issue shares of preferred stock with dividend, liquidation, conversion, voting or other rights that could adversely affect the voting power or other rights of the holders of our common stock. Blank check preferred stock could also be issued to discourage, control, although we have no present intent to issue any additional series of our preferred stock. The Board of Directors ability to issue blank check preferred stock serves as a traditional anti-takeover measure installed to present obstacles to takeovers. This provision of our Certificate of Incorporation makes it difficult for a majority shareholder to gain control of the Company and, therefore, may be beneficial to the Company s management and its Board in a hostile tender offer and may have an adverse impact on shareholders who may want to participate in such a tender offer. Also, the issuance of preferred stock with voting and conversion rights could materially and adversely affect the voting power of the holders of the common stock and may have the effect of delaying, deferring or preventing a change in control of the Company.

As of the date of this prospectus there are no shares of preferred stock issued and outstanding.

Transfer Agent

The transfer agent for our common stock is Continental Stock Transfer & Trust Co., 17 Battery Place, New York, NY 10004.

PLAN OF DISTRIBUTION

We may sell the common stock through underwriters or dealers, through agents, or directly to one or more purchasers. The prospectus supplement will describe the terms of the offering of the common stock, including:

- the name or names of any underwriters, if any;
- the purchase price of the common stock and the proceeds we will receive from the sale;
- any over-allotment options under which underwriters may purchase additional common stock from us;
- any agency fees or underwriting discounts and other items constituting agents or underwriters compensation;
- any discounts or concessions allowed or reallowed or paid to dealers; and
- any securities exchange or market on which the common stock may be listed.

Only underwriters named in the prospectus supplement are underwriters of the common stock offered by the prospectus supplement.

If underwriters are used in the sale, they will acquire the common stock for their own account and may resell them from time to time in one or more transactions at a fixed public offering price. The obligations of the underwriters to purchase the common stock will be subject to the conditions set forth in the applicable underwriting agreement. We may offer the common stock to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all the common stock offered by the prospectus supplement. Any public offering price and any discounts or concessions allowed or reallowed or paid to dealers may change from time to time. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement, naming the underwriters, the nature of any such relationship.

We may sell common stock directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of common stock and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, our agent will act on a best-efforts basis for the period of its appointment. However, no prospectus supplement may fundamentally change terms set in the base prospectus or offer a security that is not registered and described in the base prospectus at the time of effectiveness.

We may authorize agents or underwriters to solicit offers by certain types of institutional investors to purchase common stock from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

We may provide agents and underwriters with indemnification against certain civil liabilities, including liabilities under the Securities Act, or contribution with respect to payments that the agents or underwriters may make with respect to such liabilities. Agents and underwriters may engage in transactions with, or perform services for, us in the ordinary course of business.

Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Securities Exchange Act of 1934, as amended. Overallotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchases of the securities in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a covering transaction to cover short positions. Those activities may cause the price of the common stock to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time.

Any underwriters, who are qualified market makers on The American Stock Exchange, or AMEX, may engage in passive market making transactions in the securities on AMEX in accordance with Rule 103 of Regulation M under the Exchange Act during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker s bid, however, the passive market maker s bid must then be lowered when certain purchase limits are exceeded.

In compliance with guidelines of the National Association of Securities Dealers, or NASD, the maximum consideration or discount to be received by any NASD member or independent broker dealer may not exceed 8% of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement.

LEGAL MATTERS

Dilworth Paxson LLP, Washington, DC, will pass on the validity of the shares of common stock to be offered hereby.

EXPERTS

The financial statements incorporated by reference in this Prospectus have been audited by BDO Seidman, LLP, an independent registered public accounting firm, to the extent and for the periods set forth in their report incorporated herein by reference, and are incorporated herein in reliance upon such report given upon the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly, and special reports and proxy statements and other information with the SEC. You may read and copy any document that we file at the SEC s Public Reference Room at 450 Fifth Street, Washington, DC 20549. Please call the SEC at 1-800-SEC-0330 for further information on the Public Reference Room. Our SEC filings are also available on the SEC s web site at http://www.sec.gov. Copies of certain information filed by us with the SEC are also available on our web site at http://www.arthrt.com. Our web site is not part of this prospectus. Our common stock is listed on the American Stock Exchange under the symbol HRT.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference information from other documents that we file with them, which means that we can disclose important information by referring to those documents. The information incorporated by reference is considered to be part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information.

We incorporate by reference the documents listed below together with any amendments thereof:

Annual Report on Form 10-KSB for the fiscal year ended December 31, 2003, filed with the SEC on March 30, 2004;

Current Report on Form 8-K filed with the SEC on February 27, 2004;

Current Report on Form 8-K filed with the SEC on March 3, 2004;

Quarterly Report on Form 10-QSB filed with the SEC on May 14, 2004;

Current Report on Form 8-K filed with the SEC on May 21, 2004 and as amended on July 21, 2004;

Current Report on Form 8-K filed with the SEC on August 13, 2004;

Quarterly Report on Form 10-QSB filed with the SEC on August 16, 2004; and

The description of our common stock contained in our Registration Statement on Form 8-A, filed with the SEC on February 12, 1992, including any amendment or reports filed for the purpose of updating such description.

We also incorporate by reference additional documents that may be filed with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the sale of all of the shares covered by this prospectus. These include periodic reports, such as Annual Reports on Form 10-KSB, Quarterly Reports on Form 10-QSB and Current Reports on Form 8-K, as well as proxy statements.

We will provide to you, without charge, upon your written or oral request, a copy of any or all of the documents that we incorporate by reference, including exhibits. Please direct requests to: Arrhythmia Research Technology, Inc., 25 Sawyer Passway, Fitchburg, Massachusetts 01420, Attn: Corporate Secretary; (978) 345-5000.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION

The following table sets forth the estimated costs and expenses, other than the underwriting discounts and commissions, payable by the registrant in connection with the offering of the securities being registered. All the amounts shown are estimates, except for the registration fee:

Securities and Exchange Commission registration fee	$ 800
Accounting fees and expenses	17,500
Legal fees and expenses	50,000
Printing and miscellaneous expenses	36,700
Total	$ 105,000

ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS

Section 145 of the General Corporation Law of the State of Delaware grants each corporation organized thereunder, such as the Company, the power to indemnify its directors and officers against liability for certain of their acts. Section 102(b)(7) of the Delaware Corporation Law permits a provision in the certificate of incorporation of each corporation organized thereunder eliminating or limiting, with specified exceptions, the personal liability of a director to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director. The Company s certificate of incorporation contains this provision. The foregoing statements are subject to the detailed provisions of Sections 145 and 102(b)(7) of the Delaware General Corporation Law.

Article VI of the Company s By-Laws provides that the Company will indemnify its officers, directors and employees to the fullest extent permitted by the Delaware General Corporation Law in connection with proceedings with which any such person is involved by virtue of his or her status as an officer, director, employee or agent. The Company maintains directors and officers liability insurance, including a reimbursement policy in favor of the Company.

The By-Laws may require Arrhythmia, among other things, to indemnify directors or officers against certain liabilities that may arise by reason of their status or service as directors (other than liabilities resulting from willful misconduct of a culpable nature), to advance expenses to them as they are incurred, provided that they undertake to repay the amount advanced if it is ultimately determined by a court that they are not entitled to indemnification, and to obtain and maintain directors and officers insurance if available on reasonable terms.

The underwriting agreement (Exhibit 1.1) will provide for indemnification by any underwriters, our directors, officers who sign the registration statement and our controlling persons for some liabilities including liabilities arising under the Securities Act.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, Arrhythmia has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

ITEM 16. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) Exhibits Pursuant to Item 601 of Regulation S-K:

EXHIBIT NO.	IDENTIFICATION OF EXHIBIT
1	Form of Underwriting Agreement (1)
3(i)	Certificate of Incorporation (2)
3(ii)	By-Laws (3)
4.1	Form of Certificate evidencing shares of Common Stock (2)
5	Opinion of Dilworth Paxson LLP (4)
23.1	Dilworth Paxson LLP Consent (included in Exhibit 5)(4)
23.2	BDO Seidman, LLP Consent (5)
24	Power of Attorney (included on signature page)

(1) To be filed by amendment or as an exhibit to a current report of the registrant on Form 8-K and incorporated herein by reference.

(2) Incorporated by reference to the Company s Registration Statement on Form S-18 (No. 33-20945-FW) as filed with the Commission in April 1988.

(3) Incorporated by reference to the Company s Form 10-Q for the period ended September 30, 2002 as filed with the Commission in November 2002.

(4) Previously filed.

(5) Filed herewith.

ITEM 17. UNDERTAKINGS

The Registrant hereby undertakes the following:

(a) (1) To file, during any period in which it offers or sells securities, a post-effective amendment to this registration statement to:

(i) include any prospectus required by Section 10(a)(3) of the Securities Act;

(ii) reflect in the prospectus any facts or events which, individually or together, represent a fundamental change in the information in the registration statement; and

(iii) include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.

(2)

For the purpose of determining any liability under the Securities Act, treat each post-effective amendment as a new registration statement relating to the securities offered, and the offering of the securities at that time to be the initial bona fide offering.

(3) File a post-effective amendment to remove from registration any of the securities that remain unsold at the end of the offering.

(b) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the provisions described under Item 14 above, or otherwise, the Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification relative to alleged securities act violations (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question of whether such indemnification is against public policy and will be governed by the final adjudication of such issue.

(c) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant s annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned thereunto duly authorized, in the City of Fitchburg, Massachusetts, on August 27, 2004.

ARRHYTHMIA RESEARCH TECHNOLOGY, INC.

By: /s/ JAMES E. ROUSE

James E. Rouse
President and Chief Executive Officer

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears constitutes and appoints James E. Rouse and David A. Garrison, or either of them, as true and lawful attorneys-in-fact and agents with full power of substitution and re-substitution, for him and in his name, place and stead, in any and all capacities to sign the Registration Statement filed herewith and any or all amendments to said Registration Statement (including post-effective amendments and registration statements filed pursuant to Rule 462 and otherwise), and to file the same, with all exhibits thereto, and other documents in connection therewith, the Securities and Exchange Commission granting unto said attorney-in-fact and agents the full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the foregoing, as to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agents or any of them, or his substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ JAMES E. ROUSE James E. Rouse	President, Chief Executive Officer and Director	August 27, 2004
/s/ E. P. MARINOS* E. P. Marinos	Chairman of the Board and Director	August 27, 2004

Signature	Title	Date
/s/ RUSSELL C. CHAMBERS*	Director	August 27, 2004
Russell C. Chambers		
/s/ JULIUS TABIN*	Director	August 27, 2004
Julius Tabin		
/s/ PAUL F. WALTER*	Director	August 27, 2004
Paul F. Walter		
/s/ DAVID A. GARRISON	Chief Financial Officer	August 27, 2004
David A. Garrison Attorney-in-fact		

*By: /s/ David A. Garrison
David A. Garrison
Attorney-in-fact

INDEX TO EXHIBITS

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