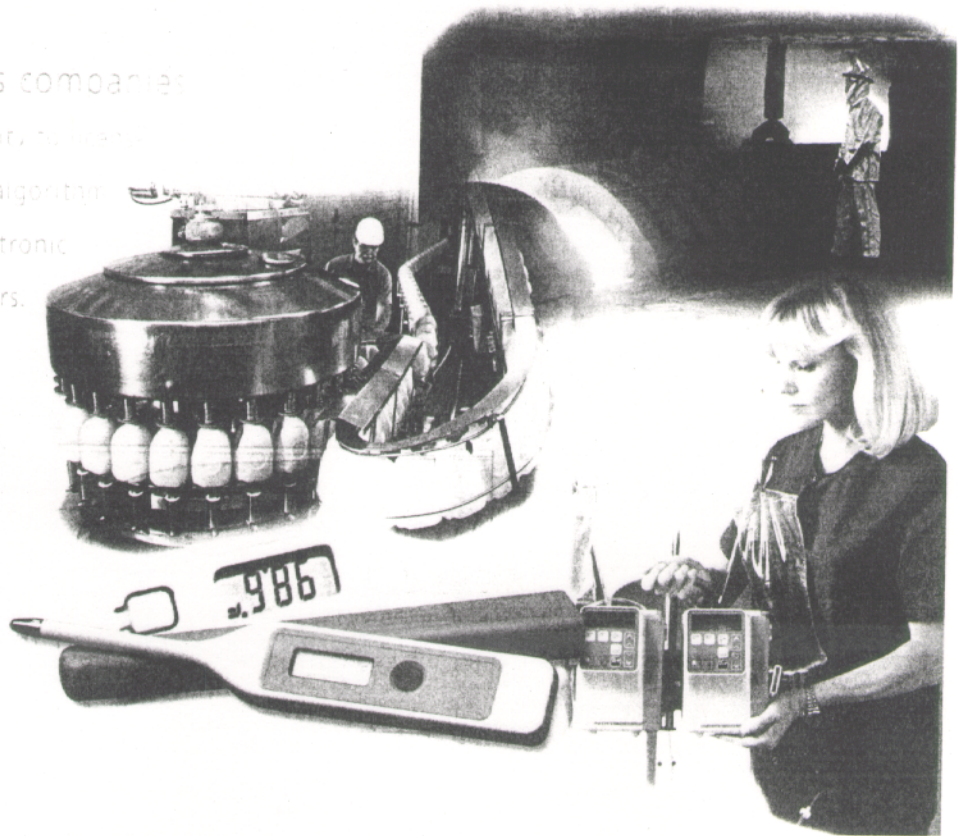


# Accelerate Electronic Thermometer Readings

*with this advanced technology*

NASA offers companies  
the opportunity to use  
this innovative algorithm  
for electronic  
thermometers.



Developed at NASA Stennis Space Center, this advanced adaptive predictive algorithm reduces the time required to determine final steady state temperature. This technology accelerates temperature determination time by using sample data and computing the final temperature with the predictive algorithm. NASA's predictive technology is quick, accurate, and robust and can be used in a variety of thermometer thermometer applications.

## Benefits

- **Faster response time**—Can improve the response time of existing sensors without additional sensor development or creating a new sensor
- **Accurate**—Does not sacrifice accuracy for speed
- **Robust**—Can be used with various types of temperature sensors and potentially other types of sensors
- **Simple integration**—Can be implemented with erasable programmable read-only memory (EPROM) in existing systems



National  
Aeronautics and  
Space  
Administration



## The Technology

NASA Stennis' adaptive predictive algorithm for electronic thermometers uses sample readings during the initial rise in temperature and applies an algorithm that accurately and rapidly predicts the steady state temperature. The final steady state temperature of an object can be calculated based on the second-order logarithm of the temperature signals acquired by the sensor and predetermined variables from the sensor characteristics. These variables are calculated during tests of the sensor. Once the variables are determined, relatively little data acquisition and data processing time by the algorithm is required to provide a near-accurate approximation of the final temperature. This reduces the delay in the steady state response time of a temperature sensor.

This advanced algorithm can be implemented in existing software or hardware with an erasable programmable read-only memory (EPROM). The capability for easy integration eliminates the expense of developing a whole new system that offers the benefits provided by NASA Stennis' technology.

## Commercial Opportunity

The adaptive predictive algorithm is part of NASA's technology transfer program. The program seeks to stimulate commercial use of NASA-developed technologies. NASA Stennis Space Center (SSC) currently holds U.S. Patent #5,738,441, "Electronic Clinical Predictive Thermometer Using Logarithm for Temperature Prediction," as well as patents in several foreign countries. NASA invites companies to consider licensing this technology for use in commercial applications.

## For More Information

If you are interested in pursuing commercialization of this technology or if you want more information, please contact

Commercial Technology Program  
NASA John C. Stennis Space Center  
Phone: 228.688.1929  
E-mail: [technology@ssc.nasa.gov](mailto:technology@ssc.nasa.gov)

Register your interest in this technology online at

<http://technology.ssc.nasa.gov>

## Commercial Applications

### *Industrial control*

- Nuclear power
- Chemical processing
- Industrial processing

### *Medical*

- Medical clinics
- Home use
- Veterinary clinics

### *Hydrogen or gas detection systems*

**REPORT DOCUMENTATION PAGE**

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