



## Inventors

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## Intellectual Property

### **Status:**

*Patent Pending*

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## CPSSim – A Cyber-Physical Simulation Engine

AzTE Case # M13-191P

### **Background**

Pervasive health care is a management system that can reduce health care costs. This system allows for constant monitoring of ambulatory patients. Various kinds of sensors are attached to a patient's body. The information from the sensors is collected by smart phones, which are used as a computing device, to compare the output from a database of information that includes norms from the general population and previous test results from the patient. This data can be used to diagnose existing health issues or for early detection of developing health problems. In some patients the system can be used to monitor patient progress or alert health care providers of potential setbacks. In addition to processing data, the smart phone can communicate with health care professionals and transmit data or send health alerts.

### **Invention Description**

Researchers at Arizona State University have developed a theoretical representation of a cyber-physical system and a model for data communication. The system is capable of collecting health data from sensors placed on the body and processing that data on a smart phone. The device can also be used to control equipment such as infusion pumps that deliver medication in controlled quantities and at prescribed intervals. The innovation is capable of making decisions regarding the patient's health and sending alerts to health care providers when necessary. The device also stores and sends data for the use of health care professionals.

### **Potential Applications**

- Health care monitoring
- Collects data for diagnosis of disease
- Administration of drugs

### **Benefits and Advantages**

- **Lower Costs** – Early detection of health problems reduces cost of treatment.
- **Better Information** – Constant monitoring provides health care professionals with more accurate health data.
- **Faster Communication** – Transmits data and alerts to health care providers, allowing for quicker adjustments to treatments.