Patent Search

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Abstract:

THE INTERNET OF THINGS (IOT) COULD BE HELPED BY USING PHOTOVOLTAIC CELLS TO POWER WIRELESS TAGS THAT ARE BUILT INTO FLEXIBLE PEROVSKITES Abstrac
data environment, we develop personalized information of college libraries based on big data from three aspects: the overall architecture of the system model, the fu
model of the system, and the design of system interface modules according to the design principles and requirements of the personalized information service systen
university library Service system design. In terms of the functional design of the platform, the service platform is divided into four levels: accurate identification of use
based on big data, personalized customized services based on artificial intelligence, academic research and discussion space based on integrated media, and fine-gra
resource aggregation based on knowledge. On this basis, a centralized model of individualized services of university libraries including internal and external personn
information resources, technology, services, processes, platforms, and environment has been constructed Arti?cial intelligence (AI) is one of the emerging trends and
of computing in libraries. It involves programming computers to do things, which if done by humans, would be said to require intelligence. The ultimate promise of ar
intelligence in libraries is to develop computer systems or machines that think, behave, and in fact rival human intelligence, and this clearly has major implications on
librarianship. The application of arti?cial intelligence in the library has become pervasive. They include expert systems for reference services, book reading and shelf-r
robots, virtual reality for immersive learning among others. Although the incorporation of arti?cial intelligence in libraries can be perceived to alienate librarians from
it will probably help libraries do more rather than taking over the jobs of librarians. It will enhance their services delivery. Arti?cial intelligence will greatly improve libr
operations and services and will upgrade and heighten the relevance of libraries in an ever-changing digital society Billions of common goods could be connected to t
of Things using low-cost, long-range, and maintenance-free wireless sensors. Radio Frequency Identification (RFID) is a low-cost wireless technology that could assist i
this ideal. It does, however, have constraints, such as a restricted communication range and insufficient energy to run additional circuits and sensors. In this paper, w
whether flexible perovskite solar cells can be used to charge semi-passive RFID tags from a source outside of the tag. This extends the range of the tags and increases
of energy available to external electronics such as microcontrollers and digital devices. The intriguing material perovskite could be utilised to create high-performance
light energy harvesters that are optically flexible (allowing them to receive multiple types of light) and bendable. This is due to the fact that perovskites can absorb ligl
range of colours. Under conventional test conditions, the prototype plastic perovskite solar cells we created have a 13% efficiency and a maximum power of 0.88 V. W
RFID sensors powered by flexible solar cells to demonstrate how they could be utilised in the real world. We discovered the following while reviewing the samples: Pe
powered wireless sensors enable many battery-free sensing applications: i) flexible PV cells are durable up to a bending radius of 5 mm with only a 20% drop in relati
ii) RFID communication range is increased by 5x and meets the energy requirements (10-350 W) to enable self-powered wireless sensors.

Complete Specification

Description:Descriptions:
Explanations According to projections, 75 billion "internet of things" gadgets would be in use worldwide by 2025. Sensors embedded into these devices will track the
surroundings and facilities in real time. However, in their current configuration, these sensors require batteries that must be changed frequently, which may make l
term tracking difficult. MIT researchers have developed solar cells that can power sensors. These sensors might transmit data for years without being charged. They
accomplished this by attaching low-cost radio-frequency identification (RFID) tags to energy-harvesting thin-film perovskite cells, which are recognised for being
inexpensive, flexible, and simple to manufacture. These cells are well-known due to their low cost. The cells powered the monitors whether they were in direct sunli
a dimly lit environment. The research team also discovered that solar energy significantly increases the power of the sensors. As a result, we can now broadcast dat
greater distances and place more sensors on a single RFID tag. In the not-too-distant future, we may be surrounded by billions of devices. To power something so la
you'll need a lot of batteries, which will eventually run out. But what if they could generate their own energy by harnessing the available light? Once they are set up,
be left alone for months or even years. The primary purpose of this research is to develop RFID tags that are more reliable and can consume energy from a variety o
sources. Two studies written by MIT researchers were recently published in the peer-reviewed journals Advanced Functional Materials and IEEE Sensors. The first ca
from the Auto-ID Lab, and the second from the PVRL. These articles describe how the temperature monitors were used to track the temperatures inside and outside
several days. The sensors didn't require batteries and could communicate data constantly at five times the range of standard RFID tags. Longer data transfer ranges
the advantage of allowing a single reader to collect data from multiple sensors at the same time. The sensors can be left indoors or outdoors for months or even ye
before needing to be replaced. This is determined by factors such as the local weather and humidity. This is suitable for both indoor and outdoor applications that r

View Application Status

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