

<b>Concept Paper</b>		
<b>Webinar on "Use of Sensor and Control Technologies in Building"</b>		
<b>Webinar</b>	<b>PRG</b>	<b>SEC</b>

**Background:**

Population growth, higher demands for comfort levels and building services, together with the increase in building occupancy time, mark an upward trend in the energy demand. Uncontrolled use of non-renewable energy source for energy became a significant concern for the world as fossil fuel contributes around 60% of the global energy requirement. Computerized control systems for buildings first appeared in 1960s and since then lot of progress have been made in the automation of the buildings. Initially pneumatic communications and control were in used for automation which gradually shifted to direct digital controls. These moves to electronic based communication was brought because of the progress in the computing power where software controllers began to supplement hard-wired control logic. In the 1990s, interoperability of system began to move the market toward open protocols. User interaction with building controls also changed with the development of more user-friendly graphical interfaces and remote controls.

Buildings contribute to 40% of global energy consumption, and are expected to do so even more in the coming future. Different buildings are used for different purpose – commercial, industrial, residential etc. Regardless of the type of buildings, the buildings we have today consume energy. There are different types of energy loads in a building ranging from basis plug and lighting loads to energy intensive heating, ventilation and air conditioning units. The need for energy efficiency in buildings is critical to reduce and manage building energy consumption without compromising occupant comfort and operational efficiency. Some of them include high efficiency HVAC systems, smart metering (electricity, gas, water), occupancy monitoring systems, and even hybrid vehicle charging technology.

**Introduction:**

The level of comfort and control desired by the occupants can only be provided if the building system are automated and smart. The expected level of performance where the required indoor conditions are met while being energy efficient would not be possible without the use of sensors and controllers. Sensors are needed for a wide variety of measurements including lighting quality, volumetric fluid flow rates, temperature and humidity, occupancy level etc. The combinations of sensors, controllers and other analytic systems monitor the energy usage in buildings based on which various parameters may be set to have best energy usage approach.

The need for energy efficiency in buildings is critical to reduce and manage building energy consumption. In view to educate and update the general public on the automation of the buildings and its merits, SEC under its thematic area of “Programme to Successfully Implement Technology Transfer (POSIT)” is conducting a webinar on “Use of Sensors and Control Technologies in Building”.

Through this webinar, SEC targets participants from municipalities/urban bodies/academia/city planners/builders of the SAARC Member States. Member States would be requested to encourage participation of large number of relevant professionals from urban and local bodies. The proposed webinar will be a two-hour long activity, and relevant experts from the region and outside will be invites as resource persons to share their expertise on the use of sensors and control technologies for building.

## **Objectives:**

The objective of the webinar is to educate the participants on the use of sensor and control technologies for the building. Experts will share best practices on the usage and the energy saving aspect of such initiatives. The webinar will share suitability, viability and other aspects of such plans and programs with reference to businesses, government officials, investors, and project developers.

## **Major Aspects /Topics to be covered during the Webinar:**

The following aspects of sensor and control technologies relevant for the building in SAARC countries shall be covered in the webinar:

1. Current and potential applications
2. Smart Buildings
3. Sensors and Control (types of Sensors)
4. Standards and Protocols
5. Heating, Ventilation and Air Conditioning
6. Energy Analysis using data from Sensors
7. Process for overseeing building control including monitoring, communication and diagnostics
8. Expected Challenges

## **Relevance, Coherence and Sustainability:**

SEC, in the past, had conducted number of webinars and studies related to SAARC countries on energy efficiency, efficient windows, heating and cooling of buildings, rooftop solar etc. This webinar will focus on sensor and controller data from building systems that are used for energy analysis and building performance improvement. Attaining this goal requires additional “intelligence” from the initial step of design phase through to the end of a building’s useful life. This has multiple benefits i.e., overcoming energy shortage, reduction of greenhouse gases, planning, implementation and evaluation etc. Moreover, the webinar is in line with SEC’s sustainability objectives because SEC aims to conduct more activities with regards to energy efficiency, environment aspects and emissions controls.

## **Potential Professional Resource:**

The experts/speakers having experience working in areas of energy efficient buildings and having knowledge in the use of sensors and control for such automation shall be engaged during the webinar. Effort will be made to engage experts or firms from outside the region as well to share their experience. They shall deliver their presentations during the webinar and respond to questions by the participants. SEC program coordinator will finalize the event program in close coordination with the speakers.

## **Venue of the Webinar:**

The Webinar shall be broadcasted from office of SAARC Energy Centre on 21<sup>st</sup> July 2020.