

Smart Border Security System Using Internet of Things

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Abstract: National security and defence is incredibly important for a country and its people. For increasing tension in the border areas due to unresolved conflicts, currently national security systems emphasize more on border security to protect the country from terrorist attacks, illegal border crossing and infiltration from the neighbouring countries. To make security system more efficient, a real time border security system is needed which can provide 24 hours surveillance in the border areas with high accuracy and that can minimize the need of human involvement by utilizing the most advanced sensors and actuators. Indian Border Guarding forces are already installing and adopting newer technologies in terms of cameras, night vision devices, radars etc. But for the efficient and intelligent use of collected data, involvement of modern and innovative technology like Internet of Things (IoT) is very necessary, which already has been adopted but in very small scale and in limited areas. Whereas, it is the reliable source of accurate data and renowned for smart and fast decision making as it is one of the major fields of implementing Big Data and Analytics. So, a smart IoT based solution has been introduced for securing hazardous border areas with extreme climatic conditions, diverse land forms, river terrains, inaccessible dense forest areas which is very tough to monitor for the individual. This paper "Smart Border Security System using Internet of Things" proposes a low-cost system that uses various sensors like Passive Infrared (PIR) sensor and OV7670 camera module to sense movement of any object within a range and capture images of intruder respectively. The system can upload the sensed data into a cloud server which can be retrieved in a base station by using web and desktop application as well. The system can also send alert to the base station by processing the sensed data. Also, it allows user i.e. the trained security personnel to control the camera and retrieve data from it from a distant. Through the proposed system it is possible to detect the intruder crossing the border area instantly.

Keywords: Internet of things, Border security system, Passive infrared sensor

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