**AN IMPROVED ENERGY-EFFICIENT CLUSTERING PROTOCOL**

**TO PROLONG THE LIFETIME OF THE WSN-BASED IOT**

**Objective:**

The Improved energy-efficient clustering protocol (IEECP)is the proposed protocol reduces and balances the energy consumption of nodes by improving the clustering structure, IEECP is a good choice for networks that need to last a long time.

**Hardware & Software Requirements:**

**Software:** Matlab R2018a.

**Hardware:**

**Operating Systems:**

• Windows 10

• Windows 7 Service Pack 1

• Windows Server 2019

• Windows Server 2016

**Processors:**

Minimum: Any Intel or AMD x86-64 processor

Recommended: Any Intel or AMD x86-64 processor with four logical cores and AVX2 instruction set support

**Disk:**

Minimum: 2.9 GB of HDD space for MATLAB only, 5-8 GB for a typical installation

Recommended: An SSD is recommended a full installation of all Math Works products may take up to 29 GB of disk space

**RAM:**

Minimum: 4 GB

Recommended: 8

**Project Flow:**

100 nodes were deployed randomly in the 100 \* 100 \*m^2

WSN sensing area size

The optimal number of clusters

are determined

M-FCM Algorithm

CHSRA Algorithm

Determination of No.of Alive Nodes

Determination of Energy consumption for Nodes

**Block diagram of proposed method**