**In t r o d u c t io n**

Diabetes is one of the most dangerous chronic diseases that could lead to others serious complicating diseases. Diabetes diseases are also called as diabetes mellitus, which describes a set of metabolic disease. Diabetes leads to many other kinds of diseases and that are- heart attack, blindness, kidney diseases and so on. Diabetes is also called as Diabetes Mellitus is a chronic disease and is considered as one of the deadliest diseases.Diabetes disease can be categorized as Type 1 or Type 2. If the pancreas does not create adequate amount of insulin in body, is called as Type 1. In Type 2, the body either cannot effectively use the insulin that it produces or an inadequate amount of insulin is released into the bloodstream [1]. Type 1 disease generally occurs in children and adolescents, but it can occur in older people. Type 2 diabetes is normally milder compare to type 1 and 90 % people have type 2 diabetes. Typ 1 diabetes can be cured by inserting insulin into the fatty tissue under the skin of patient. However, Type 2 diabetes can be cured by having a healthy diet, weight and exercising. Many of diseases can be prevented if diabetes can be diagnosed in the early stages. Early diagnosis and prediction of disease is possible due to recent technological development of IoT, Artificial Intelligence (AI) and Block chain in the current healthcare system [2]. AI presented a paradigm shift in diabetes care from conservative management approaches to construct the targeted data-driven precision care [3]. IoT offers

connected environment to the smart healthcare system [4]. ML and deep learning are AI based techniques. ML has a potential of improving efficiency and decrease the cost of treatment in the healthcare system. Various texts are available for diagnosis and prediction of diabetes based on data mining and ML. Data mining and ML methods are equally important to their specific objective. Data mining techniques are useful to extract rules and pattern from the vast amount of diabetes

data set, while ML is significant to learn and automate the machine along with pattern recognition. Several ML techniques are used to form digital support in diabetes care. These include support vector machine (SVM), Decision Tree

(DT), random forest (RF), classification and regression trees, Logistic Regression (LR) k-nearest neighbor (KNN), neural network, K-Mean, Principle Component Analysis (PCA) based algorithm for better diabetes care. Various texts have been available for automatic diabetes detection, prediction and management via ML and AI [5]. In this paper, we will review the several ML techniques for diabetes detection and prediction. There are mainly two categories of learning i.e. supervised and unsupervised learning that made foremost impacts in the detection,

prediction and treatment of diabetes. This literature surveyfirstly focused on key words associated to the supervised and secondly on unsupervised ML techniques mainly from 2018 to 2020.

The remainder of the paper is arranged as follows. Section2 and section 3 represent supervised and unsupervised ML techniques respectively to the analysis, diagnosis, classification and prediction of diabetes disease. Section 4 deliberated the findings of the review as a part of result and discussion. Lastly, section 5 concludes the paper.