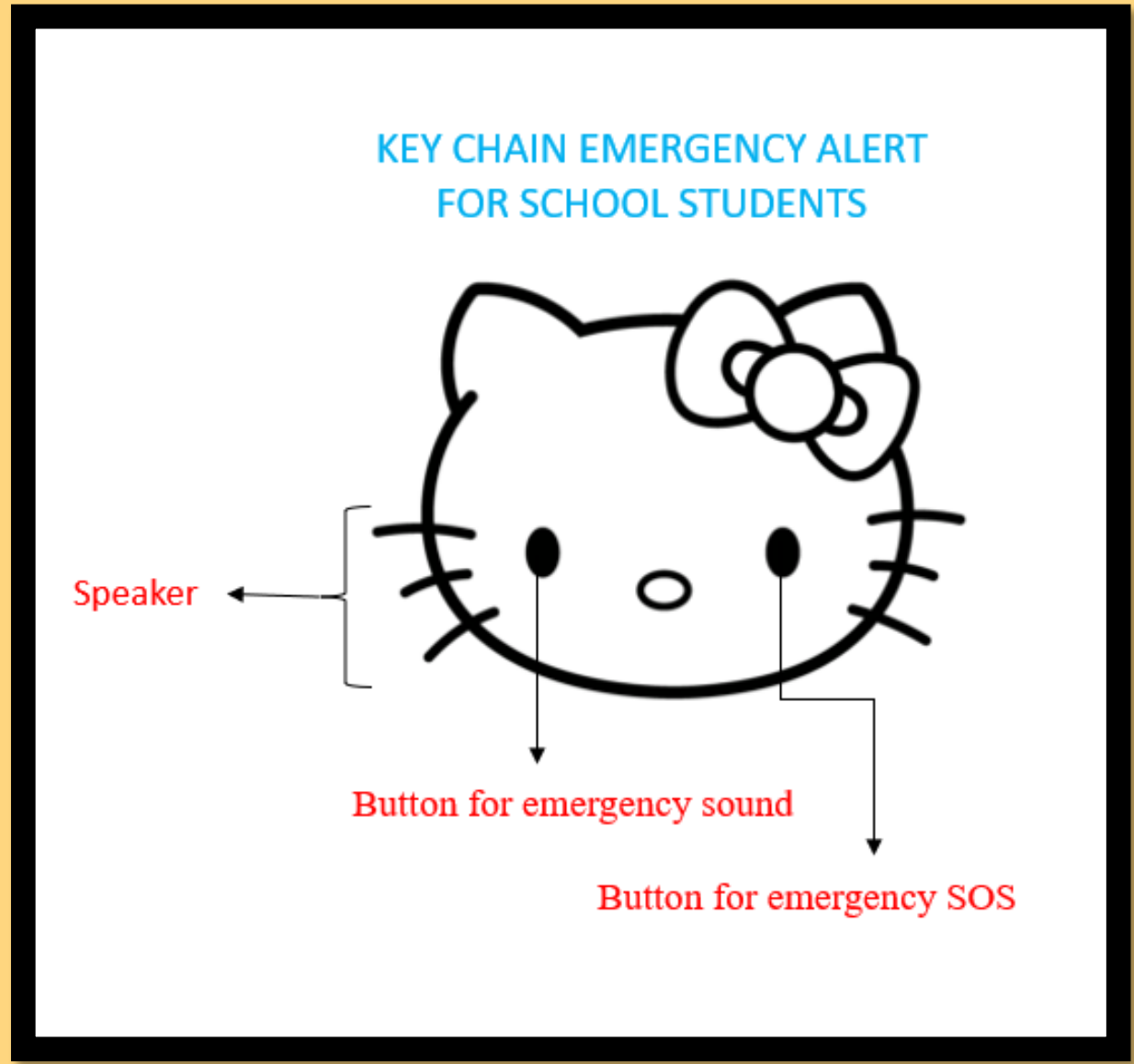


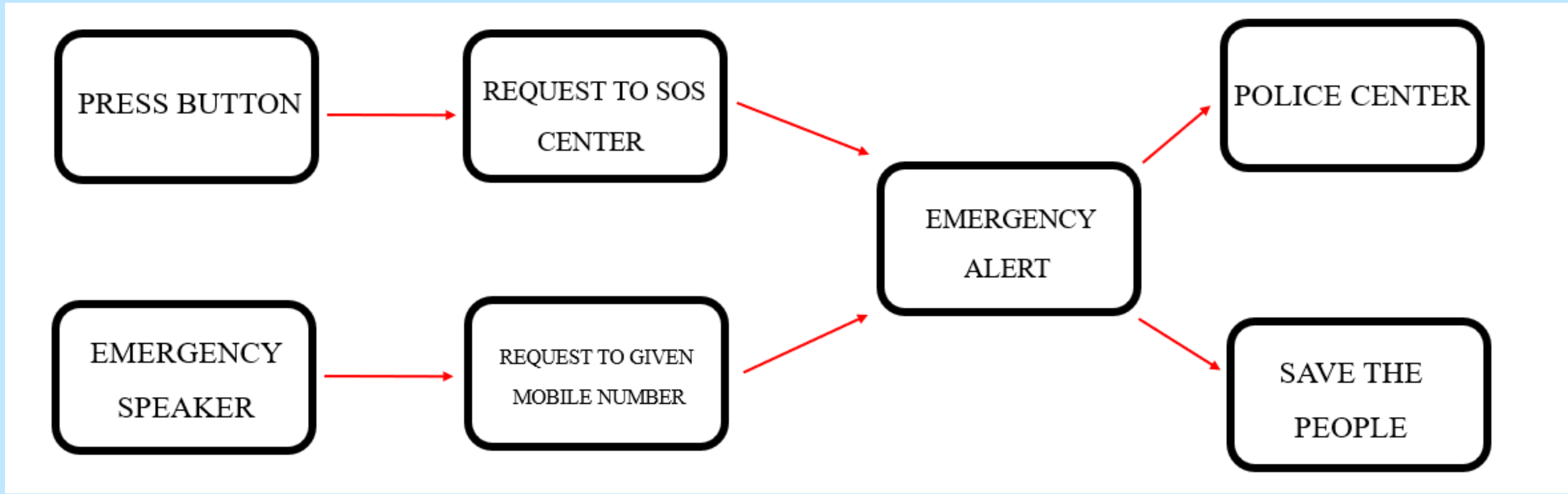
## Kavalan SOS Emergency Kit For School Students Using The Internet Of Things and Deep Learning With KNN and GNN Algorithm

### INTRODUCTION

- The aim of Using deep learning with KNN and GNN algorithms along with the Internet of Things, the Kavalan SOS Emergency Kit for students aims to offer a full safety solution.
- It uses cutting-edge technologies for effective emergency management, real-time monitoring, and threat detection to quickly identify emergencies and ensure the safety of kids
- KNN outperforms GNN with an accuracy of 98% in the Kavalan SOS Emergency Kit for students, which combines IoT and deep learning with both algorithms.
- This indicates that KNN is more effective at identifying and handling crises, which improves student safety and security in educational settings.

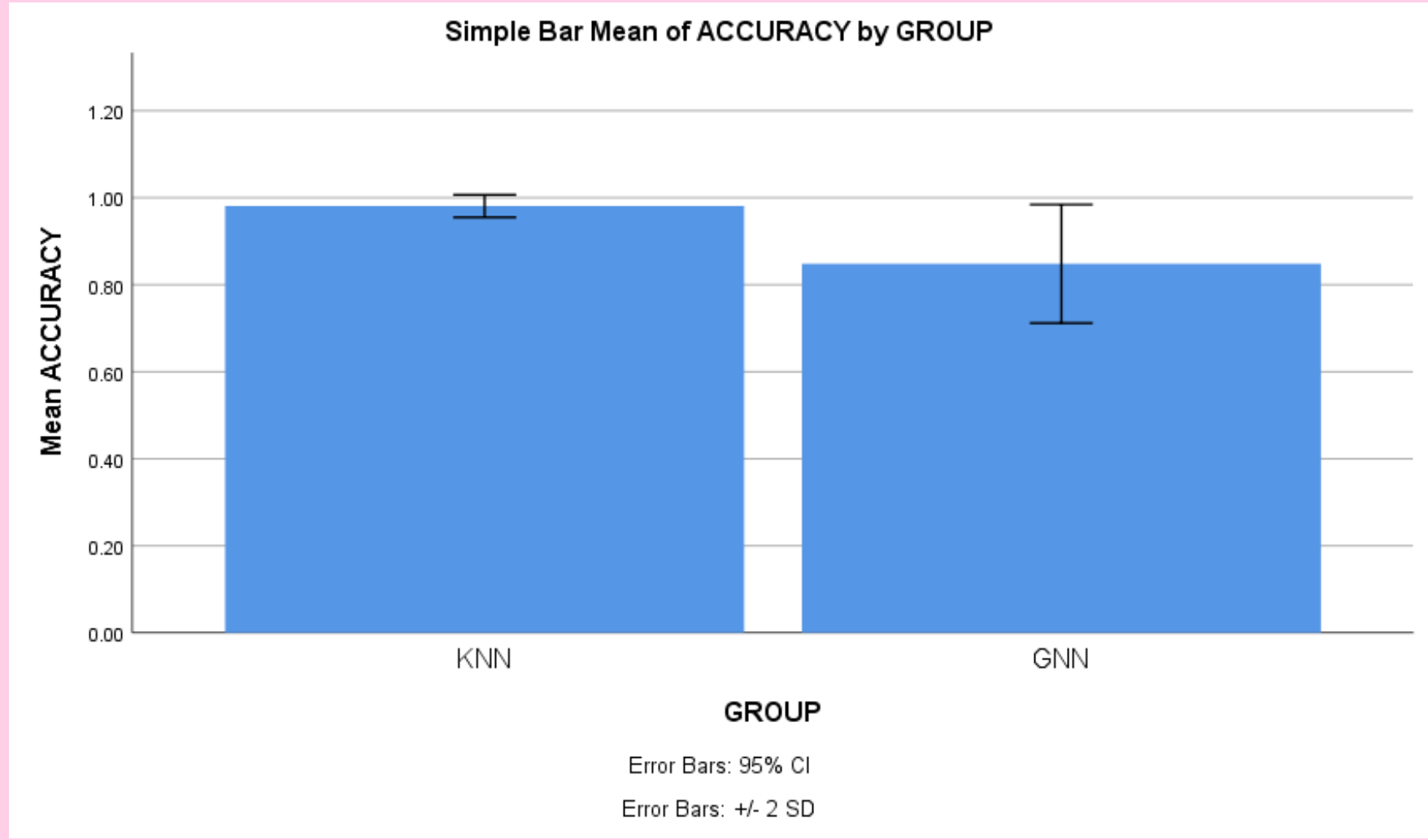


### MATERIALS AND METHODS



- **IoT devices:** Track the whereabouts, well-being, and surroundings of pupils in real-time.
- **Data Gathering:** Information is gathered by sensors and sent to a central server.
- **KNN Model:** Classifies data points with 98% accuracy to identify abnormalities or crises.
- **The GNN model** achieves 92% accuracy in analyzing the relationships between data items.
- **Alerts:** Notifies school administrators right away if any threats are found.

### RESULTS



- Deep learning algorithms and Internet of Things (IoT) technology are used in the Kavalan SOS Emergency Kit for children to improve safety in learning settings.
- Their performance measurements show that the use of Graph Neural Networks (GNN) and K-Nearest Neighbours (KNN) has yielded noteworthy outcomes.
- The KNN algorithm reliably processes location data, as seen by its high accuracy rate of 98%. In the event of an emergency, this accuracy guarantees accurate tracking of children and personnel, facilitating prompt action and efficient crisis management.
- Key elements in the emergency kit's effective implementation are KNN's speed and consistency.
- Alternatively, GNN offers a 92% accuracy rate. GNN performs marginally worse than KNN

### DISCUSSION AND CONCLUSION

- **IoT Integration:** To guarantee appropriate data collection and connectivity with the central system, sensors, and IoT devices must be carefully selected and integrated.
- **Data Gathering and Analysis:** Real-time data gathering from IoT devices is required, and deep learning models must be used for analysis.
- **Alerts and Notifications:** If any irregularities or possible dangers are discovered, the system ought to promptly notify emergency services, school officials, and other relevant parties.
- **Privacy and Security:** When developing the system, take into account the privacy and security of the student data, and make sure that all applicable data protection laws are followed.

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