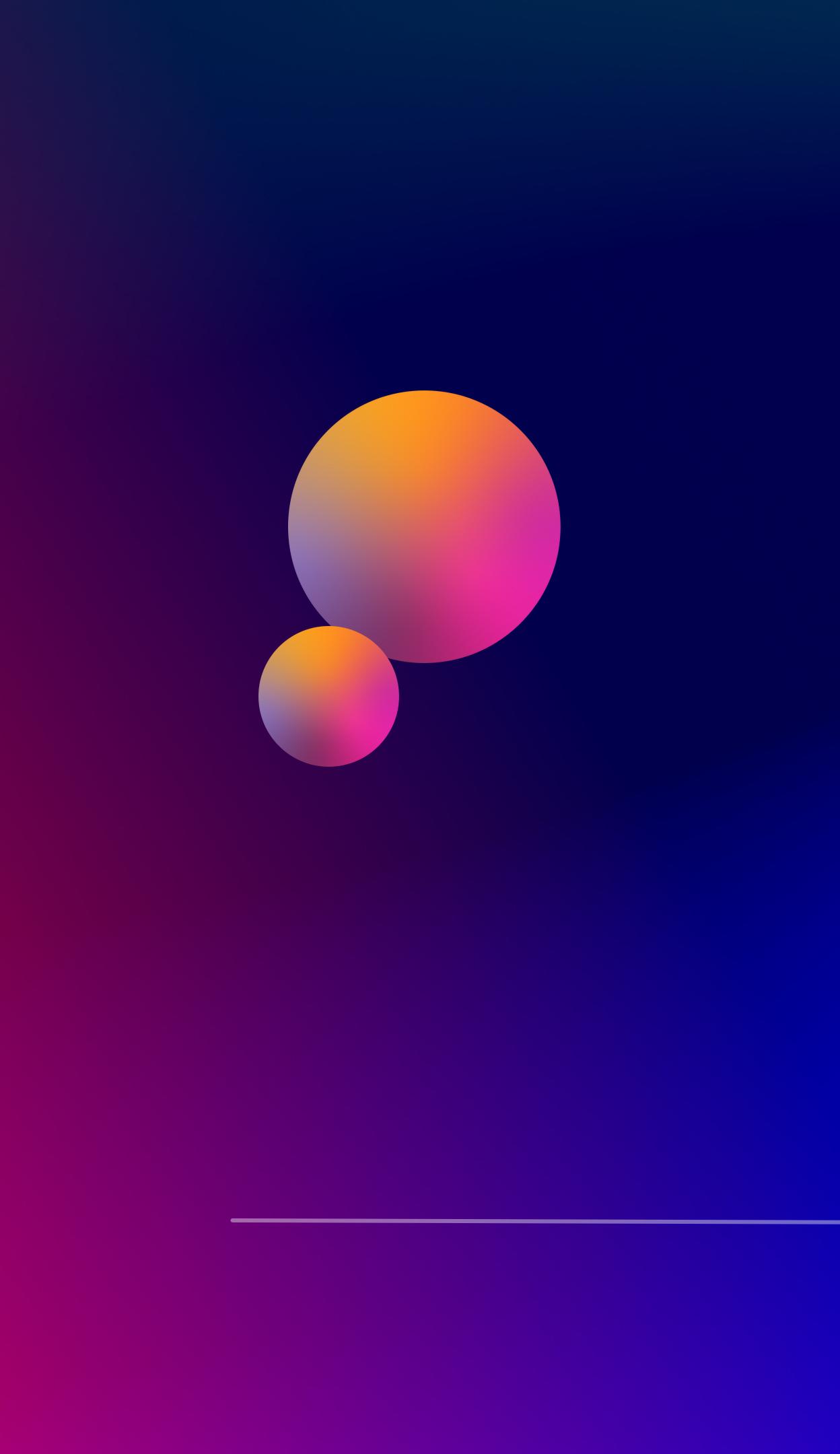


Research on Human Activity Recognition

Dulla Satvik (B19CSE106)
Ram Khandelwal (B19CSE116)

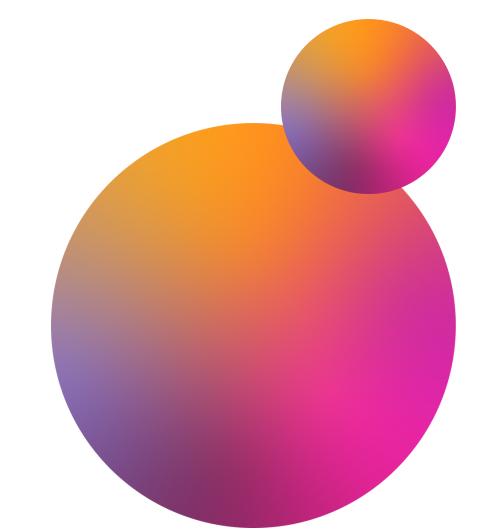
Welcome To Our Presentation

Instructor: Dr.Suchetana Chakraborty



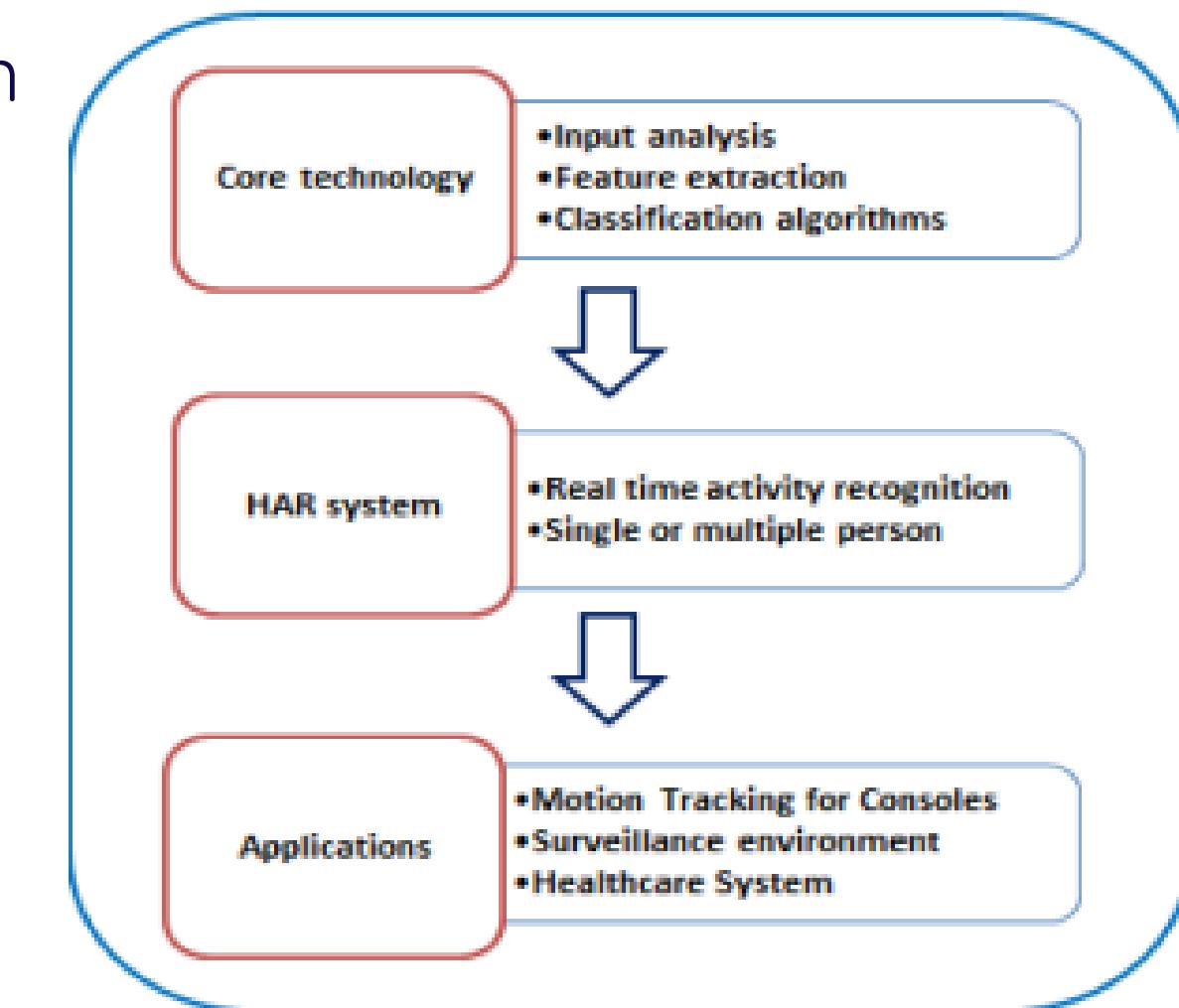
PROBLEM STATEMENT

To find and compare the various ML models and choose the best model and then made simple android working application for verification.



EXISTING METHODS

- Vision based, Sensor based and Wearable device based methods available for HAR.
- ML methods available for vision based and sensor based like CNN, LSTM, DCNN, RNN etc.
- Methods available for Wearable device based are deep autoencoder, sparse coding method, stacked deep gaussian method etc.





APPROACH FOLLOWED:

Sensor Data → Data Pre-Processing → Train ML Model → Testing

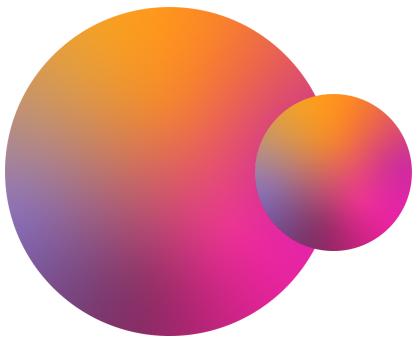
PROGRESS AFTER MID-SEM

- Developed Android App for Human Activity Recognition.
- Activities that are recognizable: Sitting, Standing, Walking, Jogging, Walking Upstairs, Walking Downstairs, Running.
- Implementation and Comparison of Various ML models for UCI HAR Dataset.



RESULTS





S.No	Model	Accuracy
1	LSTM	92.8
2	Random Forest	93
3	Decision Tree	86.2
4	KNN	91.07
5	SVC	96.33
6	SVM	93.0
7	Logistic Regression	95.9
8	XGBoost	93.89





DEMO

RESEARCH PAPERS

- Human Activity Recognition Using Smartphones
<https://ieeexplore.ieee.org/document/8567275>
- A Survey on Human Activity Recognition using Sensors and Deep Learning Methods
<https://ieeexplore.ieee.org/document/9418255>
- A Survey on Human Activity Recognition and Classification
<https://ieeexplore.ieee.org/abstract/document/9182416>



FUTURE WORK:

- Increase the number of activities in the Android App developed
- To increase the accuracy in Upstairs, downstairs and Running part.

THANK YOU

