



SHO'OUR

An Application To Recognize Child's Happiness Emotion.



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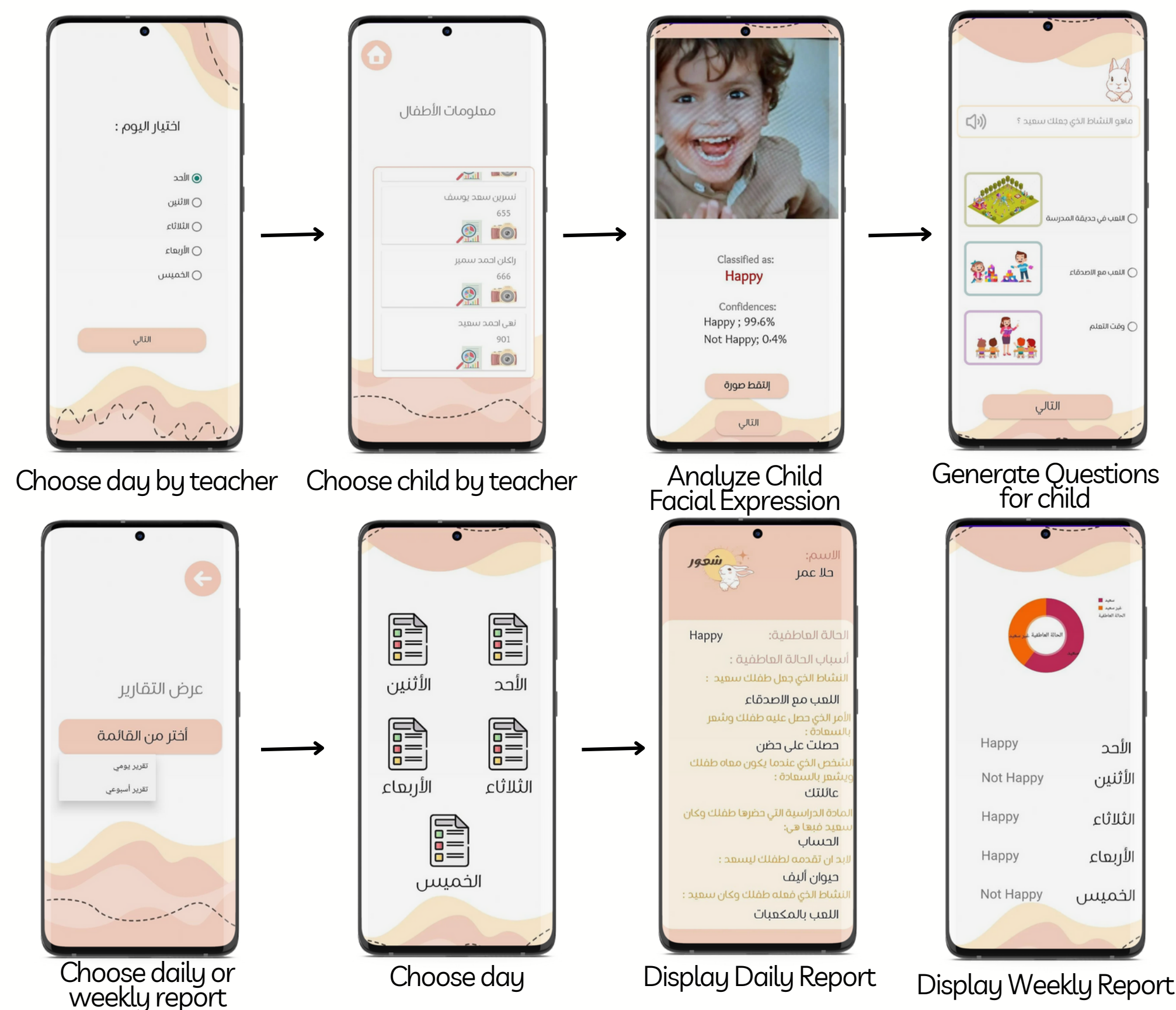
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ABSTRACT

Children at the age of four to six have difficulty expressing their feelings. Moreover, research has proven that the inability to understand children's feelings may lead to problems in children's behavior and negatively affect their future lives as adults. Through our research, we found that applications that help to understand feelings are often limited in terms of extracting the emotional state of the child or may be limited to some visual and audio images that are used to teach children about emotional states. Hence, we are proposing "Sho'our" an Android-based application that is designed in Arabic language to help parents and any educational institution, such as kindergarten to analyze and recognize child's feeling if he or she is happy or unhappy by relying on a well-known deep learning algorithm named Convolutional Neural Network (CNN). The algorithm will analyze the child's facial expressions after being trained on our dataset. Once the analysis is done, a list of questions will be generated accordingly to understand the causes behind the child's particular emotion. Moreover, the application will provide parents and teachers with textual daily and visual weekly reports which will be helpful in the long run to understand children and their behaviors and feelings.

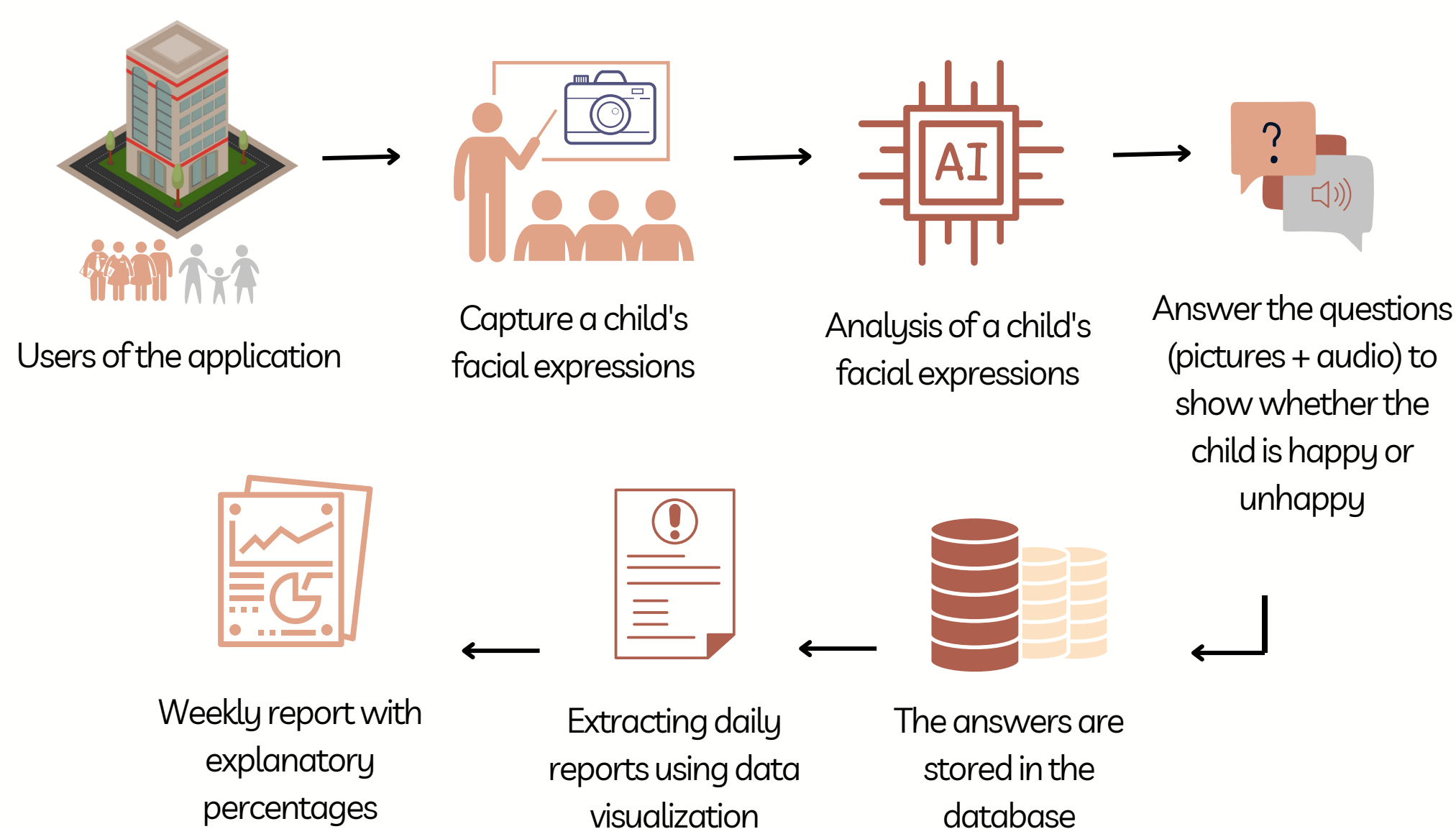
SHO'OUR APPLICATION



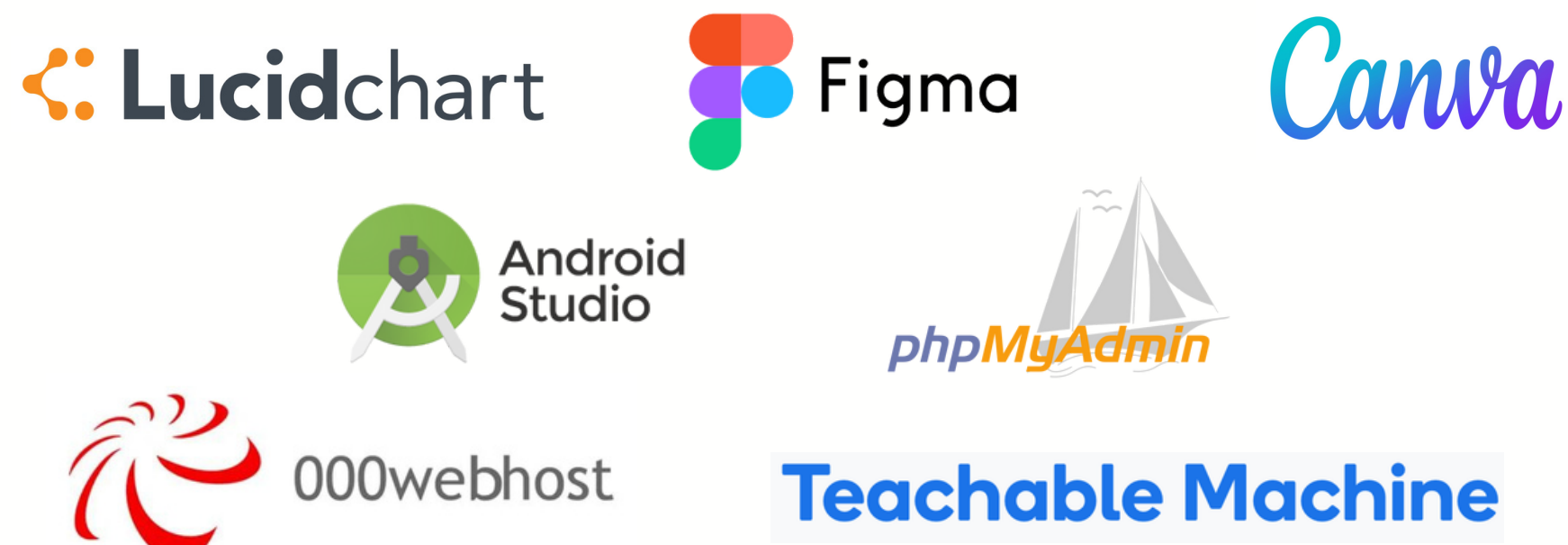
OBJECTIVES

- To analyze children's facial expression
- To recognize children's happiness feelings and the causes
- To generate meaningful and helpful visualized reports to parents and educational institution

SYSTEM DESCRIPTION



TOOLS



EVALUATION RESULTS

We have used a Convolutional Neural Network (CNN) algorithm to apply Sense which we have trained on our dataset using teachable machine tools. These were the final results, which were approved after many attempts, based on evaluation metrics in classification algorithms:

Accuracy = 0.81
Precision = 0.82
Recall = 0.82
F-score = 0.82

CONCLUSION

We have proposed an application that could analyze children's facial expressions and identify the causes to ensure a healthy educational environment for the little ones. We have used the CNN algorithm to analyze the pixels of each taken picture to discover the facial features and to be able to classify these pictures to happy or unhappy according to our data set that the algorithm has been trained on it.

FUTURE WORK

- To evaluate CNN model on classifying other emotion classes
- To use a machine learning algorithm to generate questions related to the child's emotion
- To enable teachers and parents to record their voices

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REFERENCES

