World Journal of Engineering Research and Technology
WJERT
www.wjert.org SJIF Impact Factor: 5.924

KARY MOMTO REDUCE STRESS BY CONTROLLING THE BABY AT CARE CENTERS

***[1]R. Ramesh, [2]S. K. Sharmila, [3]S. Sathya Sree, [4]V. Savya Sree and [5]U. Navya**

[1]Professor, Department of CSE, KKR & KSR Institute of Technology and Sciences, A.P, India.

[2,3,4,5]B.Tech Student, Department of CSE, KKR & KSR Institute of Technology and Sciences, A.P, India.

Article Received on 04/06/2021 **Article Revised on 24/06/2021** **Article Accepted on 14/07/2021**

***Corresponding Author**
R. Ramesh
Professor, Department of CSE, KKR & KSR Institute of Technology and Sciences, A.P, India.

ABSTRACT

The main objective is to help the employed parents to take care of their children though they left their babies either at relative's home or care centres as like the parent's presence. According to the news article of 2018 two children died because of crying for their parents continuously though they were taken care by the care takers. Our proposed solution is to use the latest technology augmented reality with the newly developed software unity. Here we would develop a continuous monitoring with battery maintenance of target object called baby. When the baby cry expression captured automatically it would display the mom's image beside of the baby's cradle. This helps to make the baby to feel her mom's presence and after certain time fixing if baby does not stop the cry. The message will be automatically forwarded to the nearest members.

KEYWORDS: Kary Mom, baby, augmented reality, mother.

I. INTRODUCTION

In this modern era most of the parents both mother and father got engaged with their works. So due to their work they may not spend sufficient time to take care of their babies. They leave their babies at either at relatives' home or else care centres but the mother presence may not replace their care. So, baby's mothers can't concentrate on their work properly. So, to

relieve the mother's tension in her absence. And to make baby smile with mother's presence, which reduces some stress of controlling the baby to care takers.

In the existing system, the existing solution is regarding to detect the baby cry. When the baby cries then the mic sensor would detect the cry of the baby. Then the microcontroller in it would get enabled and lights on the led. Then the led would plays on the music that makes the babies brain get relaxed and helps the baby to take rest. And the problems in the existing system is

- More sensoric equipment required to fit to the baby cradle.
- Not more cost effective.
- Baby visualising not present.
- Weight of the cradle would be more.
- The sensoric work producing heat would not be much more effective.

In the proposed system, the major benefits are

- This solution is cost effective compared to the previous solution.
- This solution provides continuous baby monitoring.
- This would effectively alerts the parents or care takers if they were away from the baby.
- This will makes the baby to feel her mother's presence.
- This also reduces the stress of the care takers or relatives who monitors baby and helps them to feel comfortable at normal circumstances.

II. LITERATURE REVIEW

[1]Automatic detection of a baby cry in audio signalsis an essential step inapplications such as remote babymonitoring. It is also important for researchers, who study the relation between baby cry patterns and various healthor developmental parameters. In this paper, we propose two machine-learning algorithms for automatic detection of baby cry in audio recordings. The first algorithm is a low-complexitylogistic regression classifier, used as a reference. To train thisclassifier, we extract features such as Mel-frequency cepstrum coefficients, pitch and formants from the recordings. The second algorithm uses a dedicated convolutional neural network (CNN), operating on log Mel-filter bank representation of the recordings. Performance evaluation of the algorithms is carried out using anannotated database containing recordings of babies (0-6 monthsold) in domestic environments. In addition to baby cry, these recordings contain various types of domestic sounds, such as parents talking

and door opening. The CNN classifier is shown to yield considerably better results compared to the logistic regression classifier, demonstrating the power of deep learning when applied to audio processing.

[2]Generally mobile applications are playing very key role in developing the real time projects so that here we could be able to video monitor the baby such that we can capture the every movement of the baby and also it detect the babies' cradle bed sheet condition whether its dry or wet if wet then he toy that hanged would be worked and creates a play sound so that the babies cry would be controlled if not then the mobile app would forward the call to the parent or care taker.The caring of the baby in the presence of the mother would be somewhat handling task without presence babies handling is too difficult. So this become a hectic task to the employee parents so to make task easier and simpler we could able to handle the situation with the help of the mobile app. In order to extend this we could use IR rays to make the thing of utilizing more efficient.

[3]Here the managing of the baby in the real world could be possible only in the mother's presence otherwise maintenance would be very difficult so in order to handle that situation and help the mother's to take care the baby more effectively the robot with mobile app handler is created such that to monitor the baby condition if she cries the robo will handle and wait for 10 min after that if the baby cries continuously then robot would alert the parents and the care taker.Here signal processing and the micro controller embedded so that it would generate the MMS or SMS to the preconfigured number so that it would alert only those static amount of users those can be care taker or mother. Very effective collection for the infant cry analysis.

III. PROPOSED WORK

- Here in the above figure, the architectural view of the entire application is shown.
- We are developing a mobile application called Kary - Mom for baby care.
- A continuous baby monitoring system was developed to observe the baby.
- Whenever baby cries, the camera of the mobile detects it.
- A mild music will be played after detection of cry along with the virtual video of parent to control the baby's cry.
- If the baby doesn't stop cry even after 15 minutes, the application sends an automatic message to the parents.

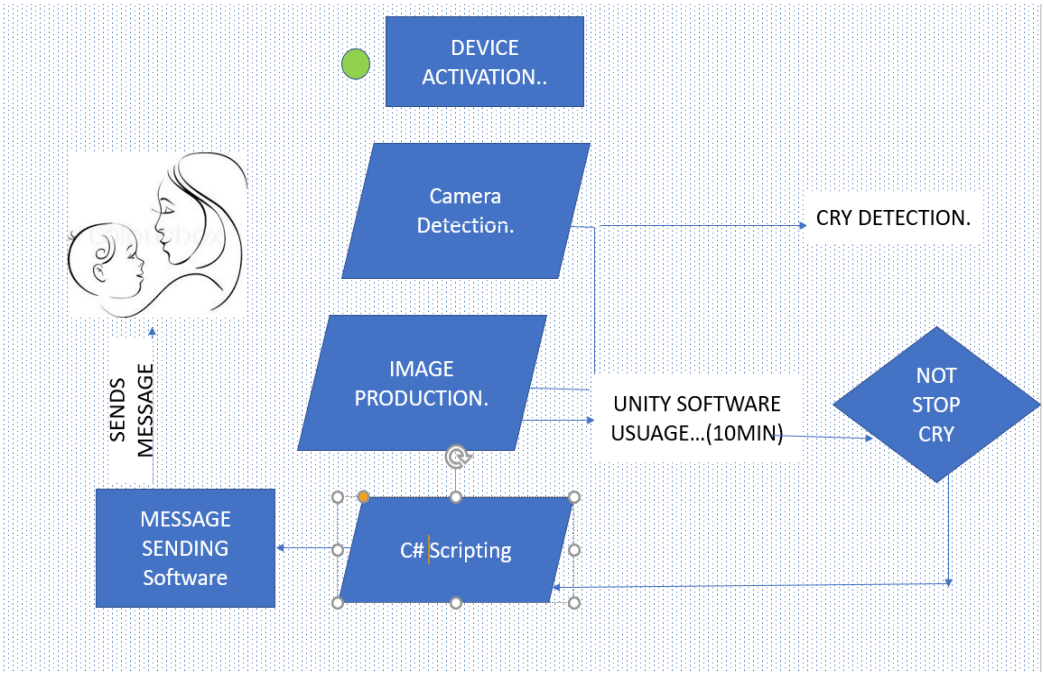

Figure 1: Propose System Architecture.

The field of algorithm design requires a strong mathematical background, with computer science degrees being particularly sought-after qualifications it offers a growing number of highly compensated career options, as the need for more algorithms continues to increase

The steps involved in the application are as follows:

Step 1: Start

Step 2: By continuous monitoring of baby, if baby cries application detects it.

Step 3: It generates a mild music

Step 4: Also displays the virtual video of baby's mother.

Step 5: If baby doesn't stop cry even after 15 minutes, application send an automatic message to the respective parent.

Step 6: stop

We have divided our project into 3 modules. They are:

- Inbuilt Module
- User defined Modules

Animation Unit

Music Unit

- Message Sending Module

In built module (ARKIT, ARCORE, XR PLUGINS, GIT, VUFORIA)

This module is used to detect the cry of baby using the camera and database.

Music unit (AUDIO SOURCE COMPONENTS ASSET)

After detecting the baby's cry, this module is useful to play a mild music.

Animation unit (ANIMATION RIGGING, MIXAMO)

This is used to display the virtual video of parent.

Alert message module (C# VISUAL STUDIO)

When the baby doesn't stop crying after few minutes, the application itself sends an alert message to the parents.

Implementaion Process

- Our project is software related that uses the technology called agumented reality inorder to create some real world illusion such that it appears to be similar to the presence in the reality.
- To continue project using Agumented reality we used Unity Software and the another open source software that includes in the unity called Vuforia. So to use them the developer should have account in the both unity and Vuforia. Then while configuring the environment for the unity the license key of unity acount is used to create the Unity Hub. Then the project needs to detect the target called baby cry. This isthe static application so that the target need to be defined statically in thedatabase of the application. Then the animated 3D model is defined which is to be displayed afterthe baby cry along with the audio that resembles the mother's presence.

Implementation Steps

Step 1: Create the unity account.

Step 2: Download the unity hub into the device.

Step 3: Add the licence key of the unity to the unity hub while setting up.

Step 4: Install the related version of the unity by checking up the required major modules to open a project.

Step 5: Then create the vuforia account.

Step 6: Get the development key for the vuforia to develop the target database.

Step 7: Upload the target images for the static project.

Step 8: Download the database that was uploaded with the target images.

Step 9: Then download git that helps to download vuforia software.

Step 10: Set the environment variables of the git/bin.exe and git/cmd.exe

Step 11: Restart the system.

Step 12: Then login into the vuforia account->downloads-> Vuforia with Unity.

Step 13: Import the vuforia package and import all the inbuilt packages ARKit, ARCore and XR plugins.

Step 14: Verify the 3d model if want realistic 3d model use Avatar MaskOnline payable software that produces the compatible 3d models With unity from the 2d gesture images.

Step 15: Use Mixamo Software that produces animations to the particular 3D model.

Step 16: Download the animation with extension .fbx and then upload into the unity software.

Step 17: Then set the properties of rig like bones, muscle movements, hand Gestures for the dumped animations.

Step 18: Set up the animation timings and then configure to make the 3D model more realistic.

Step 19: Then set the properties of the 3D model with audio into the image Target.

Step 20: The image target package is dumped as Assets -> custom package.

Step 21: Then set the properties of location placing of 3d model corresponding to that of the object appearance.

Step 22: Connect the audio to the 3D model that would be able to produce the Audio while the apperance of the mother immediately.

Step 23: Add component to the image target that sends the mail when detects the target image of baby cry to the mother.

Step 24: Set the player settings android properties by connecting the android Device using USB cabel to dump the software.

Step 25: Final step is to the enable the developer options in android and allow USB debug to dump software.

Step 26: Test the dumped software.\

IV. CONCLUSION AND FUTURE ENHANCEMENTS

The major theme of development of project is to support the employee parents and relieve the stress of the baby care takers either at home or any place to control the baby. Here the baby

need to be motivated few times. While in the presence of the parents by using this application to habituate the baby to imagine the mother's feel of the project.

The cost of implementation majorly the device cost and the cost of using avtar mask to generate the 3D model (if used). With this project the mother's can able to concentrate that their babie's well wishings would be informed when there is a severe situation of baby's cry and helps care takers to divert the children and change their mood.

This is the basic version of the developed project so the upcomingversions would be more advanced and a part from that they would be effective for the usage. As the project is static image target detect application in the further enhancements this would become dynamic uploading of the images and storage into the internal data base based on the requirement. This would be more flexible to the users. Second enhancement would be detection of images with even some less pixel targets are uploaded or detected. The third enhancement would be related to message sending with usage of SMS a part from the mail sendings that uses firebase cloud app notification.

REFERENCES

1. Yizhar Lavner, Rami Cohen, Dima Ruinskiy and Hans IJzerman, "Baby Cry Detection in Domestic Environment using Deep Learning, ICSEE International Conference on the Science of Electrical Engineering, 2016.
2. John Anthony C. Jose, Justine Veronica Basco, Jomar Kenneth Jolo, Patrick Kenneth Yambao, "Spherical Mobile Robot for Monitoring and Tracking Children Indoors", 4th Asia-Pacific Conference on Intelligent Robot Systems, 2019; 159-163.
3. Marco Severini, Daniele Ferretti, Emanuele Principi And Stefano Squartini, "Automatic Detection of Cry Sounds in Neonatal Intensive Care Units by Using Deep Learning and Acoustic Scene Simulation", 29th April, IEEE. Translations, 2019; 7: 51982-51993.