



# Data visualization for Epilepsy Research Kit for Kids

Mirror HR application, a grand prize winner for the Microsoft annual Global Hackathon 2019



#fightthestroke



Microsoft



Roberto and Francesca have a son Mario. Mario suffers from seizures since he was 3 years old.

Because seizure can happen at any time and can be life-threatening, Mario's parents needed a way to monitor his state at all time.

This is how the concept of the MirrorHR application was born.

Together with his colleagues and support from the FightTheStroke organization Roberto has created a proof of concept that won the Microsoft Hackathon in 2019.

Mario is already testing the MirroHR app.

# MirrorHR Application

There are two large parts of the application that require data visualization.

## Remote realtime monitoring:

there is a wearable device that reads the biometric data from sensors and then sends it over Wi-Fi or Bluetooth to the MirrorHR app. When the anomalous activity happens, like the spike in a heart rate it alerts the parents or the caregivers about the possible seizure.

## The history view:

the data from sensors is being recoded. The app allows to go back to weekly and in the future monthly history view. The AI is to be used with the history view to learn from data patterns and get more information about the triggers of the seizures.

## SciChart was chosen for Data Visualization:

- It was the only software in the world able to handle the required capacity of data;
- Its flexibility allowed an extensible customizations, like the recorded data to be colored in a specific color.
- Its API was very easy to use in Swift UI.



## CASE STUDY SciChart.Mobile



MirrorHR  
Epilepsy Research Kit



SCICHART  
// Making Impossible Projects Possible



20

data points every  
1 second

9 to 10

hours of recording  
the data

150,000

datapoints  
displaying

The live monitoring requires from 1 data sent every 4 seconds up to 20 data points per second. It has to be recorded for at least 9 to 10 hours, in total displaying of 9,000 to 720,000 datapoints. The history view of a weekly data would require displaying from 150,000 data points up to 12,000,000.

*"In order to help our son, we have to help every kid in the world like him" - Roberto says.*

## CASE STUDY

SciChart.Mobile



### About SciChart

SciChart is a cross-platform WPF, iOS, Android and Xamarin Scientific & Financial Charting Library.

SciChart supports rendering of complex, interactive, real-time charts with many millions of data points for demanding scientific, medical and financial applications and embedded systems that require high performance, rich interaction and smooth updates.

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Parents like us they go through a trauma process.

Realtime charts are a way to take back a bit of control in a stress scenario.

Trusting what I see on the application, I know if everything is ok without waking up my kid.

The value is not what people expect it to be. For me it was to be able to get some sleep again without constantly hovering over my son, checking what is going on.

**Roberto D'Angelo,**  
the lead of MirrorHR project,  
Founder of FightTheStroke Organization.

Resources:

<http://www.mirrorhr.org>

<https://fightthestroke.org/>

<https://news.microsoft.com/features/a-way-to-bring-peace-of-mind-and-sleep-to-parents-whose-children-suffer-seizures-wins-microsoft-hackathon/>

