Memorization of the verses from the Quran is easier for children when they listen to such verses consistently and are forced by adults. Students with high-functioning autism (HFA) with a good listening skill and ability to pay attention on learning task unlike the low-functioning autism (LFA) are of no exception. Memorization is also easier people with little or no sins like the autistics since their actions at times are reflex and not intentional. Several technologies have been looked into but a few drawbacks are found. The objective of this research is to understand the behaviour of students with HFA in memorizing the Quran. The behaviour of four students with HFA, three male and a female aged between 9 to 28 years are evaluated during Quran memorization session through a longitudinal study (February 2012 until December 2012). Afterwards, we will test the interactive hafazan game application, which will be developed in the near future to the students with HFA. We identified three skills, which are dominated by students with HFA during Quran memorization: listening skill, pronouncing skill, and memorizing skill. With the creation of more interactive assisted learning tool such interactive hafazan game application, it is expected to stimulate the HFA students’ interest of learning Hafazan.