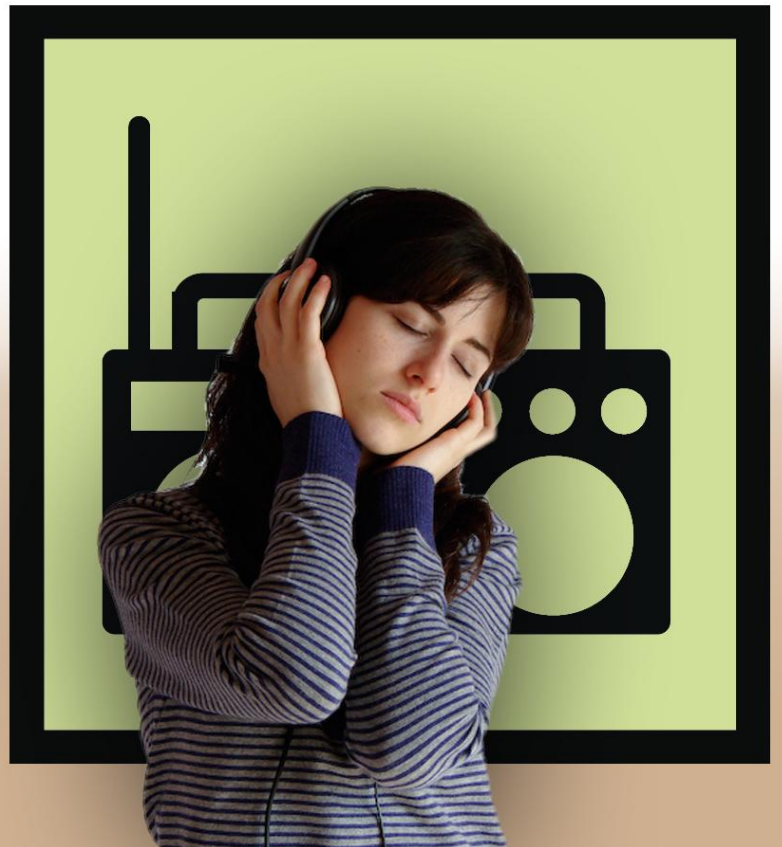# INTERNET RADIO

BETA

My favourite radio stations

INTERNET RADIO

BETA

My favourite radio stations

Pedagogical guide for use with people with autism and/or intellectual disability

VNIVERSITAT DE VALÈNCIA
Grupo de Autismo y Dificultades de Aprendizaje
Institut de Robòtica

Fundación Orange · orange

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■ Who is INTERNET RADIO for?

The INTERNET RADIO application has been created for use by people with autism spectrum disorders and/or intellectual disability. However it can be of use for any person who encounters barriers for accessing modern radio devices or who finds it difficult to listen to the radio online. People with other intellectual disabilities, cerebral palsy, the elderly or other groups of people with special needs may also benefit from using this application.

In this manual we talk about people with special needs, referring to those mentioned above. However, remaining faithful to the specific purpose for which the application has been created, at times we refer to people with autism and/or intellectual disability, without forgetting its potential use by other people. We also use the term 'user' to refer to the person with special needs for whom this application has been designed, and the term 'tutor' to refer to professionals, family or friends who take responsibility for adapting and facilitating the use of the application. which There is a Manual called "Guide to the Tutor Application" which is explains the setup process for INTERNET RADIO and other Azahar applications.

◾ What is INTERNET RADIO?
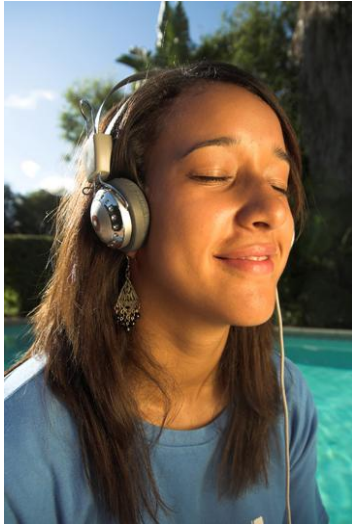
INTERNET RADIO has been designed to make it easier for people which autism and/or intellectual disabilities to listen to the radio and manage their favorite stations, as they may have difficulty in:

- accessing and understanding the operation of conventional radio equipment.

- Accessing and operating the radio via the internet.

This short manual is intended as a guide for parents, family or professionals who live with the autistic / intellectually disabled person who requires support to access and understand the mechanisms for listening to the radio.

◾ Autism Spectrum Disorders:

Autism Spectrum Disorders (ASD) is a relatively recent term used to describe people with a series of characteristics in common. These characteristics are known as the "triad of impairments" [1]. This triad refers to difficulties in order to [2]:

1. Communicate verbally and non-verbally.
2. Interpret social behavior, affecting their ability to relate to others.

3. Think and behave in a flexible manner, for example, to adapt their behavior to specific situations. This for example can result in the person with autism stopping listening to the radio or changing stations.

Asperger's Syndrome, High-Functioning Autism, Classic Autism and Kanner's Syndrome are considered to be sub-groups of Autism Spectrum Disorders [2]. However, people with autism spectrum disorders all tend to be very different in terms of abilities, and strong and weak points.

People with a wide range of abilities may have an Autism Spectrum Disorder, and this may occur in conjunction with other disorders (for example, sensory disability, intellectual disabilities, Down's Syndrome, ADHD – Attention Deficit Hyperactivity Disorder – or language difficulties).

■ Intellectual Disability

The terms "Intellectual disability" refers to developmental difficulties causing cognitive disorders and affecting overall intellectual and adaptive behavior [3]. Adaptive behavior is understood to be the set conceptual, social and practical skills which we learn in order to live our daily lives correctly. Limitations in these skills affect both daily life and the ability to adapt to changes and demands around us [3]. This disability appears before the age of 18 [3].

People with intellectual disability may have difficulties when accessing the Radio through conventional internet devices. For this reason, "Internet Radio" can be of great use for this group of people.

■ Enjoying listening to the Radio with learning difficulties

Approximately three out of four autistic people present a related intellectual disability to a greater or lesser degree. This condition can lead to increased learning difficulties, as the complications of autism itself are added to the limitations brought by the intellectual disability. There are also certain social and contextual issues which may contribute to the difficulty of these people to get by in life (for example, the lack of adequate support from an early age).

Listening to the radio and managing their own stations can be a source of happiness, pleasure, a feel-good factor, a calming influence; in addition to offering the chance to explore music or radio programmes previously unknown to them. It is important to remember that one of the main reasons for using the radio is to listen to music, and there is a rich diversity to be found on radio stations broadcasting different types of music. However, not all people have been able to access the radio as it is often too complex for them to operate.

Accessing and operating the radio via conventional devices and the internet can present a huge barrier for many people with autism and/or intellectual disabilities. This is because they find it difficult to understand the procedures required. So, for example, conventional radios have complex mechanisms for controlling tuning, volume, etc. Moreover, modern electronic devices, such as mobile televisions and mp3 players which have the option of listening to the radio, can be even more complicated than conventional radios. The internet, which now offers huge advantages when listening to radio stations, can present further difficulties for people with special needs, as it is also necessary to have prior skills as an internet user. For this reason we believe that many autistic people have not had the opportunity to listen to the radio and explore this pleasurable leisure activity.

It is therefore necessary to change the procedures used to access music, to others which are more accessible, strongly based on visual support and with formats adapted to these people, in order to provide a fully accessible procedures on the device in use. For example, INTERNET RADIO allows users to listen to their favorite radio by simply pressing an image representing the station, whereupon the device automatically connects to the broadcast via the internet without any further effort on the part of the user.

■ The Purpose of INTERNET RADIO

INTERNET RADIO can be used for a number of purposes. The following table illustrates some examples of these functions:

Listening to a radio station for personal enjoyment
• For breaks or rests (as entertainment). For example, listening to a station which plays the person's favorite music. • When arriving home after daily activities. • At weekends. • On journeys (as entertainment before arriving). • When getting up or going to bed. • During walks. • At any other moments of free time the user may have.

For relaxing or avoiding uncomfortable situations
• To help calm the person, listening to his/her favorite station. • To avoid potentially conflictive situations (for example, the bustle of a bus, music in a shopping centre, the noise of the vacuum cleaner, etc.). • To make it easier to handle long waits (for example, listening to his/her favorite station while in the doctor's waiting room).

As reinforcement

- As a reward for completing an uninspiring or difficult task. For example, "When you finish cleaning you bedroom, you can listen to the Top 40".
- As a reward for good behavior. For example: "As you've been so well behaved, now you can listen to the radio."
- After a good day's work. For example: "As you've been so well behaved, now you can listen to the radio."

Where considered of use, INTERNET RADIO can be used for other purposes such as, for example, to share favorite radio stations with others.

■ Using INTERNET RADIO

The configuration and personalization of INTERNET RADIO and all other Azahar applications is done using the "Tutor application". To find out how to use the "Tutor application", consult the manual which will guide you through this process and advise you on how to configure certain elements of the application.

As regards the operation of INTERNET RADIO we should bear in mind that:

In order for INTERNET RADIO to work, a website address must be added to connect to each station. This website address does not refer to the station website itself, but an internet link known as URL which leads directly to the station, and which is not the same as the portal via which a station is normally accessed. The best way to find a URL for a radio station is to conduct as search for "URL" and the station name. For example: a search for "*URL 40 Principales*". Once this link (URL) has been found, it must be copied and pasted into the Tutor configuration, associated to an image, for example the distinctive radio station image which we can find on the relevant website. This image can then be used in Azahar to listen automatically to that radio station.

The correct operation of INTERNET RADIO requires the device in use to be connected to the internet. This means that if internet connection is limited or non-existent, the Radio reception may be limited or not connect properly. INTERNET RADIO requires this internet connection and does not work with the radio receivers (FM or AM) fitted in some devices.

Customizing INTERNET RADIO

INTERNET RADIO, like all Azahar applications, can be customized and the complexity of access to the programme can be adapted to the user's abilities. In this way, INTERNET RADIO can be used at two levels of complexity:

- The simplest option for using the application consists of a shortcut via one or more icons on the Azahar main screen. One example might be that the main screen contains the image of a radio station, allowing the user to press this icon and listen to that station immediately.

The tutor can add as many shortcuts on the main screen as desired, always bearing in mind that it is important for the user to learn to use the application progressively.
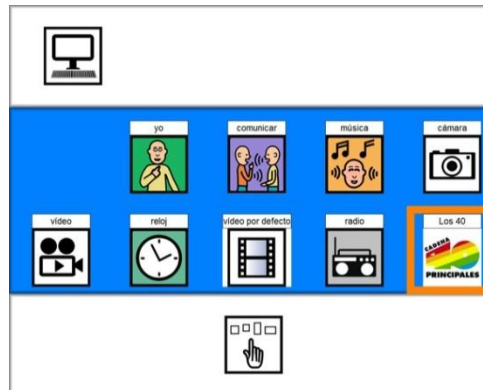
- A more complex option consists of adding the radio icon on the main screen, which then offers the option of choosing a certain radio station to listen to.
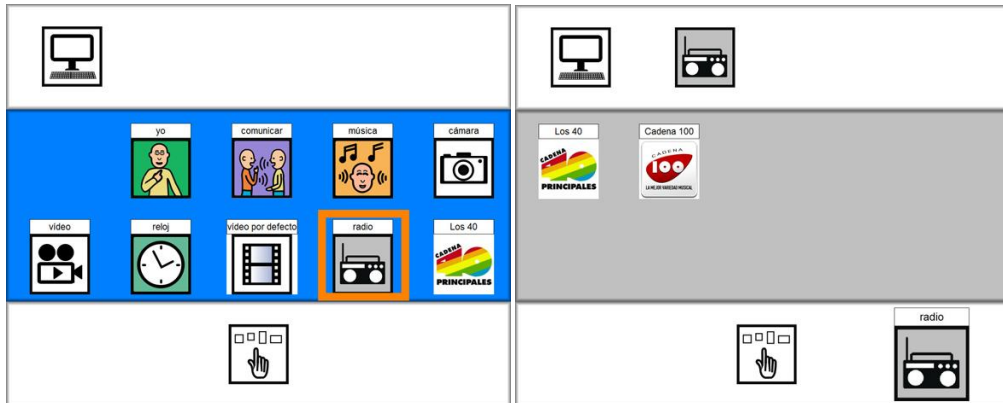
As with other Azahar applications, in order to configure INTERNET RADIO, the tutor must bear in mind the level of understanding and operative skills of the user. In this way, if the user finds it difficult to choose between different radio stations or understand a sequence of steps, then it may not be advisable to start by offering the possibility of choosing between different types of images in order to access a selection of radio stations. In these cases, it is more appropriate to use an image which allows the user to listen directly to a certain station, without having to go through a previous step or being faced with a choice.

◼ Pedagogical Guidelines

● Selection of radio stations based on user preferences

It is advisable to draw up a list of the person's favorite radio stations in order to add them to the INTERNET RADIO application. This list should be updated as the user acquires greater skill in using the device and it is considered appropriate to increase the alternatives, based on his/her preferences. Ideally, a person with special needs should draw up his/her own list, although it is true that some people with autism and/or intellectual disability may encounter serious problems in listing and/or telling others what their favorite stations are. One of the strategies that can therefore be used is for the people closest to the person to draw up a list of stations they believe he/she will like, for example, because he/she seems happy when listening to it, or because the station plays music that he/she particularly likes, or because there is not too much talking on that station, or he/she likes the voice of certain presenters, etc. However, the people around the user may have difficulty in identifying these preferences and helping them to draw up the list. It is therefore advisable to complete a "systematic preference assessment" [4] in order to create a list based on the true tastes of the user.

The "systematic preference assessment" consists of presenting the person with different types of radio stations, and observing his/her reaction. For example, if the person smiles when we tune in to a certain station, this may mean that he/she likes it – either the type of music, the voice heard, etc. The people closest to him/her will be able to interpret these signals best. It is important to leave an appropriate time gap (depending on the user's response time) [5] between tuning in to each radio station. Ideally, this search for preferred stations should be conducted

using the same device on which the person will later start to use INTERNET RADIO, to help him/her to become familiar with this device.

It is important to record all this information using record sheets (provided with this guide). Ideally these sheets should be completed by different people and in different contexts. However, if it is not possible to involve different people, the assessment should preferably be completed by a professional.

Template: table for list of radio stations

Purpose: To determine preferences regarding favorite radio stations for using INTERNET RADIO

When should it be used? Before completing the list of preferred stations.

It is advisable to start listening to potential stations at the same time of day as the person will later listen to the radio as part of his/her routine. So, if for example a certain programme is underway at a certain time, the user can listen to that same programme when using the INTERNET RADIO application.

It is advisable to repeat the assessment on a number of occasions in order to obtain the most reliable results possible. The template should be updated regularly, as the user's tastes may change over time.

Who should complete it

The people who work with and/or are closest to the person with special needs. If several people are due to complete the assessment, each one will complete separate tables. The results are then examined to take all these tables into account.

What are the results used for?

One responsible person, or by way of a meeting between all those who have completed tables, will draw conclusions based on the results obtained.

The stations with the highest scores will form part of the list.

NB:

This assessment includes a "neutral" score, where this reflects the reaction of the person upon listening to a certain station. This score is given when the person appears neither pleased or displeased by the radio station. The stations scored as neutral can be re-assessed at a later stage in order to confirm whether the person finds them preferable or not.

The purpose of this assessment is to provide the person with the chance to discover new radio stations and expand their interests.

Name of the INTERNET RADIO user ……………………………………………………………………….

Assessor……

Station name	Score					How this is shown
	Dislike	Neutral	A little	Quite a lot	A lot	
	1	2	3	4	5	
	1	2	3	4	5	
	1	2	3	4	5	
	1	2	3	4	5	

• INTERNET RADIO station image

The radio stations should be customized in accordance with an image which the person can recognize or associate easily. This image might be the same used by the station itself, which can be found easily on the internet. The person can recognize these images via a previous learning process, and/or by gradually associating them as he/she starts to use the application. Given how complex it be for the person to recognize the station image straight away, it is advisable to complete a learning process which may consist of:

Running an internet search for radio station images; This search can be completed together with the person with special needs and in some cases, it may be he/she who completes the search together with the support of a tutor. It is advisable for the images chosen to have the best possible quality.

Prior to this step, it is important to identify the list favorite radio stations, as has already been described above. Once the images have been collected, they should be printed and even encapsulated if desired. The tutor, or another person close to the user, can use the internet to play the different stations on the list for the user to hear. The user can then, with the help of the tutor where required, choose the image associated with the station he/she is listening to. The tutor can offer the person the correct image for the station to prevent any risk of error[1] and the

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[1] Error free learning is a technique which helps to complete the activity successfully, avoiding frustration. In this example, the tutor provides the person with the relevant image for the station, with no room for error. This prevents any possible future confusions. The process can be repeated as many times as necessary.

connection between the image and what is being heard is left very clear. However, this procedure may vary, depending on the different needs of each user.

If the tutor considers it appropriate, an image other than the one used by the radio station may be used. For example, an image representing the type of music played by the station in question may be more appropriate. So, for example, if the radio station is playing classical music, an image reflecting this genre can be used for this station.

- **Predictability and clarity in INTERNET RADIO:**

People with special needs and in particular those with autism require certain levels of predictability and clarity in their daily activities. These two aspects must also therefore be found in the use of INTERNET RADIO.

Predictability in this case means providing the user with information about the next activity he/she is going to complete – listening to the radio. This predictability can be offered, for example, via a personalized timetable on which the user can see an image relating to the next activity to be carried out using the radio. Similarly, the task of listening to the radio can be offered as another activity on this timetable, thus providing advance information for the user about when the time comes to listen. It can also be included on a panel of options for free time.

Clarity in this activity may consist of offering a particular, personalized space for the person to listen to the radio independently. This space may be marked out visually in order to provide adequate clarity, for example, a corner of a room with a computer for completing the activity. However, although this may present a barrier at first, it is advisable to vary the space for listening to the radio if the user wishes. Similarly, getting the person to use several different applications

on the same computer (either part of Azahar or otherwise) can be a favorable objective in order to broaden his/her leisure and communication options.

One way of offering clarity for the INTERNET RADIO activity is to be explicit about the start and finish times of this task[2] . This consists of making the person understand that his/her time listening to the radio has come to an end. It is important to remember that any Azahar application, such as, for example, listening to a song or taking a photograph[3], must have a logical end for the person using the application. However, listening to the radio may imply continuity, as the radio does not have a fixed end, unlike a song, for example. The radio is always active – as a rule, radio stations do not end their broadcast but have programmes running on from one another. For this reason it may be useful for some users to establish a strategy to mark the end of the activity. For example, if the radio activity is part of a personalized timetable, the professional, carer or other person who is with the user at that time must indicate that the activity has ended using the same method for "end of activity" used for all other activities on that timetable. So, if activities using an image timetable are placed in a box when they are complete, for example, this process should also be used to indicate that the radio activity has ended. However, even where listening to the radio does not form part of a personalized timetable for specific reasons, it may

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[2] Understanding concept of starting and finishing the INTERNET RADIO activity can provide the user with the feeling that he/she has completed the task of listening to the radio and "makes the transition between activities become a more meaningful process and therefore less stressful" [6].

[3] Here we refer to the Azahar applications MUSIC and PHOTO ALBUM.

also be appropriate to use some kind of strategy such as the one given above to make it clear to the user that this activity has ended.

● Autonomy and use of INTERNET RADIO

Some people who have reached a good level of skills development will probably be able to use the radio independently. However, where a person encounters significant barriers in this task, it is normally someone close to him/her who aids the process of listening to the radio, thus limiting the use of the application for the user him/herself. Furthermore, if we take into consideration the difficulties often encountered by people with special needs, we can see that being about to use the radio alone, communicate a desire to listen to the radio, or even communicating disagreement with the station currently playing, can often be a complex process. However, there are many people with autism and/or intellectual disability who manage to communicate their preferences via Alternative Communication systems, speaking or even by behavioral guides.

Although it is important for those close to the person with special needs to help him/her to listen to the radio, our objective is for him/her to be able to use the application as independently as possible.

Nevertheless, using the INTERNET RADIO application requires a learning process for the user. Obviously this learning process is dynamic, meaning that the person can start using the device with a very

simple process and then move on to more complex operations. For example, this may start at a very basic level, where all the user has to do is press an image to listen to a radio station. Later, once this level is controlled and it is considered appropriate to move on, the application can be set up so that the user has to press an icon for RADIO and then choose the desired station from a list. Obviously this requires a gradual learning process for the user, and it is the Tutor who chooses the most appropriate mode, depending on individual needs.

Remember that in INTERNET RADIO, like the other Azahar applications, the "structured steps[4]" method can be used in order to aid comprehension and this help the user to use the radio more independently. Example of structure steps for the radio:

The person using INTERNET RADIO may become more independent in handling the application as he/she learns how to operate it, and as aspects to facilitate self-determination are included.

One means of providing the opportunity for autonomy and self-determination with support from INTERNET RADIO, is to offer the user the chance to choose to listen to the radio during leisure time, as a reward after completing a task, etc. (depending on the purpose for which the application is to be used). In this way, for example, the image used for listening to the radio can be placed in a visible place for the user, so that he/she can choose this as an activity for his/her leisure time. A selection panel can be used for this purpose allowing the person to choose

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[4] Inspired by the strategies commonly used in the TEACCH programme [6], there is the possibility of including the steps which will be carried out from the main screen until the radio station is heard. These steps contain visual images and are more numerous depending on the complexity of the application.

between several enjoyable activities, including the radio. We must remember that choice is a key aspect of achieving autonomy in using the device. However, the learning process for making this selection must follow an appropriate methodology [7].

- **Some difficulties when listening to the radio**

There are a number of difficulties encountered by people with special needs, in particular people with autism and/or intellectual disability, which may have an effect on them when it comes to listening to the radio. These difficulties are related to:

<u>Headphones.</u> Although devices area usually fitted with speakers – meaning headphones are not necessary – it may be appropriate to use them. For example: in order not to disturb others when listening to the radio, etc. However, some people with autism and/or intellectual disability may have problems using headphones. In these cases, the radio should be offered only through the device speakers, or where this is not possible, a headphone desensitization programme should be completed.

<u>Auditory hypo-hypersensitivity</u> presents in many people with autism [8]. These alteration in sensory perception can have an effect on the use of INTERNET RADIO. Auditory hypersensitivity means that the person perceives sounds too intensely. These people may cover their ears, avoid noise, complain about noise, suffer from headaches, etc… They may also get agitated if the radio is too loud. For this reason the person adapting the device must bear this in mind and set an appropriate volume level.

<u>Auditory hyposensitivity refers to the person having a lower level of sound perception than usual.</u> These people may seem to be unaware of noise going on around them, give the impression that they are not listening, etc… They may also need music to be played at a higher volume than others. For this reason, the tutor must bear this in mind when adjusting the volume level on the device. However it is advisable to check the person's reaction and assess the specific circumstances in order not to disturb others.

■ Technological issues
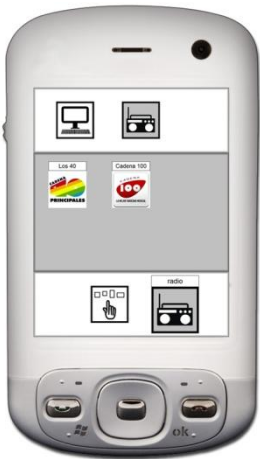
Ideally, the user should use the same device for this application from the start of the process. In the case of INTERNET RADIO, this should ideally be mobile device, which clearly has advantages and is more convenient in order to use the radio in different situations. For example, a small laptop or tablet, or a mobile telephone which the user can hold and carry around. However, it may be appropriate for the person to try out the application on a desktop computer, as this may make it easier to start using it, as the application is visible in a much larger size. Later, once the person is more familiar with the operation of the application, it can be transferred to mobile devices, provided they have a good internet connection.

If several different devices are to be used, the application must be identical on all of them in order to avoid confusion. Subsequently, as the level of complexity is increased, the application will need to be updated on all the different devices.

■ Download and Installation

We have done our utmost to simplify the installation and preparation process for this tool. However, we are aware that for some professionals or family members who have less experience with modern technology, this process may seem complicated. In these cases it is highly recommended to obtain support from a friend or relative who is more familiar with the use of computers and other technological devices.

Detailed steps for installation can be found at: http://www.proyectoazahar.org

Remember that in order for INTERNET RADIO to function correctly, the computer or mobile device must have an internet connection. It is also important to remember that, as explained in this guide, in order to add a radio station, you must find its associated website address or URL – which can be found on the internet or on the Azahar project website.

We advice using INTERNET RADIO on mobile devices with touch screens, such as digital tablets.

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