

## **Electric Autonomous Car & Shabbat**

It will probably take a few years before autonomous cars become the norm in major cities, but discussions are already developing around the theme of “The Autonomous Car and the Jewish Problem”, and the opinions presented by Halakha-minded rabbis who are willing to speak on the matter shed light on many other, current and real problems, facing the observant community. I therefore feel that it is important to consider the different facets and implications of using autonomous transportation, but before I present the views of some rabbis and answer the question whether one can use an autonomous car on Shabbat, I would like to make a prediction: no matter how the rabbis will rule on the usage of such vehicles on Shabbat, there will be a new divide in the observant community, between the Autonomous and the Non-Autonomous (no guarantee that these will be the names of the groups).

Historically, the general tendency among rabbis was to limit mobility on Shabbat, but until the onset of the industrial revolution, modes of transportation have not changed much in thousands of years. In Mishnaic times, the rabbis limited mobility by making decrees against riding animals on Shabbat, and boarding a ship from Wednesday on (if one boarded earlier he was allowed to stay on the ship.) The industrial revolution and modern times brought with them many new possibilities for traveling: steamboats, trains, bicycles, and motor vehicles. The instinctive, knee-jerk reaction of most rabbis to those new inventions was to forbid their usage on Shabbat. There were a few exceptions, allowing for riding bicycle, using public transportation, and boarding or staying on a plane on Shabbat.

Studying Halakha and precedents, however, is not sufficient when we are requested to make a decision such as this, because we have to consider the way these rulings affect the community. Unless you live in a completely segregated, or maybe even gated, observant community, you would be aware of the great tension surrounding the issue of traveling on Shabbat. In Israel, most people can easily live within walking distance to a synagogue, whether they are observant or not, but in other countries, and especially in American suburbs, things are different. The great distances people have to travel, including to get to the synagogue on Shabbat, have created new religious hierarchies. We can discern several groups among observant shul-goers in regards to their perception of mobility on Shabbat, which are listed here from the most to the least limiting

(I do not want to use the terms strict and lenient, because they are subjective: one who is strict in not swimming on Shabbat, for example, is lenient in allowing Oneg Shabbat to be diminished.)

Even within a Shabbat Eruv, no carrying is allowed. Women cannot push strollers and stay home all day.

- Carrying and pushing strollers are allowed, but no other form of transportation.
- Non-motorized modes are allowed for children only.
- Non-motorized modes are used by adults as well, including bicycle, rickshaws, pedal-powered multi-seater, skateboards, skates, and rollerblades.
- Public transportation is used in cities with non-Jewish majority, or private transportation with a designated non-Jewish driver.
- Driving to the synagogue is fine but one should park a couple of blocks away and walk the rest.
- Self- or valet parking is available at the synagogue (that includes synagogues under orthodox leadership, such as Nessah Israel in Beverly Hills.)

This list is not meant to determine what is permitted and what is not, who is observant and who is not, because if asked to draw a line between the two groups, each person will choose to draw it in a different spot. The intention is just to raise awareness to the diversity within those who belong to orthodox communities, and to understand that the perception and behavior of individuals is constantly shifting. While the rabbis stick to their instinctive understanding of what is allowed and what is forbidden, people cling to their own instincts. Overtime, critical masses are formed and new contingencies are created, for whom the standards of the old generation no longer apply. This is especially true regarding millennials and those referred to in professional literature as digital natives. They were born into a completely different world than those of us who still remember real diapers, rotary dial phones, roll down car windows, and (yes) AOL dial-up (centuries ago).

When we come to the question of autonomous cars, statistics show that the percentage of teenagers with driver's license in the US has declined, as many would rather rely on public transportation, Uber, and futuristic autonomous cars. Realtors are already promoting apartments

and condos in big cities without parking spaces, offering instead subsidies for Uber and public transportation.

The next generation of observant, thinking Jewish millennials, will split along the lines of usage of transportation, as well as the definition of the physical boundaries of Jewish communities. In an article published by Yediot of Israel on the possibility of having an Autonomous Shabbat Car, several Israeli rabbis explained why they think it is forbidden.

Rabbi Yisrael Rosen, who is also an engineer, is the founder and head of Tzomet, an institution providing solutions to Halakhic problems, mainly in the fields of security and healthcare. Many of his inventions rely on delayed or indirect actions. Rabbi Rosen says that Shabbat-car is no more than a fantasy, because:

*Airplanes use an auto-pilot system, but it is supervised by a human pilot. An autonomous car will also have to be supervised, if not by the driver, then for sure by a control center, in which people will constantly work, including on Shabbat.*

This statement is surprising when coming from an engineer, who has been working for forty years with teams of scientists from different disciplines, because it fails to do the basic research regarding the nature of the autonomous car. Currently there are autonomous cars on American roads with a driver behind the wheel, because they are still in the experimental and approval stage. The aim is to have a fully autonomous car which will allow passengers to sit back and relax, reading their morning papers (or blessings), until they reach their destination.

Municipalities are working with developers on gearing city streets and signage to fit the needs of autonomous cars, and the first stage of introducing such cars will probably be in closed environments. NYC, for example, might decide that only autonomous vehicles will enter the city, while all others will park and shuttle from the outskirts. Such an environment will guarantee a near zero chance of accidents and mishaps.

The other disturbing statement of Rabbi Rosen is: יהיה מן הסתם מרכז בקרה – “there will be, for sure, a control center, in which people will work on Shabbat”. When dealing with such a crucial question, one cannot make assumptions without checking solid facts. When autonomous cars become the norm, the sheer volume of information streaming in from millions of vehicles will make it impossible for humans to control it from a central command post, and if there will be

such a center it will be fully computerized. Those two statements either stem from lack of research into the nature of the car or from a deliberate attempt to hide the facts and argue that it is forbidden.

Rabbi Shelomo Aviner, who is considered one of the leading Halakhic authorities in the National-Religious movement, rules unequivocally:

*It is obviously forbidden. It is obvious that if a person electronically programs the car to drive on Shabbat it is forbidden, as well as if by entering the car he causes an electric action. The question is if he is allowed to use the car if everything was programmed before Shabbat and he does not activate anything on Shabbat. According to Bet Shammai in the Mishna, one's possessions must cease from work on Shabbat<sup>1</sup>, but the final ruling was as their opponents, Bet Hillel. It is true that the author of Bayit Hadash wanted to forbid such activity, but we do not rule like him. The Shulhan Arukh finally rules that one is allowed to start an action shortly before Shabbat, even though it will continue, autonomously, during Shabbat. It would seem, according to these sources, that it will be allowed to use a pre-programmed car, but this is not the case.*

*According to Rabbi Moshe Feinstein, one cannot use timers to operate machinery on Shabbat because this will allow factories to run as usual on Shabbat. This will be very degrading to the image of Shabbat and it is obvious that if such an option existed at the time of the Mishnah and Talmud, the rabbis would have forbidden it, just as they forbade telling a non-Jew to perform work on Shabbat. That is to say, using pre-programmed machinery will destroy the character of Shabbat, and it will be similar to the forbidden categories of עובדין דחול (non-Shabbat activities) and אורשא מילתא (people who hear the machines in action will think that they were activated on Shabbat.)*

Rabbi Aviner's thought process is interesting. He first states that if any action of programming occurs on Shabbat it is forbidden, without getting into details of how that action happens. There is also no discussion of the nature of electricity and its Halakhic status. If we deal with voice activated, fully electric vehicle, there is no room for such unequivocal ruling against it. But since Rabbi Aviner dodged this discussion we will address it later. Rabbi Aviner cites sources, from the Mishna to modern times, which prove that there is no prohibition in having one's possessions active on Shabbat, but he rejects them all with the ruling of Rabbi Feinstein against using timers.

Let us examine the question of using timers on Shabbat. Most Halakhic authorities see no problem with using timers, especially in light of the danger of leaving electric appliances on for more than 25 hours, and the need to save energy and money. Technically, you can program your coffee-maker and bread machine to provide you with fresh coffee and buns on Shabbat morning (per personal conversation with Rabbi Yitzchak Abadi of Lakewood.) The argument that if timers had existed in the time of the Mishnah the rabbis would have forbidden their use is tenuous, since we do not make new decrees after the time of the Mishnah. The Talmud also discusses an irrigation system which seems to use the principle of delayed action (Shabbat 18:1), and sees no problem with that.

The argument that using a pre-programmed car is an action which is not characteristic of Shabbat is subjective. In the past, there was a prohibition against running on Shabbat, but it was overruled because for some people it became a fun and enjoyable activity. The same is true regarding following and discussing news on Shabbat.

Finally, the argument that people who hear the machinery will think that its operation involves transgression of Shabbat is invalid, because part of the process of ruling in favor of a certain action is informing people that it is allowed, and with today's information highway, there is no doubt that everyone will be well informed.

The last rabbi to opine on the matter is Rabbi Yuval Cherlow, head of Orot Shaul Yeshiva and of the ethics department in Tzohar, a rabbinic organization which is considered the most progressive within Israeli orthodoxy. He chooses to focus first on the ethical problems associated with autonomous cars, for example:

There is the dilemma of the runaway car, heading toward a group of five people, where the driver could veer off, save the group, but hurt one by-stander. To whose life will be the autonomous car committed... just as ethical questions were discussed in other fields of AI (Artificial Intelligence) much before their practical application, so we should discuss those hypothetical questions, which are turning into real ones right in front of us. We have to discuss them with faithfulness to the Talmudic system which phrases those principals through analysis, reliance on precedents, and great creativity...

By bringing up these arguments, Rabbi Cherlow creates a false problem which could jeopardize the future of autonomous cars for observant Jews, thus rendering the question of using it on Shabbat almost irrelevant. Unfortunately, this is a result of failure to understand the nature of the technology, or a deliberate attempt to find reasons to reject it. With all the intellectual flare and ethical “sensitivity” of Rabbi Cherlow’s discussion, there is no basis for his fears, since one of the primary concerns of the programmers of the car is to ensure protection of human life. It seems that the rabbis interviewed for the Yediot article, Rabbi Cherlow included, only started paying attention to the autonomous cars recently, with the purchase of Israeli company Mobileye (many of whose founders and employees are observant) by Intel. But autonomous cars were on scientists’ minds since the late 1970’s, and with renewed investment and energy, since DARPA<sup>2</sup> launched its Grand Challenge competition in 2004. Several years ago, during a 500 miles cross-desert race, one vehicle was stuck for five hours, unable to determine whether the object in the middle of the road was a rabbit or a rock (it was a rock). Obviously, the focus of developers was on “teaching” the car between living creatures and inanimate objects, between animals and humans, and between humans moving toward the car and those moving alongside it or in a different direction (I know, it sounds like a modern Havdalah blessing.)

As a matter of fact, the technological breakthrough of Mobileye was the development of a system of multiple cameras around the vehicle, which mimic the way humans see and analyze their environment. They were able to create a system which, like a human driver, casts aside non-important elements of the environment, thus allocating more computational power to real problems and allowing the car to move smoothly and safely. In other words, when autonomous cars will become the norm, scenarios such as Rabbi Cherlow suggests will be non-existent, because cars will behave like expert human drivers, only with a much faster reaction-time.

Rabbi Cherlow continues to say that:

*Let us assume that we are talking about full automation [we are, that’s the whole point - HO], resulting in the transformation of the public domain into a weekday, at least the way we understand it today – the question will be which aspect is more important [pure halakha or protecting the spirit of Shabbat – HO]. I have been arguing for years that according to Nahmanides, the concept of עובדין דדור (non-Shabbat activities) is not a secondary concept but an integral part of the definition of Shabbat and it is therefore*

*more severe and forbidden. The fascinating question is where to draw the line between using electric devices such as AC and light which are not perceived as non-Shabbat activities, and between an autonomous car, and what is the possibility of the car becoming a part of our life.*

*I therefore believe that it will be forbidden to use the car on Shabbat, but the Poskim would be able to make some exceptions, for people with disabilities and for essential police activities.*

If you noticed, Rabbi Cherlow cites no source to support his decision. He says that he argues that non-Shabbat activities are in a more severe category, but it is not clear what are they more severe of. There is also no reference to activities which in the past were considered non-Shabbat, and today, because of social and cultural changes, are permitted. The answer to the “fascinating question” of where to draw the line between the use of different electric devices, is very simple: there is no line. From the point of view of pure Halakha, as long as one does not physically activate an electric contraption, it would be allowed to use it and enjoy it on Shabbat.

The allowance of Rabbi Cherlow for people with physical disabilities, which do not qualify as life-threatening circumstances, proves that he acknowledges that the use of the autonomous car is allowed on Shabbat, yet he states, categorically, that it is forbidden, while presenting the allowance as an extra-ordinary measure.

Let us summarize the opinions of the rabbis mentioned in the interview: Rabbi Rosen chose to ignore the simple facts of how autonomous cars operate. Rabbi Aviner’s arguments are more about one’s gut feeling and the character of Shabbat, and are not solidly anchored in Halakhic analysis and literature. Rabbi Cherlow first addresses non-existent problems, while failing to recognize or to study in depth the long history of the development of the autonomous cars. He then issues a sweeping statement that using the car on Shabbat is forbidden, without offering any sources for the prohibition or for the exclusion of certain scenarios.

These statements are in line with the general tendency of rabbinical leadership, to control and define the life of the individual, and to create public norms to which all will be committed. While this approach is understood and perhaps even laudable when applied to a specific institution, such as a school or a congregation, history has proven that attempting to apply it to the whole

nation, or to what is called today orthodox Judaism, results in the continuous shrinking of that contingency. Even among those who remain within the fold and continue to lead an observant lifestyle, there is a growing sense of discontent and a perception of that lifestyle as burdensome.

What we should expect of our poskim and religious leaders is honesty and transparency on Halakhic issues. Instead of baseless prohibitions and regulations, which they believe are necessary to maintain the character of the observant community, they should inform the public of the full gamut of Halakhic possibilities, and trust the judgment of their constituents. I have mentioned in the past the example of using electricity on Yom Tov. Sephardic rabbis, including my grandfather Hakham Shaul Fetaya, have allowed it, and my family has always followed their ruling. It never occurred to anyone in my family to turn on the TV on Yom Tov, even though lights were turned on and off, and electric appliances were merrily humming in the kitchen. On the other hand, I know hundreds of people who used to be religious but were turned off by the continuous stream of prohibitions and restrictions which were imposed on them without giving them a choice.

From my experience, when a rabbi lays out the possibilities within Halakha, and advises people to choose according to their ability, engagement, and stage in life, they will own the choice they make and will be committed to it, leading to a better relationship with God, Judaism, and their families.

Let us now look at the practical aspects of using an autonomous car on Shabbat, starting with the technology which is already widely available and used – voice recognition. Talking to Siri, Alexa, Echo, and their cousins on Shabbat, involves the indirect use of electricity, commanding a non-observant entity to perform a task, and using a sound system. When all these are combined, the action cannot be rendered forbidden on Shabbat.

As I have previously explained in my discussion of asking a non-Jew to perform a task on Shabbat, there is no biblical prohibition against it. The rabbis created the prohibition to prevent people from running their business as usual on Shabbat. The rabbis made exceptions, among them indirect request to perform a rabbinically forbidden task, and direct requests when the purpose is to enjoy Shabbat or prevent suffering on Shabbat.



The use of electricity on Shabbat has been defined by many great scholars as a biblical prohibition, but Rabbi Moshe Levi in Menuhat Ahava, and rabbi David Chelouche in Hemda Genuzah, have proven beyond doubt that there is no way to rank prohibition above a rabbinical one.

Using a microphone on Shabbat is widely perceived as forbidden, but this is a result of modern rabbis' decision to distance themselves of what they considered an emblem of nonorthodox synagogues. Rabbi Yosef Messas rules unequivocally that one can use a microphone on Shabbat. As a matter of fact, all orthodox Jews accept the use of microphone on Shabbat, only not publicly. I am referring to hearing devices, which, at least in their initial stage, were nothing more than an amplification system. No one ever argued that an orthodox Jew should not speak with one who is using hearing aids on Shabbat.

The conclusion, from a purely halakhic point of view, is that there is nothing inherently forbidden in talking with your AI devices and asking them to perform tasks on Shabbat. That ruling will apply to autonomous cars as well, when the technology will be globally adopted. This is not to say that everyone will or should use autonomous cars on Shabbat, but rather that the possibility exists. There will be those who will acknowledge that it is permissible but will decide to refrain from using the technology, there will be those who will adhere to their belief that it is forbidden and who will label those who use it as transgressors or heretics, and there will be many hues and nuances in between, with varying levels of public exposure.

The discussion of autonomous vehicles is still largely theoretical, but AI devices have been around for a while and they are getting better and better. Those who know observant communities can attest that among millennials and digital natives, the use of these devices on Shabbat is constantly growing, though away from the public eye, and it is up to the rabbis to decide whether they want to acknowledge the situation. Instead of creating new prohibitions, it would be advisable to start focusing in creating a wholesome, exciting, and engaging Shabbat experience, in which people will not feel a need or an urge to use this kind of technology on Shabbat.

Rabbi Haim Ovadia

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<sup>1</sup> In ancient times, it would refer to leaving olives in the press over Shabbat, today it could refer to activating a washing machine shortly before Shabbat.

<sup>2</sup> Defense Advanced Research Projects Agency.