SMART PARKING

What is Smart Parking?

Smart parking is an IoT (Internet of Things) solution that uses sensors and sensors in combination with a software to inform users of vacant parking spaces in a certain area. Most of the time, people can also directly reserve the spot and pay for it with an app.

How Does Smart Parking Work?

The way smart parking works is, that a sensor detects if, or if not, a car is standing on a parking spot. This can either be a proximity sensor or often also a camera. The advantage of using a camera is that it can view a wider space.

Advantages of Smart Parking

Smart parking systems can be a great opportunity to improve current traffic processes in cities. There are numerous advantages to these technologies, such as the following.

- **Reduces   Traffic**
  By always directly showing a user where there is a free spot, smart parking can reduce the time searching for it. Cars wouldn't drive around blocks and slow down if there might be a spot.
- **Reduces   Emissions**
  In addition to the point mentioned previously, by reducing traffic, it also reduces the emissions of cars.
- **Security**
  In addition to the improved efficiency, smart parking systems also provide security for the designated area. The software can understand which user tries to reserve a parking spot and can allow or deny access. Especially for offices or restricted areas, this can be a good solution to control who can enter   the   area.

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- **Real Time Traffic Data**
  With the data collected of the parking spots, cities can better analyse their traffic and thus improve its efficiency and detect errors.
- **Manage Retail or Office Parking**
  Not only cities will see benefits in using smart parking technology, also large office or retail parking lots can. For companies with a high number of employees that come by car, the technology can reduce time, emissions and costs of running the car.
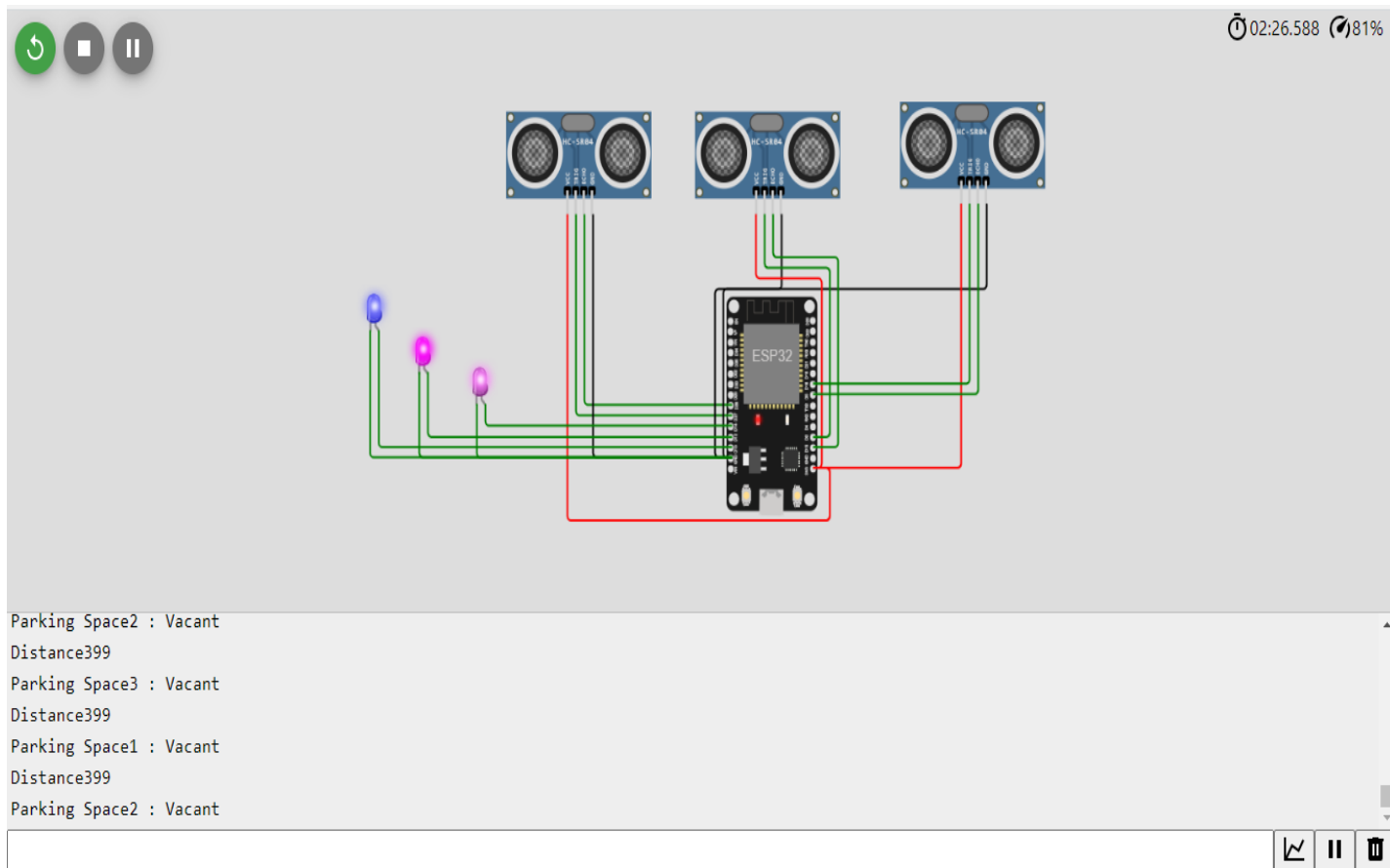
Disadvantages of Smart Parking

- **High Installation Costs**
  The initial costs of installing a smart parking system can be quite substantial. There are a lot of factors that influence the price and it might even be difficult to estimate the exact number, especially in very complex areas.

  One issue within cities are objects that are placed on or beside the street, which makes it harder for sensors to identify the parking spots. As a result, more cameras or sensors need to be installed which will increase the installation cost.
- **Getting a Permission**
  Another downside can be the difficulty in getting a permit from local authorities. If a private company wants to implement a smart parking system within a city, they need to get approval from the local government. Sometimes this might not be possible or in other cases might take a long time until a decision has been made.
- **Maintenance**
  Maintenance and repairs are important for smart parking systems, as they might not function properly due to a number of problems. Sensors can be damaged, leaves or dirt might block a camera, or there are software issues. All of that needs regular maintenance which can become

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costly. Overall, these costs are still likely cheaper than traditional parking spot systems.

- **User** **Operation**
  One last disadvantage can be the operation of the app to reserve a parking spot. For some users, it might be difficult to book a spot using the platform as it is different from the usual process. Therefore, a user-friendly design is an important aspect of a smart parking solution.

MY PROJECT:


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Parking Space2 : Vacant
Distance399
Parking Space3 : Vacant
Distance399
Parking Space1 : Vacant
Distance399
Parking Space2 : Vacant
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WOKWI LINK: https://wokwi.com/projects/377183245006678017

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