



V2V

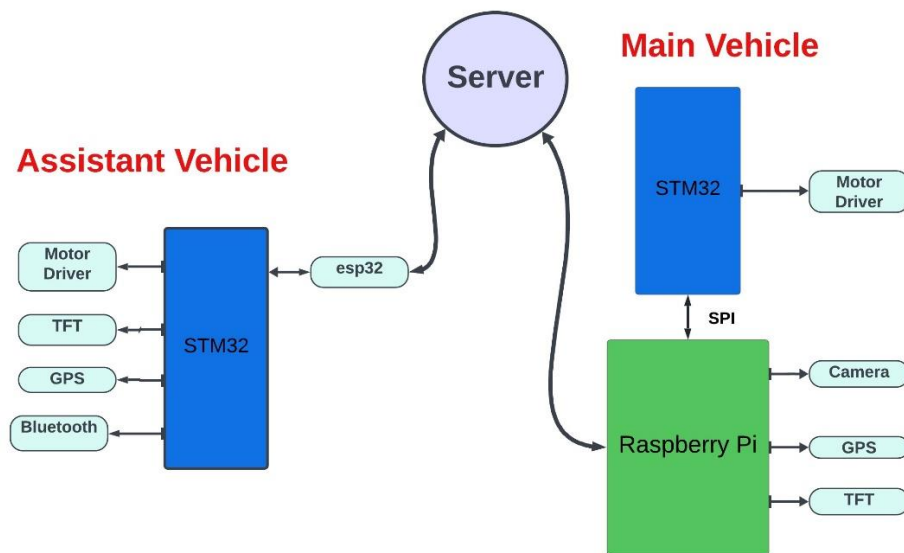
System Requirements

FU_ES

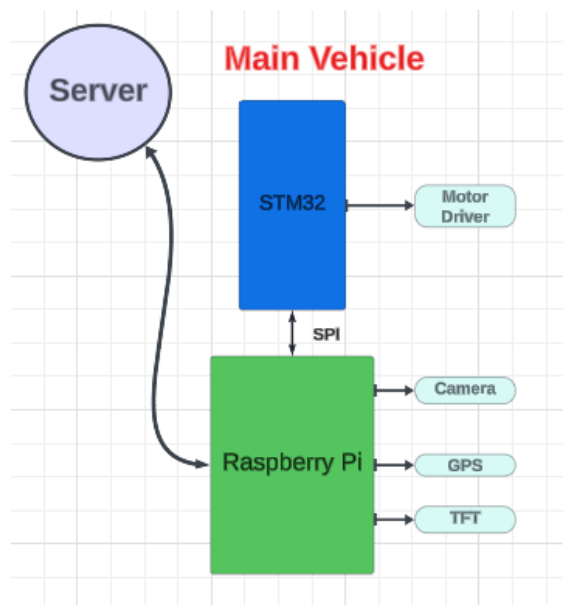
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■ System Design

- Main Vehicle
- Assistant Vehicle



➤ Main Vehicle



Needed Functions:

Vehicle Motion

```
void HMOTOR_voidInit          (void);
void HMOTOR_voidStop          (void);
void HMOTOR_voidMoveForward   (uint16_t Copy_uint16Speed);
void HMOTOR_voidMoveBackward  (uint16_t Copy_uint16Speed);
void HMOTOR_voidMoveRight     (uint8_t Copy_uint8SDirection);
void HMOTOR_voidMoveLeft      (uint8_t Copy_uint8SDirection);
```

Connection between STM and Raspberry pi (Using SPI1)

```
HAL_StatusTypeDef HAL_SPI_Init(SPI_HandleTypeDef *hspi);
HAL_StatusTypeDef HAL_SPI_Transmit_IT(SPI_HandleTypeDef *hspi, uint8_t *pData, uint16_t Size);
HAL_StatusTypeDef HAL_SPI_Receive_IT(SPI_HandleTypeDef *hspi, uint8_t *pData, uint16_t Size);
```

Interfacing with the Camera

```
void HCamera_voidInit      (void);
void HCamera_voidGetImage  (uint16_t *Copy_uint16pictureData);
```

Interfacing with the TFT

```
void HTFT_voidInit (void);
void HTFT_voidDisplayImage (const uint16_t *Copy_uint16pictureData);
void HTFT_voidFillColor (u16 Copy_u16Color);
void HTFT_voidDrawShape (Shape Dimensions);
```

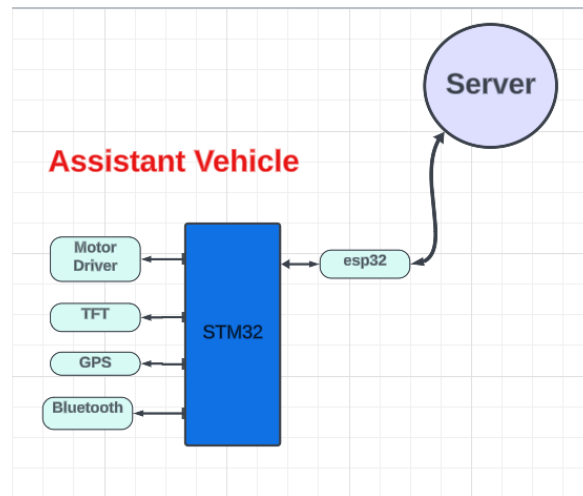
Interfacing with the WIFI

```
void ESP_voidInit          (void);
void ESP_voidConnectToWifi (u8 *Copy_Pu8WifiName , u8 *Copy_Pu8WifiPassword);
void ESP_voidConnectToServer(u8 *Copy_Pu8ServerIP);
void ESP_voidWriteData      (u8 *Copy_Pu8Data , Path);
void ESP_voidReadData       (u8 *Copy_Pu8Data , Path);
```

Interfacing with the GPS

```
.....
.....
```

➤ Assistant Vehicle



Needed Functions:

Vehicle Motion

```
void HMOTOR_voidInit                (void);  
void HMOTOR_voidStop                (void);  
void HMOTOR_voidMoveForward         (uint16_t Copy_uint16Speed);  
void HMOTOR_voidMoveBackward       (uint16_t Copy_uint16Speed);  
void HMOTOR_voidMoveRight           (uint8_t Copy_uint8SDirection);  
void HMOTOR_voidMoveLeft           (uint8_t Copy_uint8SDirection);
```

➤ Interfacing with the TFT

```
void HTFT_voidInit (void);  
void HTFT_voidDisplayImage (const uint16_t *Copy_uint16pictureData);  
void HTFT_voidFillColor   (u16 Copy_u16Color);  
void HTFT_voidDrawShape   (Shape Dimensions);
```

Interfacing with the WIFI

```
void ESP_voidInit                (void);  
void ESP_voidConnectToWifi (u8 *Copy_Pu8WifiName , u8 *Copy_Pu8WifiPassword);  
void ESP_voidConnectToServer(u8 *Copy_Pu8ServerIP);  
void ESP_voidWriteData         (u8 *Copy_Pu8Data , Path);  
void ESP_voidReadData          (u8 *Copy_Pu8Data , Path);
```