ZESTECH
Automotive Electronics Integrated Solutions Provider

ZESTECH LCD Instrument Solution For Motorcycles

Automotive Electronics Integrated Solutions Provider

Motorcycle Intelligent Instrument

About ZESTECH

Shenzhen ZEST Technology Co., Ltd. has its independent hardware and software R&D technologies, pioneered and innovated in the field of smart meters, and launched smart cycling interconnection meters; According to the main chip and functional positioning, the smart meters that can be mass-produced are: Leading Edition, Deluxe Edition, Premium Edition, Flagship Edition, and Smart Connection Edition;

Smart meters have the following advantages: convenient design, safety design, ultra-high cost performance, full-fit design, international design, etc.

Smart meters support personalized customization solutions: special-shaped screens, appearance, UI, HMI, communication protocols, etc.

Smart meter value-added functions

■ Built-in map navigation (default riding mode)

■ Mobile phone interconnection (supports Yealink, Carlife, Android Auto, Carplay)

■ Bluetooth helmet: Bluetooth phone, Bluetooth music

■ Voice operation control

■ Lane change assist system

■ Tire pressure monitoring

■ DVR driving recorder

■ Built-in 4G module communication

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TABLE OF CONTENTS

ZESTECH

01

Instrument Introduction

Instrument Development History

1 Machinery & Electronics

2 LCD/LED

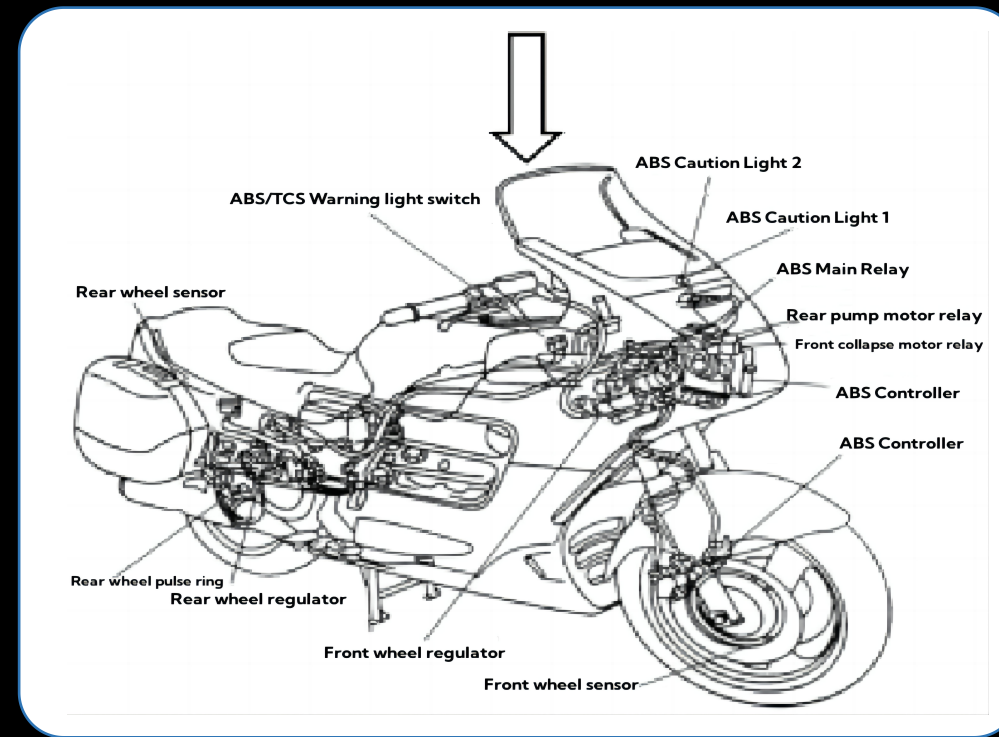**3** Microcontroller TFT

4 Fully Digital Instrument Panel

5 Advantages of smart meters

Advantages of smart meters:
- Media Playback
- Real-time Traffic
- Voice Control
- Mobile Screen Projection

Diagram labels:

- ABS Caution Light 2
- ABS/TCS Warning light switch
- ABS Caution Light 1
- ABS Main Relay
- Rear wheel sensor
- Rear pump motor relay
- Front collapse motor relay
- ABS Controller
- ABS Controller
- Rear wheel pulse ring
- Rear wheel regulator
- Front wheel regulator
- Front wheel sensor

- ■ This product is suitable for fuel motorcycles, electric motorcycles, two-wheeled vehicles, three-wheeled vehicles,
- ■ Supports warning lights, turn signal display, speed display, rpm display, water temperature display, gear position display, fuel level display, mileage record
- ■ Support TPMS tire pressure signal access and monitoring display
- ■ Support mobile phone screen projection function
- ■ Support radar blind spot monitoring and early warning system
- ■ Support DVR driving recorder function

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SN	Description
1	Positioning column
2	Display
3	Front shell
4	Lock front case screw
5	PCBA
6	Lock PCBA screws
7	Back shell
8	Locking screw for rear case

WORK DIFFICULTY ANALYSIS

Structural Explosion Diagram

Function (● indicates support, – indicates not support)		Smart Edition	Ultimate	Premium Edition	Deluxe Edition	Leading Edition
Basic skills	Vehicle Information	●	●	●	●	●
	Handle button	●	●	●	●	●
	Language settings: Chinese, English	●	●	●	●	●
	Time display	●	●	●	●	●
	Automatic headlights	●	●	●	●	●
	Automatic day and night mode	●	●	●	●	●
	Vehicle fault information display	●	●	●	●	●
	ABS settings	●	●	●	●	●
Extensions	DVR function, front and back dual recording, vibration reminder	●	●	–	–	–
	Yilian Mobile Internet	●	●	●	●	●
	Carlife、Android Auto、Carplay	●	●	–	●	–
	Bluetooth helmet function: Bluetooth phone, Bluetooth music	●	●	●	●	–
	Full screen navigation on mobile phone	●	●	●	–	–
	AI voice online recognition, online APP	●	–	–	–	–
	Built-in navigation map	●	–	–	–	–
	4G communication	●	–	–	–	–
	Collision Warning System	●	●	●	●	–
	TPMS tire pressure monitoring function	●	●	●	●	●
	3D car model rendering	●	●	●	–	–

Customized Development

Custom Categories		Custom Items
Custom Development	Screen type	Round screen, square screen 16:9, square screen 8:3, special-shaped screen
	Screen Size	Large square screen: 5 inches, 7 inches, 8 inches, 9 inches, 10.1 inches, 10.25 inches, 12.3 inches
		Small square screen: 2.8 inches, 3.5 inches, 4.3 inches
		Round screen: 2.47 inches, 3.54 inches,
	Exterior	Support various appearance and structure modeling, including: instrument appearance, mold structure modeling, and embedded design transformation;
	UI	Supports personalized UI design including startup screen, including: startup logo, UI color matching, dynamic effects;
	HMI	Support HMI design and development with other customized requirements, including: HMI interaction design, HMI design and development
	Protocol	Supports customization of various communication protocols: including: CAN, K-line, one-line, 485, LIN, other access methods, and communication protocol joint debugging
	Function customization	Supports customized development of a wide range of instrument functions and functional options, including: DVR driving recorder, lane change assist system, mobile phone interconnection, Bluetooth helmet, tire pressure monitoring

02

Function Introduction

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Basic Functions of Fuel Vehicle Main Interface

Left turn signal light

Water temperature display

Gear display

Fuel gauge

Time display

Warning lights

Right turn indicator light

Engine speed

Vehicle speed

Mileage

GEAR
N

SPORT

x1000r/min

0
km/h

00:00

TOTAL: 5 km

Basic Functions of Electric Vehicles

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- Speed
- Model
- Motor Power
- Gear
- Subtotal mileage

Display readings:
- MODE ECO
- 180 km/h
- POWER
- CHARGE
- 0%
- RANGE 0 km
- TRIP 0.5 km
- ODO 150 km
- --°C 00 03

- Time
- Phone Info
- Energy recovery
- Power display
- Driven distance

Mobile Internet

- Support IOS, Android mainstream mobile phone operating systems

- Support USB and WI FI connection methods

- Support in-app screen projection

- Supports access to Yilian's domestic version of "Driving Companion", provides map navigation services, real-time traffic conditions, electronic eye traffic reminders, congestion avoidance and other functions

- Supports access to Yilian's overseas version "Carbit Ride", providing Mapbox map navigation service projection display. Mapbox map navigation service has been used in more than 160 countries around the world. Yilian's overseas version mobile interconnection supports 13 major languages

- Bluetooth music playback
- Bluetooth phone function


Function Introduction

Mobile Internet

- The mobile phone is successfully connected to the LCD instrument through the Yilian mobile phone interconnection software

- Turn on the positioning function on your phone and open the map app. Set your destination and start mobile navigation.

- During navigation, the mobile phone screen is turned off and the real-time navigation image on the mobile phone screen is automatically projected onto the LCD instrument, which displays the navigation image in real time.

- The mobile phone and LCD instrument are paired successfully via Bluetooth. Open the Yilian mobile phone interconnection software

- Turn on the positioning function on your phone and open the map app. Set your destination and start mobile navigation.

- During navigation, the phone screen is turned off and the LCD instrument will receive navigation information from the phone via Bluetooth BLE, and use HUD prompts on the screen to display information such as straight going, left turn, right turn, distance, etc.

WORK DIFFICULTY ANALYSIS
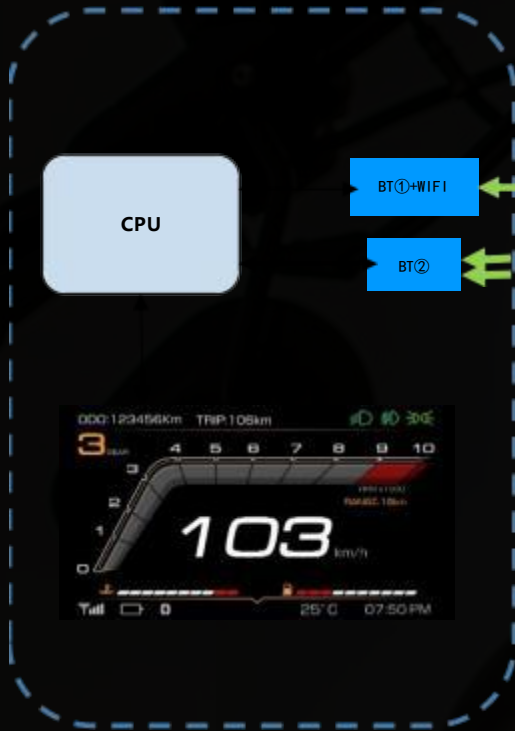
Bluetooth Helmet

- Helmets are essential safety accessories for motorcycle driving and riding. The integration of Bluetooth function in helmets allows users to control phone calls and mobile music playback on the instrument panel without having to take out their mobile phones. They can also listen to navigation prompts, voice calls, and mobile music in real time while driving.

- Due to technical limitations, the traditional Bluetooth connection method means that the mobile phone, as a Bluetooth device, cannot connect to more Bluetooth devices after connecting to the Bluetooth host of the LCD instrument.

CPU

BT①+WIFI

BT②

- In order to break through the technical limitations, we adopted a dual Bluetooth solution in the LCD instrument. Bluetooth 1 is connected to the mobile phone, and Bluetooth 2 is used as a Bluetooth audio source transmitter to enable the Bluetooth helmet to receive audio. The LCD instrument can be connected to two Bluetooth helmets at the same time.
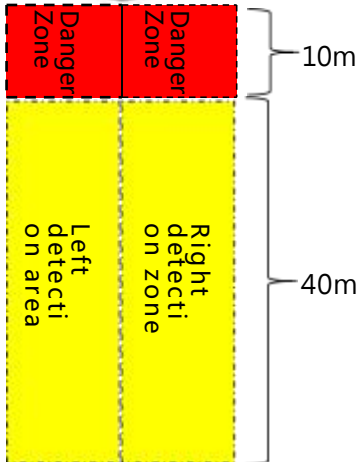
Driving Recorder

- **Supports simultaneous recording of front camera (1920*1080 30fps) and rear camera (1280*720 30fps)**

- **140-160 degree wide-angle shooting, support HDR high dynamic image processing technology**

- **LCD instrument can play video**

- **Built-in 3-axis G-Sensor, when a collision is detected during driving, the currently recorded video will be locked in time and stored separately in the locked video folder**

- **Supports parking monitoring function. After the vehicle is turned off, it enters parking monitoring mode. When abnormal vibration of the vehicle body is detected, the recorder is automatically turned on and video is recorded. The video file is stored separately in the parking monitoring video folder.**

The meter shows

Front camera

Rear camera

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Left warning light

Right warning light

Danger Zone | Danger Zone

10m

Left detection area | Right detection zone

40m

1   10

The meter shows

Front camera

Rear camera

Tire Pressure Monitoring

Front and rear tire pressure monitoring

- **Real-time monitoring of front and rear tire pressure**
- **The alarm will sound when the tire pressure is too high or too low, so that the driver can know the abnormal status of the tire in time, avoid the risk of tire blowout and improve safety**
- **Support multiple transmission methods**
- **RF Transmission**
- **Bluetooth transmission**

Intelligent Voice

- Wake up AI voice: "Hello Xiaohong" (modifiable) Wake up the voice assistant

- Request songs by voice and set navigation destinations
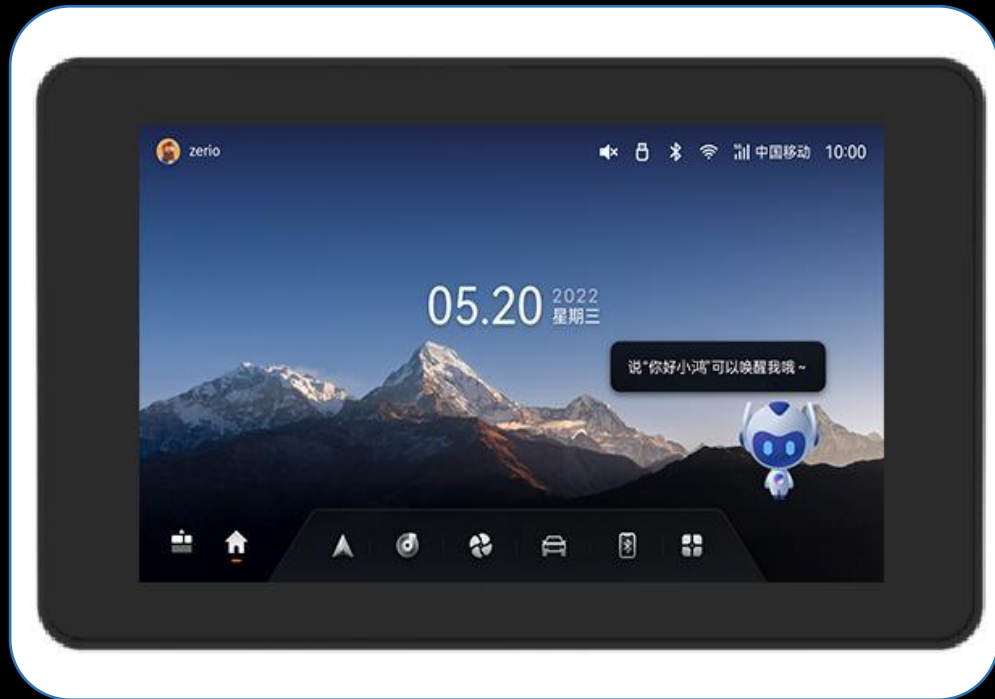
Live Navigation

- Amap Navigation (Default Cycling Mode)

- Support voice start, destination setting and other operations

- Voice-operated navigation settings

03

Platform Introduction

Specifications

Function		Smart Edition	Ultimate	Premium Edition	Deluxe Edition	Leading Edition
System message	Hardware platform	MT6762	T5	Tcc 8973	8386-U	ZH008
	CPU	Cortex-A53*4 2.0GHz Cortex-A53*4 1.5GHz	Cortex-A53 1.5GHz	Cortex-A7*4 1GHz	Cortex-A7 650MHz	Cortex-A7 650MHz
	GPU	IMG GE8320 3D Graphics	Mali G31 MP2 3D Graphics	Mali400 MP2 3D Graphics	2D Graphics	2D Graphics
	Memory	DDR3 up to 2GB	DDR3 up to 1GB	DDR3 up to 512MB	DDR2 128MB	DDR2 128MB
	Storage	eMMC 5.1 32GB	eMMC 5.1 4GB	eMMC 4.41 4GB	Flash 256MB	Flash 256MB
	Display support	1600*720	1920*1080	1920*1080	1366*768	1366*768
	Operating system	Android P	Linux5.0	Linux3.18	Linux4.9	Linux4.9
	Graphics Tools	Studio	COCOS	Kanzi	SDL	SDL
	Operating temperature	−40℃ ~ +85℃	−40℃ ~ +85℃	−40℃ ~ +85℃	−40℃ ~ +85℃	−40℃ ~ +85℃
	Stand-by current	≤3mA	≤1mA	≤1mA	≤1mA	≤1mA

Key Materials List

Function		Smart Edition	Ultimate	Premium Edition	Deluxe Edition	Leading Edition
Key Materials: Brand Model	SOC	MTK MT6762	Allwinner T5	Telechips TCC8973	Sunplus SPHE8386-U	ZH ZH008
	DDR	Samsung EMCP KMQE60013B	HYNIX H5AN4G6NBJR-UHI	Samsung K4B2G1646Q	Built-in 128MB	Built-in 128MB
	FLASH	Samsung EMCP KMQE60013B	FORESEE FEMDRW004G	Toshiba THGBMNG5D1LB AIL	ESMT F50L1G41A	MXIC MX35LF2G24AD
	MCU	GigaDevice GD32F305	GigaDevice GD32F305	GigaDevice GD32F305	GigaDevice GD32F305	GigaDevice GD32FCESRBT6
	BT transmitter module	Built-in	FSC FSC-BT936B	FSC FSC-BT936B	FSC FSC-BT936B	FSC FSC-BT936B
	BT&WIFI Modules	FSC FSC-BT805	FSC FSC-BW121	FSC FSC-BW121	FSC FSC-BW121	SD SD-8800D
	Light sensor	ROHM BH1730FVC	ROHM BH1730FVC	ROHM BH1730FVC	ROHM BH1730FVC	ALS ALS-PT204
	CAN	NXP TJA1042T/3	NXP TJA1042T/3	NXP TJA1042T/3	NXP TJA1042T/3	CSC CSC1042T/3

Electric Car UI Display

Economic model

Sport Mode

Energy saving mode

READY light on

■ The middle coil of the main interface represents the power output and energy recovery of the motor.
   For example, in economy mode, the higher the vehicle speed, the more the purple coil outputs. When the vehicle speed decreases, the green coil intervenes and the
   purple   coil decreases.
■ Ready light: When the Ready light of an electric vehicle is on, it means that the vehicle has made all preparations, has been started successfully, and can set
   off at any time.

Mass Production Customers

钱江摩托 QJIANG

HAOJIN 豪进摩托

ZONGSHEN 宗申摩托

巴山摩托

CENS Taiwan Sourcing Service Provider

YHaojiang

LONCIN 隆鑫

LIFAN 力帆摩托

XDAO 小刀

04
Business Model

Business model

Serial number	Design work content	Responsibility	Remark
1	Hardware schematics, PCB design, testing	Zestech	
2	Main structure design, mold opening, whole machine production, shipment	Client	
3	UI Interaction Design	Client or Zestech	
4	SOC software, including BSP, Framework, APP local applications (USB, Bluetooth, settings, mobile phone interconnection, upgrade applications, etc.)	Zestech	
5	MCU, CAN communication protocol software development	Zestech	
6	Software integration, testing, and release	Zestech	
7	System acceptance	Client and Zestech	
8	DV Experiment	Client	Zestech provides technical support
9	Manufacturing	Client	
10	After-sales service	Client and Zestech	

Contact Information

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WORK PLAN AND ARRANGEMENT

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Thank for Watching

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