

Do you fear Darkness ?

Our Automatic Lighting System will illuminate the way ahead of you!



First prototype of our lighting system

Our Features

- Automatic front light in darkness
- Immediate brake light by emergent stop
- Automatic bi-directional signal lights
- Integration of ambient light sensor, Gyroscope and Accelerometer
- Bright LED lighting with low power consumption
- Power from both battery and dynamo possible
- High reliability guards your safety

About us

BEST is a super team of 5 Microsystems Engineering students from Uni Freiburg. We are expert in developing advanced bicycle enhancement systems based on cutting-edge technologies of Microsystems. We offer you best improvements to your everyday cycling experience.



Sebastian Urban **Christian Weber** **Valentin Wittstock** **Vouria Younesi** **Jun Yu**

Contact

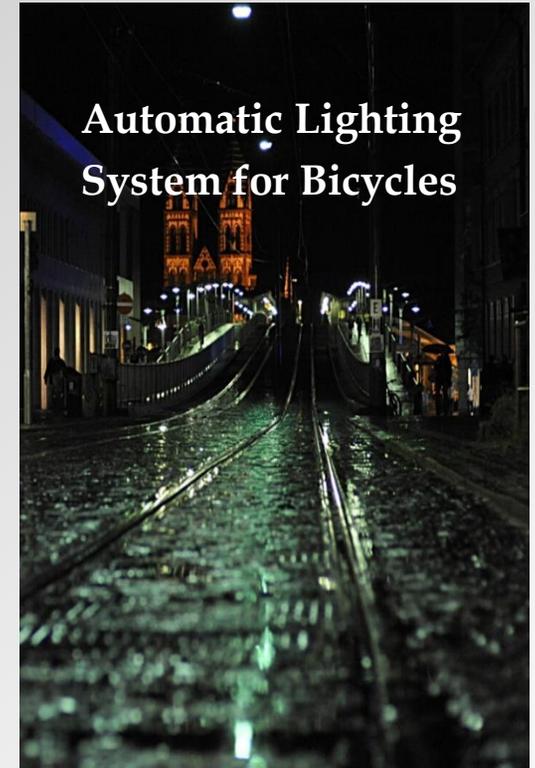
E-Mail : team@best-bicycles.de

Website : best-bicycles.de



Adviser

Prof. Dr. Jan Korvink
Georges-Koehler Allee 103
D-79110 Freiburg
Germany



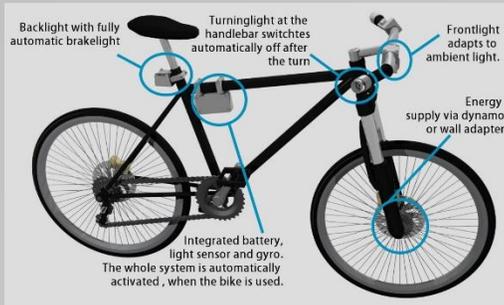
Automatic Lighting System for Bicycles

BEST



*Bicycle Enhancement Systems
and Technology*

System Overview



Major system components

These are the major components of the system, including the dynamo, lights and the central control unit.

Packaging Design



The housing package for the prototype is now manufactured by 3D-printing technologies. The main housing contains the battery and all the sensors is mounted on the frame of the bicycle and is connected by wiring with the light sources.

Working Principle

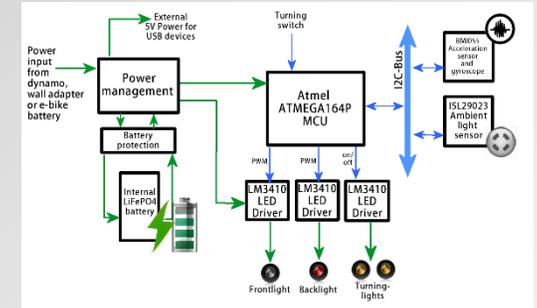
As shown in Fig.2 the System consists of 2 Sensors which are: Intersil ISL29033 light sensor, and Bosch BMI055 6-axis Inertial sensor, which are connected through the I2C Bus with Atmel ATmega164P Micro controller.

If the acceleration sensor detects any movement of the bicycle the Ambient Light Sensor will check the surrounding light conditions and automatically switch on the front- and backlight if needed.

The turning light is manually switched on by the user but through detection of the tilting of the bicycle with the gyroscope it is automatically switched off after the turn.

BEST Auto Lighting System activates Passion for Riding!

Power Consumption



Power distribution schematic

As shown in figure above, the system is powered by the harvested energy of the bicycle dynamo which is then step up converted and stored in a LiFePO4 battery.

Our Promising future

If we are given enough funding, our future lighting system will be greatly improved with modern packaging. The housing is expected to be upgraded to metal and ABS hi-tech materials. All the electronic components and connections would be embedded into the stems. Our future is boundless promising, and we are waiting for your sponsoring.